The Effect upon Mental Disorders of Intercurrent Bodily Disease.

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We propose in this paper to deal with the subject of the effects produced upon mental disorders by intercurrent bodily disease. The theme is an old one, but we feel justified in calling attention to it afresh, partly because it is at present prominently before the minds of many alienists, partly since those who have concerned themselves with it—in this country, at any rate—have principally been content with the mere indication of the facts observed. The pathology of the subject, the domain of experimental research and scientific speculation, remains comparatively unexplored. Our literary survey leads us to conclude that but little has been written upon this subject of late years.

With Nature's experiments in the present sphere of inquiry, most of us have some acquaintance. It becomes necessary to ascertain whether we cannot produce by Art similar, and even better, results; whether it may not be possible to bring under control and subordinate to the purposes of systematic cure those agencies which, accidentally introduced with some chance malady, are capable of producing in cases of insanity the profound changes which we have from time to time witnessed. In this connection it is appropriate to recall to mind the opinion expressed by Dr. Clouston some years since, to the effect that we shall some day be able to inoculate a septic poison, and get a safe and manageable counter-irritant and fever, by means of which acute at tacks of insanity will be cured. This conception, in an extended form, is acquiring increasing prominence in the minds of many asylum physicians. Its realization is possibly the most practical aim of our laboratory work.

For many years the method of "counter-irritation" has been in vogue as a means of treatment in acute mental disorders, especially, probably, of the affective kind. Various chemical means of "irritating," sometimes inflaming, the skin and subcutaneous tissues of the cranium, and of parts remote therefrom, have been employed. Such results as have accrued have been explained on theories of "metas-

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tasis," of "antiphlogism," and of "reflex action." We believe that this mode of treatment is rapidly falling into disuse; in fact, that it has practically been abandoned. This opinion is strongly supported by the speakers in a discussion upon the employment of counter-irritants (seton, antimonial ointment, etc.) which took place at a meeting of the Psychological Association of the Rhine Provinces just two years ago.

We doubt whether, even when any beneficial results are obtained by the methods in question, such results, as a rule, outlast the condition of local stimulation. They resemble rather the temporary "rousing" result of transient pain. At any rate, they are by no means comparable to the results of general diseases or of spontaneous inflammation, even, we believe, when such a radical measure as blistering of the scalp has been adopted. In fact, it is hardly likely that we shall get level with Nature on such cheap terms as have hitherto been proposed. To apply a blister is—as the late Dr. Moxon would have said—"tawdry easy." We need more pains, more investigation. We must consent to a more profound study of the *rationale* of cure in these cases, and found our methods on a more scientific basis.

A review of the literature of this subject brings out prominently the diversity of the bodily disorders which are capable of influencing mental disease existing in one form or another. Amongst these are the acute infective fevers (*e.g.*, scarlet fever, measles, variola), typhoid, erysipelas, ague, cholera, acute rheumatism, pneumonia and pleurisy, asthma, influenza, gout, cellulitis, and carbuncle. More specifically, effects (curative and ameliorative) have been observed in certain forms of mental disorder, in the course of which certain somatic diseases have supervened. For example (to quote from records and our own experience) they have been noted in epilepsy, as following the disturbance consequent upon inoculation with attenuated rabies virus, or after an attack of typhoid or erysipelas, or acute infective fever; in melancholia after erysipelas or gout; in mania (acute and chronic) after erysipelas, extensive cellulitis, or during an attack of thrombosis of a lateral sinus; in general paralysis (ameliorative only, of course) after extensive cellulitis; in stupor after acute inflammatory processes. Doubtless our hearers will be able to supply many more specific instances from their own experience.

We are disposed to think that the beneficial effects occur

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mainly in the affective disorders (mania, melancholia) and in stupor, and to a small extent only in the delusional insanities. Upon this point further information would be of interest.

For a bibliography of the subject we would refer to an article by Lehmann ("Zeitschr. f. Psychiatrie," 43 B., 3 H.). This summarizes the literature up to 1886.

Recently Drs. Macphail and Bruce ("Lancet," October 13, 1894) have recorded results sufficiently favourable to attract attention, which were obtained by them in various forms of mental disorder by the administration of thyroid gland extract. These observers worked on the theory that the febrile disturbance attending the thyroid treatment might be productive of mental amelioration, or even might bring about a cure, and their experiments appear to have had a measure of success. Whilst applauding the spirit in which their investigation was undertaken, we are not disposed to consider the procedure sufficiently radical. The report states that "a true febrile condition was produced in nearly every case," but we are not told what the temperature produced in the various cases was, and the information as to the degree of malaise and fever appears to us inadequate. But further, in our opinion it is by no means ascertained how far the mental alteration brought about in cases of insanity by intercurrent bodily disorders is due to the attendant fever, or to the action of a circulating toxine. The fever (*i.e.*, increased tissue-change, with increased production and increased loss of heat) is the manifestation of the poison, the evidence of its presence in the system. It is possible that the "feverish condition" observed (to quote an expression employed by the writers referred to) merely co-exists with the mental condition noted; the two may have a common cause—*i.e.*, the circulating poison.

In this connection an observation of Lannois ("Rev. de Médecine," June, 1893) may be quoted. It relates to a case of epilepsy, in which the fits ceased during an attack of erysipelas with a temperature of 104-105·8°. Five weeks after this attack a fit occurred. Subsequently the patient was attacked by typhoid fever, the temperature rising to 105°. Nevertheless, she had 2-4-6 fits daily. Lannois therefore concludes that the effect of acute intercurrent disease on epilepsy is not due to pyrexia, but to the toxine produced in the disease in question. In the case quoted, according to him, the toxines of erysipelas and typhoid respectively had different effects upon the epilepsy.

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In an article dealing with the subject of the present paper ("Journal Mental Science," April, 1893) one of us sought to examine the question as to whether the beneficial effects often observed in cases of insanity (especially recent and acute) in which cellulitis had supervened were due mainly to the local or the general disturbance. Various experiences, it was argued, went strongly to show—if they did not, indeed, prove—that these effects are due to the systemic disturbance, or something more profound than a mere inflammation. But no one, as far as we know, has as yet endeavoured to solve this question by the means there suggested, to which we shall later on allude.

In connection with the beneficial results often following upon an attack of erysipelas in cases of acute insanity, it is of interest to note the statement of Emmerich, to the effect that tuberculosis and diphtheria are also sometimes benefited by injection with the germ-free filtrate of erysipelas cocci, so that the introduction of certain toxines has a beneficial result in certain existing somatic disorders of bacterial origin; and similar results are to be observed when the same products are introduced in certain cases of mental disorder. If we may regard the beneficial results witnessed in the somatic disease as due to a neutralization of the toxine of the disease bacterium by the toxine introduced artificially, a similar explanation might conceivably be extended to the analogous instance of the mental disease. It must, however, be admitted that the number of mental disorders in which a sober, scientific use of the imagination will permit the conception of a bacterial origin is at present very limited (such as acute delirious mania, puerperal insanity). In the great mass of instances we can at present, invoking the agency of a toxine, merely regard the effect produced on the mental disorder by the engrafted disease as due to the direct action of the toxine introduced upon the brain-tissues (using this term, for the moment, comprehensively).

If the *modus operandi* of a salutary erysipelas is difficult to explain in the case of mental disorder, it is scarcely less so in that of malignant disease. The existence of a causative microorganism in some cases of malignant disease is believed in by some, but has not been established to the general satisfaction. The cases of amelioration or cure of a mental disorder by an attack of erysipelas are sufficiently remarkable; so also are the like instances relating to the neoplasm.

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In these, too, we can, if so minded, wax eloquent in hypothesis. We may incline to think that the sporozoon of carcinoma is destroyed by the penetrating toxine, even as—according to Emmerich—anthrax bacilli disintegrate in presence of the filtrate of erysipelas cultures; or we may speak of a "modification of perverted growths," a "modification of nutrition." Probably these general and indefinite expressions are all that our present state of knowledge will justify. Such expressions may be employed with as much reason in the attempt to explain the cure or amelioration of a mental disorder. We may say that the effect of the toxine of an engrafted disease—such as erysipelas—is the production of a "modification in the nutrition" of the cerebral tissues. Under this expression may be included an increased metabolism, dependent on a quickened circulation, and an increased activity of the depurative function. By this means permanent benefit might be expected to follow, not only in the acuter forms of insanity, but also in those more chronic varieties in which we apprehend that a gradual substitution (progressing to a certain stage) of lowly-organized tissue for essential elements is in progress. In the latter case benefit could, of course, only be expected when the formation of such tissue had not advanced so far as to forbid the restitution of the damaged nerve elements after its removal.

In certain instances of mental disorder, in which there is possible bacterial basis, it may hereafter be legitimate to invoke, in explanation of the beneficial results of an intercurrent bodily malady, some more definite *modus operandi* than that of a modification of nutrition. It may be shown that the causative virus is counteracted by the virus afterwards introduced. We may mention certain instances of mental disturbance in which organisms regarded as causative have been found.

In a case of acute delirious mania, Rasori ("Centralbl. f. Bakt.") describes an organism (bacillus) which he finds in the subarachnoid fluid and between the cortical cells.

Bianchi and Piccinino ("Annali di Neurologia," 1893) report a case of acute delirium, in which they found in blood drawn during life a bacillus which they regard as the cause of the disease. Bezzonico (quoted by Levinstein-Schlegel in his "Griesinger") states that Briand has found bacilli in the blood in three out of seven cases of acute delirium (not connected with a specific fever). Buchholz has also found

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organisms in such cases, though he has been unable to obtain cultures of them.

In the case of a girl who died in a severe attack of chorea —a condition in which symptoms of mental disturbance are common—Pianese (quoted in "Rev. Neurolog.") succeeded in isolating a bacillus from the spinal cord, injection of which into animals gave rise to marked symptoms of cerebral and spinal disturbance, the latter bearing resemblance to chorea. Cultures from the brain and spinal cord of these animals gave the same bacillus, which was confined to the nervous system.

Recently Pelizzi ("Rivista Sperimentale di Freniatria," 1892) and one of the present writers ("Journal Mental Science," 1894) have independently described a coccus in the blood-extravasate of hæmatoma auris, and Pelizzi's work goes to show that this is—at any rate in some cases—the cause of that affection. Further inquiry is needed to ascertain whether this view is well founded, and it is important also to examine the recent blood-extravasate upon the inner surface of the dura mater in cases of general paralysis —a disease in which othæmatoma often occurs—to see if these cocci occur in it also. This leads us to consider the pathology of the apoplectiform or congestive seizures occurring in general paralysis: it is possible these may be due to microbic action. Chantemesse has described attacks of hemiplegia and aphasia occurring during acute pneumonia (and in other toxic or infectious diseases), which he ascribes either to direct action of microbes on the nerve-centres, or to contraction of the Sylvian vessels or their branches, produced by their agency.

The not uncommon occurrence of such affections as othæmatoma and cellulitis in the course of general paralysis seems to indicate that micro-organisms find a favourable soil in the degenerate tissues of the paralytic, and flourish and produce local disturbance to a degree and with a frequency unknown in conditions of health. But if microbes are capable of producing these evident results upon visible parts of the body, why should they not also have an influence upon the cerebral tissues? We have already referred to possible disturbances in the blood-vascular system of the brain, and it seems to us that—quite apart from the pathogenesis of the main disease—certain of the phenomena noticed in the course thereof (such as epileptiform and apoplectiform seizures, or even attacks of emotional disturbance after remissions) may well be due to the morbific influ-

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ence of adventitious organisms which have gained access, and are enabled to flourish, by reason of the lowered vitality of the cerebral in common with other tissues.

In regard to puerperal psychoses we will only say, what has doubtless occurred to many, that these are prominent amongst the mental disorders in which an infectious origin is suspected. We are not aware of any experimental work upon this subject.

Lastly, whilst dwelling upon this topic of the toxic origin of mental disorders, and of phases of such disorders, we cannot pass by the interesting observations lately made in connection with the injection into animals of the urine of the insane. The subject is treated of in Prof. Bouchard's lectures on Auto-Intoxication in Disease, also by Mairet and Boscq ("Annales Méd.-Psychologiques," 1892-1893), and others. It has been found that maniacal urine injected into an animal produces excitement, and even convulsions, whilst that of melancholiacs causes mental depression, restlessness, and stupor. D'Abundo ("Rivista di Freniatria") has obtained similar results with the blood. The mental disturbance would appear to be produced by some noxious substance circulating in the system.

In some quarters various mental disorders and phases of disorder have been ascribed with over-much confidence, as it seems to us, to the action of supposed toxines produced in the intestinal canal by the decomposition of its contents. We consider that it is at present necessary to adopt an attitude of reserve towards hypotheses of auto-intoxication, although in the last volume of "Allgem. Zeitschr. f. Psych." Jacobson, of Copenhagen, has an able article in support of such theories.

The problems which have been touched upon in this paper appear to us of such practical moment that we should wish to see in progress a thorough and systematic clinical and experimental investigation, conducted by skilled workers in our several asylums, with a view to their elucidation. In place of the haphazard, occasional, meagre, and often uncritical statements concerning the effects of intercurrent maladies or mental disorders which we have hitherto permitted ourselves, it would be most useful to have careful clinical records, from several sources, of the relations between somatic diseases (local and general) and disorders of mind in which they have occurred. We know of no better illustration—if, indeed, any is needed—of the value of collective investigation than the monumental work of the German

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physicians upon influenza, in which are recorded its forms and caprices, and the rest of its acts, and all that it did—and left. In this country, with its motto of "More haste!" we can scarcely hope to rival German thoroughness. But a collective clinical investigation of the special kind here advocated is not too much to expect. The supplementary experimental investigation we shall ere long be justified in looking for also, now that the laboratory is coming to be an integral part of the asylum.

A research we would commend to the early attention of asylum pathologists is that dealing with the mode of cure in cases of acute insanity in which a diffuse or severe cellulitis supervenes. We should much like to see the results of injection, in graduated doses and with due precautions (after the manner described in an article in the "Journal of Mental Science," 1893, already referred to), of the filtered products of the organism causing the cellulitis.

The development of the acute hospital system in the several asylums, upon the basis adopted at Whittingham and Wakefield, is most desirable in our opinion. We heartily endorse Dr. Wallis's observations, in his last report at Whittingham, in respect to the desirability of concentrating attention upon the acute block, and of associated work there by the medical officers and the pathologist. For the elucidation of the problems connected with the influence of intercurrent maladies on mental disorders the association of the trained clinician and the laboratory worker, skilled in the methods of bacteriology and organic chemistry, is particularly needed.

In the meantime, whilst we await the realization of the hospital-cum-laboratory conception, these inquiries *can* be prosecuted. The Conjoint Laboratory is open to investigators. We trust that it may be possible for some asylum medical men to get such leave as will permit the carrying out of experimental work there, with a view to providing us with means by which we may imitate the beneficial effects of bodily disease upon mental disorder.

Dr. SAVAGE said they must all have been struck by the observations made by Dr. Goodall in relation to the effect of intercurrent diseases on insanity, an effect which there were few of them who had not had occasion to observe. There were one or two points that were rather interesting to be considered. In his own experience certain cases had definitely improved when there had been intercurrent diseases and certain others had not. He agreed with Dr. Goodall in believing that simple cases of mania, melancholia and stupor, were much more likely to be improved by intercurrent disease than degenerative cases, or cases of

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delusional insanity. On the other hand, some of the most marked cases of temporary improvement he had ever seen had been cases of general paralysis of the insane, and that fact left a very difficult point to be cleared up, as to the possible improvement in function, notwithstanding progressive decay of the organ. There was a man at Bethlem many years ago who, having passed steadily through the first and second stages of general paralysis, was looked upon as a marked and typical case of the third stage. The man was partly paralyzed. He was seized with epileptiform seizures lasting some 48 hours or more, during which time he bruised himself a great deal. Here it was important to recognize what Dr. Goodall had referred to, that not only in febrile disorders, but also in some disorders where there was a large amount of cellulitis, improvement occurred. In this case there was a very large amount of inflammation giving rise to four or five very large abscesses. It was a question whether the patient should be allowed to die with the abscesses full or not. It was decided that the five abscesses should be evacuated, and a large amount of pus was removed, and from that time the man steadily improved up to a certain point, at which he still remained, though he was still a general paralytic. He had passed typically through the first, second, and into the third stage. There was no doubt this was a case in which, owing to the intercurrence of other disease, a retrogression of the symptoms of general paralysis had taken place. The only other point he wished to refer to was the relationship of these intercurrent diseases to acute cases of mental disorder. First of all he would say it was his experience, but he would like to have it confirmed or corrected by that of others, that if a patient suffering from acute mental disorder of the affective type who had only been ill for quite a short period was affected by scarlet fever, typhoid, or the like, the improvement which almost certainly would take place would only be temporary; so that if a patient had been suffering from acute mania for two or three weeks, and then got an attack of typhoid, the symptoms of mania might be arrested for the time, but on recovery from the typhoid or rheumatic fever he would pass again into acute mania or melancholia, as the case might be. If on the other hand he had been ill three or four months, the chances were that after the attack of the acute intercurrent disease the symptoms would not return. This was one of the most difficult problems with which they had to deal. They would see a man who had been suffering from chronic insanity for many years have an attack of pneumonia, and that chronic dement appeared for a certain number of days to be perfectly sane and reasonable, only to relapse again afterwards. Another point he would enforce from his own experience was that the improvement depends upon one of two things—either upon acute pain or rise of temperature. He was quite sure that it did not depend upon rise of temperature solely, nor did it depend upon pain solely. He remembered one case especially in which a patient who had been extremely maniacal developed toothache with inflammation of the jaw. He suffered very great pain for some days, and during the time of this pain his mental state improved. Other cases were seen to depend very much upon temperature, and he had noticed cases in which as soon as the temperature was 103° or 104° the mental symptoms cleared up, and when the temperature fell to normal the mental disorder recurred. As for experimental treatment, he had often wondered whether counter irritation in former days as applied by the rod, and in later days as applied by blisters, had not something to reckon upon. Possibly seeing that certain injuries were followed by certain improvements, there was more reason in it than they were inclined to admit. Unfortunately, however, his experience of very large blisters had not been satisfactory, and whilst agreeing with Dr. Goodall in saying they could follow nature, as far as blisters were concerned they were rather crude, and did not give the results they would like.

Dr. MICKLE said the point had been raised whether, in a case of mental disease which was supposed to be of a microbic origin, a cure might be effected by the introduction of other toxins and microbes. There were no doubt many cases of nervous disorder which were the outcome of intoxication of the system by microbes, and taking that, and also the second fact, that many microbes were

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either antagonistic to one another or enhanced the effect of each other, it followed, putting the two things together, that in given cases in which mental disease was the result of intoxication, either it might be made worse or might be improved by the introduction of other toxins. There was a possibility of such a result, because in experimental microbic intoxication of animals it was found that the introduction of other microbes would in some instances increase the effect of the poison, or neutralize it to a certain extent. He was not speaking, of course, of the introduction of the anti-toxin of a particular microbe as neutralizing the toxin; that was another matter altogether; but considering that many nerve lesions and mental disorders were so produced, the suggestion thrown out by Dr. Goodall was well worth consideration. With regard to the effect, on disease of the brain, of fever occasioned by inflammatory affection, he held that it is sometimes beneficial. When one considered the enormous effect of fever upon the organism, the tremendous amount of change induced, and the excessive amount of waste that occurred, it would be seen that there must also be some very marked effect upon the nervous centres. Not only so, but the idea that disease of the brain could be cured by the effect of fever, or of inflammatory affections accompanied by inflammatory fever, was quite analogous to what was already known in other cases, such as the cure of inveterate chronic skin disease by the setting up of inflammatory affections, or by fever. If the skin could be so cured why not the brain? A further point was raised by the paper, as to the effect in like cases of injuries, and the inflammation following injuries. One saw that occur occasionally; that an inflammatory affection following an injury led to the recovery of the patient. He knew the case of a man with chronic insanity who went for a carriage drive. The carriage was upset, and the man was thrown on to a heap of stones, with the result that his head was much damaged. A great deal of inflammation followed, but the man's insanity had recovered before his scalp had. He would not, however, suggest that lunatics should be treated as a rule on the same lines as that case, in which, however, the result had been most extremely favourable.

Dr. WARNOCK said he had had cases under his care in which intercurrent disease had affected illusional insanity favourably, but in others it had not. In one case a man came in 1887. He had delirium. After a time he developed an inguinal hernia. Then he got the idea that he was being poisoned, and he used to vomit a good deal. He gave considerable trouble. He would not wear a truss, and the vomiting he put down to the poisons given in his food. This went on year after year; they could not get him to adopt any cure for the hernia. Last year there was a difficulty about the hernia, and he had to stay in bed. Eventually he allowed them to put a truss on, and from that time onward he had no vomiting. If the subject was now mentioned of his being poisoned he got angry about it, and almost denied that he ever suggested that he was poisoned. Another case of illusional insanity was that of a woman, who imagined that various things were done with her. She had attacks of gall-stone, jaundice, pain, and collapse, and whenever this happened she thought she was being confined, and that during the night the child was removed by the attendants. Next day she blames us with having done all this without her knowledge, and she elaborates it by stating the attendants are men dressed up, and are the cause of her being in the family way. There was another case of a man who had piles very badly, who had the idea at night that there was unnatural intercourse had with him. Dr. Goodall had spoken of the more ordinary case, where an acute attack of disease affected the insanity. This was a thing met with again and again, and even since receiving notice that this paper was to be read he had had one or two such cases. One was a case of acute mania, which came in three weeks ago, or less than that. The case gave a great deal of trouble. On going round one morning the attendant drew attention to a swelling on the knee, and said the patient was very gouty that morning. It proved to be erysipelas of the knee. The man was put to bed and kept quiet. In a very short time pus formed, and from that time forward he got quite well both mentally and physically. In another case of melancholia, which commenced in 1888, the patient during the last few weeks had a carbuncle, and

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when he got over that he was so well that his friends were able to take him home. In another case a man who had maniacal attacks sometimes had gout. When he had the gout the maniacal attacks would go off very quickly, but in other cases they would last a long time.

Dr. DOUGLAS said the experience of those who approached the subject from the point of view of general practice was quite the opposite to that of Dr. Goodall, viz., that disease was due to insanity, and that he looked upon it as curative. In his own practice some diseases appeared to have induced insanity; for instance, in cases of inflammation of the lungs he had seen mental disease arise, and in cases of puerperal fever it was very well known that this was the case. There was also another class of cases which were very interesting, but in which it was difficult to say how far the insanity was due to one cause or the other—he referred to insanity after operation. He could recall two cases of his own in which there was amputation of the breast for malignant disease, and those operations were followed by mental disease. It seemed strange that that which cured should also cause, to a certain extent, of course; but the study of this subject would not be complete unless that other view of the picture was also looked at, and the two required to be considered together. He rose in hopes that some one might be induced to say something with regard to that point.

Dr. LLOYD ANDRIEZEN referred to cases in his own experience where chronic weak-minded and slightly-demented patients had brightened up considerably under intercurrent attacks of facial erysipelas, lobar pneumonia, cellulitis with or without suppuration, and other febrile and septic (toxic) conditions. But on the other hand, many cases of such brain disease, or cases of melancholia, stupor, adolescent and other manias, and the alcoholic and chronic degenerative psychoses, showed no improvement from intercurrent affections of the sort mentioned. Of course, it was a natural tendency in human nature, whenever improvement in the course of an insanity occurred, and especially if such improvement was of a startling, even though evanescent character, that it should be recorded; whereas cases on the other side of the account were very liable to lapse. Results would thus apparently be obtained which really came out with a balance on the wrong side of the account. From his own observations he was inclined to believe that improvement occurred only in a small minority of cases, and that in several of these it was also temporary and fleeting in character. The reason for this he would discuss later. At the outset of our inquiry we would not only have to eliminate such fallacies, but to exclude a large and important group of the insanities in which investigations of their ætiology and pathogenesis would seem to indicate that toxic factors are absent as causal or even casual agents. I refer to the hosts of idiocy, imbecility and congenital weak-mindedness, congenital moral, social, and sexual perversions, cases of so-called *folie hereditaire*—the subjects of early mental obsessions, of irresistible insane impulses, of systematized delusions, whether of the simple or polymorphic types, and of so-called moral insanity (*folie raisonnante*). The whole hosts of these presented chiefly in their own persons, and frequently in their parents, both the psychical and physical stigmata of degeneracy. Passing from these to cases of general paralysis, or to those insanities due to disease, not only in the brain and nerve-tissue proper, but in the vascular and nutritive elements which also enter into the constitution of the nervous system, such as many types of the alcoholic insanities, those due to saturnism and those associated with cardio-arterial diseases (atheroma, endarteritis obliterans), including syphilis, the pathological conditions which underlay these insanities were so wide-reaching, so complex, and often so profound as to make us hesitate before we can ascribe such remissions and intermissions as we see in their course (when intercurrent disease affects the patient) to the actual toxic action or toxic products set free by such disease. And, further, when, as Dr. Savage stated, we see improvement of a temporary kind occur in chronic dements who, while otherwise apathetic, heavy and stupid, may in the course of some fever or febrile disturbance utter such phrases or sentences, or be able to converse in a manner, and for a moment in a way that is veritably startling even to the experienced alienist, does not that

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sane experience tell us that a moment after he may relapse to the same hopeless and helpless fatuity which is the real expression of his atrophying or degenerated nervous system? In such cases we have no indication to look for serious practical results from imitating the method of nature by producing intercurrent inflammations and fever, and thus hoping to ameliorate the dementia. Toxins, like uric acid, have been invoked of late to explain the phenomena of natural sleep, of headache, migraine, of epilepsy, of depression of spirits, of exaltation, of cardiac anxiety, of gout and rheumatic affections, and apparently of the most opposite and contradictory phenomena of health or ill-health which a person might exhibit during his life. I can only envy the intellectual dexterity which has enabled certain observers to deduce all these effects from one single condition, *i.e.*, uric-acidæmia. But in the insanities, at any rate, when one penetrates beyond the superficial symptomatology it is to find a thousand and one roots from which the disease grows; from hereditary and chronic degenerative vices of nervous and bodily organizations of the most protean and teeming forms which one or both parents or other ancestors may exhibit, from toxic agents—and here we are on safe ground—like alcohol, morphia, lead, the miasma of soil-water and atmosphere (cretinism combined with degeneracy), diseased food (pellagra), from essential neuroses or psychoses in the parent, like slight paranoia, epilepsy, chorea, hysteria, often with their accompanying physical (somatic) stigmata. Take all these vast groups away, and even out of what remains the presence of bacterial and toxin-producing agents as a causative factor must be small. For where adequate causes—vices of heredity and adequate stresses of life—can be found in the history and antecedents of the patient to account for many of the insanities, the *modus operandi* of *these* should be more minutely investigated. It is in a way unfortunate that so much stress should be laid on the last word of the phrase, acute delirious *mania*. It was a grave acute delirium with fever, and as serious as typhoid or other fevers. It was a grave bodily disease *complicating* or occurring on the basis of an insanity which had been previously existing. Just as any specific fever (typhoid, erysipelas, influenza, epidemic cerebro-spinal meningitis, and other such) can occur during the course of the various insanities, so *delirium acutum* may occur in alcoholic, syphilitic, general paralytic, epileptic, and melancholic or debilitated neuropathic and maniacal subjects, amongst which last come puerperal cases. Its pathology is thus a complicated one, and this, I think, mainly accounts for the diversities of the lesions described in the few recorded cases in medico-psychological literature of patients dying from *delirium acutum*. Therefore I think the examples of the puerperal and acute delirious fevers have of themselves only an indirect bearing on our theme. A few words with regard to the *modus operandi* of intercurrent fevers, etc., in brightening up the intellect of patients. We know that in periodical attacks of mild mania, or in the early effects of alcohol, or, again, in those hypnotic and allied states when the brain can be aroused, stimulated and quickened in certain emotional and intellectual spheres, that there will often be a quickness and vigour of flow, a versatility, a bizzarie, and a richness or pseudo-richness of ideas and conceptions which to the observer may sometimes seem almost marvellous. An individual in his life will come into contact with and see, hear, or otherwise experience more things than he can possibly remember by voluntary effort, and yet the incidence of disease or the disturbance of dreams, etc., will often conjure these past images up in fruitful abundance and with a vividness that is sometimes astonishing. Is it surprising, then, that under the influence of some febrile or toxic condition that is evoked by fever, alcohol, opium, or other drugs, or during recurrence of maniacal excitations of the brain, that a stupid patient should repeat poetry or prose, things he may have heard or read before; that the arithmetical stupid should, *pro tem.*, show mathematical brightness; that extraordinary inventions should be made, or even striking artistic creations (comedies, paintings, etc.) should be evolved from the brain which is in a state of seething erethism? (An excellent chapter on this topic is found in Lombroso's "Man of Genius," p. 161 *seq.*) And even in a weak-minded or early-demented case a febrile toxic or other rousing-up and excitation of nerve-currents throughout the whole brain

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will occasionally issue in the expressions and thoughts they may utter or the things they may do which seem too clever and too brilliant for such a patient. So in the sane average man there might be a brightening-up of the faculties temporarily from disease, alcohol, etc., and if from febrile disease the concomitant acceleration of tissue metabolism in brain and body, the quickening of the circulation, all point to the increased vital and physico-chemical activities going on in the organs, so that often such individuals would waste if the process continued. It was natural, therefore, that in a dement or a melancholiac, etc.—whose brain tracts and channels were more or less undergoing slight fatty or other degenerative changes, both in the dynamical connections of nerve-cells and in their internal nutrition—that under the exciting stimuli of the fever process, or certain toxic and septic agents, those partially blocked or difficultly pervious tracts, centres and channels of brain-tissue might be forced and even flooded out, so the individual utters or does something which is rational, brilliant, startling, and the last thing to expect, if one did not know that the mechanism in the brain for such conduct, though clogged and degenerating, was still there, and not organically destroyed. If it be—and this explanation seemed to him most reasonable—that the above was the *modus operandi* of the intercurrent disease on the brain, *e.g.*, in evoking into temporary activities mechanisms yet undestroyed, it would be obvious that the subject assumes a different aspect, in which, however, there would still be ample field for investigation.

Dr. GOODALL, in reply, said the views he put forward in his paper had in the main been confirmed by the various speakers. The discussion had shown two things: first, that cases such as he had referred to were well known to most of them; and, secondly, that the subject was at present largely hypothetical and theoretical, and the experimental field had not yet been thoroughly opened up. Dr. Savage agreed that affective cases were more improved than others. He (Dr. Goodall) was first led to consider this subject by the very graphic description he used to hear from Dr. Savage, in Bethlem, with regard to the effect of alternating neuroses and of intercurrent disorders, and the case quoted as having occurred in Bethlem was one of which he (Dr. Goodall) had a distinct recollection. He had seen a similar case in which hyoscyamine was injected, but it must have been with a dirty syringe, for very extensive cellulitis was set up, but the result was that the cellulitis did more good than the hyoscyamine. He was not disposed to think that acute pain had such a pronounced effect as the circulation of some noxious or poisonous substance or a high temperature. He was ready to admit that either high temperature or toxins would produce some considerable results, but acute pain would, he thought, only produce minor results. With regard to blisters, Dr. Savage also agreed that the day of blisters had practically gone by. In reply to Dr. Mickle's question, he really was not in a position to say whether it was high temperature or the toxin that produced the result. The subject was altogether *sub judice*. He only knew that in some cases the temperature was very slightly raised when the effect was very marked. In some of the cases observed the temperature was only 99 or 100, whereas the effects were very marked. He thought there must be something else in those cases. Dr. Andriezen had inquired whether there was any case of insanity where improvement had not occurred when acute disease supervened. He did not know of any such record. It certainly should form part of an investigation, and such cases ought to be included with the others. Dr. Andriezen was rather inclined to destructive criticism, and spoke much of the narrowing of the field in which good could be done. He was inclined to think that, notwithstanding, the field was pretty extensive, including as it did acute mania and melancholia, stupor, and general paralysis (amelioration). In conclusion, he thanked the members for the attention given to his paper.

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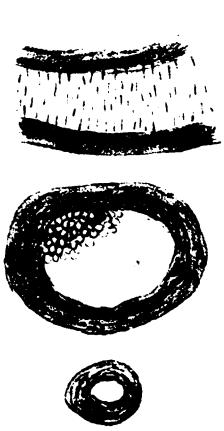


Fig. 1.

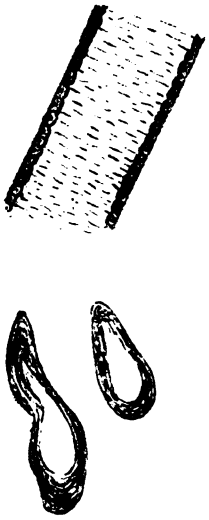


Fig. 2.

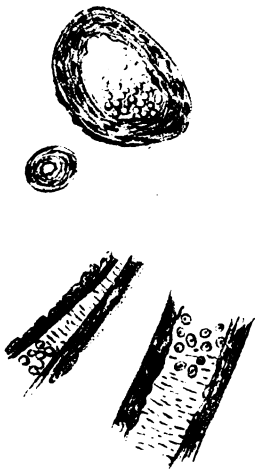


Fig. 3.

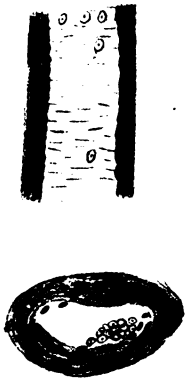


Fig. 4.



Fig. 5.



Fig. 6.

TO ILLUSTRATE DR. BRISTOWE'S PAPER.

H.C.B. del. Dardenas, Finnis & Co. Lith.

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EXPLANATION OF PLATE.

FIG. 1. Vessels of pia in contracted granular kidney (× 420 diam.)

FIG. 2. Vessels of pia in health (× 420 diam.)

FIG. 3. Vessels of pia in general paralysis with healthy kidney (× 420 diam.)

FIG. 4. Vessels of pia in general paralysis with contracted granular kidney (× 420 diam.)

FIG. 5. Vessels of cerebral cortex in contracted granular kidney (× 600 diam.)

FIG. 6. Vessels of cerebral cortex in general paralysis with healthy kidney (× 600 diam.)

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