the Hull Borough Asylum the proportion was the smallest, but we have little doubt that at the new asylum it will be possible to hold more examinations.

On the other hand, it is worthy of remark, that at the Kent Asylum at Barming Heath, there was a post-mortem examination after each of the 129 deaths, and this was also the case at the Leicester Borough Asylum, though of course the deaths were much fewer, being only 37.

A reference to the column in Appendix (B^1) will show that in several asylums there were nearly as many examinations as deaths.

The Data of Alienism. By CHARLES MERCIER, M.B.

(*Continued from page* 16.)

Following the estimation of the state of the blood comes naturally that of the state of the circulation; and for the purpose of the alienist the efficiency with which the peripheral circulation is carried on is the main thing to be determined. From his point of view it is of far less importance to discover an insufficiency of the mitral valve than to find a cold blue flabby hand or nose; for a damaged valve is consistent with an efficient supply of blood to the highest nervous centres; but if one part of the peripheral circulation is seen to be badly carried on, the inference is unavoidable that the circulation in other peripheral regions is similarly defective. The direct evidence of the condition of the cerebral circulation obtainable by the ophthalmoscope should not be neglected. Although the "heat of the head" is a matter of prime importance among the laity, and is commonly considered by physicians as of some value, yet, having regard to the fact that the whole of the face and scalp are supplied by branches of the external carotid artery, while the encephalon receives its blood mainly from the internal carotid, I was for some time doubtful whether much stress should be laid on this external temperature. I have, however, seen a case in which not only did the head sweat freely, but steam rose visibly for many consecutive hours from the scalp of a woman lying in a well-warmed ward, and without any fluid or medicament being applied to the head. In that case there was found after death the most excessive congestion of the whole cerebral substance.

The Respiratory Function.—Perhaps the most important and useful piece of advice that could be given to a person entering on the care of the insane would be: "*Always suspect that your patient has pneumonia.*" Probably more than one-half of the mortality of dements is due to this disease, which very often is extremely insidious in its onset, attended by few and slight symptoms, and by ill-marked physical signs. An old woman is noticed to be more feeble than usual; she totters as she walks; she declines her food. But she makes no complaint, suffers no pain, coughs so little that it has not been noticed; her pulse is quiet, her tongue clean, her temperature little or not at all raised. On close observation you notice that she breathes a little more rapidly than usual, and her respiration is shallow, but there is nothing very marked—nothing to make you suspect grave disease. Yet when you examine the chest you find the base of one lung completely consolidated. Such is the history of scores of cases. Again, of whole classes of idiots, almost every individual dies of tuberculosis. The connection, too, of phthisis with some forms of non-congenital insanity is established. Occasionally the lung-disease and the insanity appear together. More rarely the activity of the one disorder alternates with that of the other. The tendency towards phthisis is always a factor of especial gravity in a case of insanity. Hence the alienist should be constantly on the watch, in the young for phthisis, and in the old for pneumonia.

The estimation of the renal function is important to the alienist not only because the accumulation of waste-products in the blood, which failure of this function permits, may directly produce alienation; and not only because of the close connection between renal disease and gout, which is another direct cause of such disorder—but because the condition of the renal function in middle life is an index, if not to the amount of, at least to the tendency towards, fibroid degeneration, not only in the kidneys, but in all the tissues throughout the body. If, in a person who has recently and gradually become insane, we find urine of low specific gravity, albumenuria, uræmic retinitis, and the hypertrophied heart and square-headed pulse, earthy complexion, and dry skin that accompany granular kidney, we have obtained not only a fairly complete statement of the bodily health, but also a most important insight into the

probable nature of the change in the highest nervous centres which underlies the insanity. Knowing the progressive nature of this change, we are able to found upon the datum thus gained a definite and confident prognosis, which will be at least as unfavourable as to the insanity as it is to the bodily health. The copious flow of urine that accompanies or follows some forms of mental perturbation, although it takes place through the kidneys, is more an indication of altered vascular pressure than of altered renal function, and no definite alteration of the renal secretion has yet been observed to be associated with more prolonged disturbances of the superior nervous processes.

Digestion and its Accessories.—The connection of the digestive function with the function of the highest nervous centres is most intimate and most obscure. That the normal working of the highest nervous arrangements depends on an adequate supply of nourishment, and that this again depends on the integrity of the digestive function, is the most fundamental aspect of this connection, but it is not the one with which we are most concerned. The amount of nutriment added to the blood may be miserably deficient in quantity, and inferior in quality, without any very marked deterioration of the action of the nervous centres beyond a simple diminution of activity; but the manner in which the digestive function is carried on—the condition not merely of the process of assimilation which is its outcome, but of all the contributory processes—is bound up with the mode of action of the superior nervous arrangements in an intimate correlation of which the *rationale* is extremely obscure. What are the most constant and most reliable symptoms of tubercular meningitis? Not headache, not delirium, not fever, not convulsion—not any symptom directly referable to cerebral disturbance; but constipation and a sunken belly. What is the one symptom that never fails in cerebral tumour? Again, not convulsion, not optic neuritis, not paralysis, nor aberration of mind; but vomiting—persistent, "purposeless" vomiting. Such vomiting as occurs in gross intracranial disease is not present, it is true, in any form of insanity as such, and the existence of constipation in a case of insanity is in this country, and at the present day, in no danger of being overlooked; but there are other aspects of the association between disturbance of the digestive functions and disturbance of mind which require notice. The

unutterable misery which accompanies severe nausea, such as that which occurs in sea-sickness, is well known, and the profound prostration and agony which may follow a comparatively trifling blow upon the abdomen is likewise a matter of general notoriety. In these instances a grave abdominal disturbance is accompanied by a mental disturbance of corresponding gravity, and the association between them is manifest and conspicuous. Bearing in mind the principle already adverted to, that all morbid processes are but exaggerations of the processes of health, we might well expect to find that abdominal disturbances less sudden and less severe would be accompanied by mental disturbances having the same character of depression, but showing differences of degree, of mode of onset, and of duration, corresponding with the differences of the bodily lesion. And it is so. The very names of the two chief forms of mental depression—hypochondriasis and melancholia—indicate that many centuries ago there was some dim recognition of this association between the abdominal functions and mental states, and at the present day its validity is maintained no less by the special facts of alienism than by the common experience of intelligent people. Let us look at some of the facts.

When a child is whining and fretting, its mother says that "its stomach is out of order," and gives it a purge; and her opinion and practice are commonly justified by the event. A nightmare is held to be sufficiently accounted for by an indigestible supper taken over night. The chronic dyspepsia from which Carlyle suffered is adduced in apology for his morose disposition. Dysentery and diarrhœa are the scourge of armies, but much more of defeated armies. Many thoroughly well authenticated cases are on record of jaundice following a shock of grief. When subscriptions are to be collected for a charity, the donors are first warmed into an expansive and generous mood by the administration of a good dinner. It may be said that the resulting state of mind is partly due to the direct action of the imbibed alcohol upon the nervous centres, and no doubt this is so; but still, even since the practice of total abstinence and the use of non-alcoholic drinks have become widely prevalent, the subscriptions following a public dinner often amount to thousands, while those elicited by the most successful charity sermon, which is delivered to fasting stomachs, very

rarely exceed two or three hundred pounds. The essential conditions to happiness have been cynically stated to be a good stomach and a bad heart, and, whatever our opinion may be as to the latter, there can be no doubt whatever of the indispensableness of the former.

Although it is, as a rule, very dangerous to make a sweeping assertion founded upon merely what Whewell termed the colligation of facts, yet it is probably quite safe to say that chronic melancholia is invariably accompanied by constipation, which is commonly very intractable. It is a very conspicuous feature of the malady. All writers on insanity insist upon the close association of chronic melancholia with failure of the digestive function; so much so, that the treatment *secundem artem* is directed mainly to restoration of this function, and experience shows that, as this yields to treatment, the mental condition improves. "Make a melancholy man fat," says Rhazes (A.D. 850), "and thou hast completed the cure." While, if the constipation and anorexia are insurmountable, the mental condition is hopelessly beyond cure. Leaving for a moment this aspect of the subject, let us see what is the experience of physicians with respect to chronic gastro-intestinal torpor. Dr. Fenwick speaks of the gloom and irritability that accompany chronic gastric catarrh. Niemeyer remarks on the frequency with which hypochondriasis accompanies the same malady, and says there is usually some mental depression. "I have seen," he says, "a *general* discouragement, an under-valuation of mental power, despair as to business, &c., induced by chronic gastric catarrh, and have seen these symptoms disappear on the cure of the disease. Only a few years since I treated a very wealthy man for chronic gastric and intestinal catarrh, who, during the disease, thought he was near bankruptcy, and left unfinished a building that he had begun because he thought that he had not sufficient money to continue it. After spending four weeks at Carlsbad, his old strength and feelings returned; he finished his house with great splendour, and has been well ever since." Again, he says that in chronic intestinal catarrh there is almost always great mental disturbance. "The patients either occupy themselves entirely with their physical state, and have no brains or time for anything else, or they are subject to a total indifference or despair." Dr. Allchin, speaking of the same disorder, says that "there

would seem to be a special inclination for the mental qualities to become affected, so that the intellect may become dulled and sluggish, the temper irritable, and the patient may fall into a condition of marked hypochondriasis." Now what is the manifest and unavoidable inference from this remarkable consensus of observation from two such different sets of sources? Alienists find that chronic mental depression is invariably associated with chronic gastro-intestinal torpor. Physicians find that with chronic gastro-intestinal torpor there is almost always mental depression. Is not the inference inevitable and unimpeachable that *chronic melancholia and chronic gastro-intestinal torpor are different aspects of the same malady?* I do not say—and I protest strenuously against the view—that either of them is the cause of the other. The position taken is that they are the obverse and reverse sides respectively of the same bodily condition. When there is feebleness and want of momentum in the currents of energy emitted from the grey matter of the highest nerve centres, this defect has a subjective accompaniment in mental depression, and issues objectively in that general lethargic inactivity that characterises conduct in melancholia; when the same deficiency of action occurs in the nerve centres that set going the intestinal movements, it results in constipation and its attendant deficiencies of function. Those cases in which the superior nerve centres are most deficient, or most conspicuously deficient in the amount and grade of activity, come under the care of the alienist, and are called melancholia; while those in which the deficiency of the lower centres is the most prominent feature come under the care of the physician, and are termed chronic intestinal catarrh or chronic constipation; but the fundamental nature of the malady is the same in both. The same tissue—the grey matter—is at fault, and the fault is of the same nature in both; but in one the main weight of the defect lies on one region of the grey matter, and in the other on another. A similar view enables us to connect together the obstinate constipation of old age with the general subsidence of bodily activity, and with the mental decline that occurs in advancing life, and to assimilate this whole group of changes to that of melancholia.

The skin is developed from the same layer of the blastoderm as the superior nerve centres, and the two structures remind us of their community of origin by the simultaneous

variations that they frequently undergo. The skin, and its modifications, the special sense organs, are, moreover, the medium through which all influences from the environment must pass in order to affect the organism, while in the superior nerve centres all such impressions are ultimately registered; and in this close biological relationship is indicated another explanation of their concomitant variations. Whatever its *rationale*, this correlation between the variations of outer and inner structures renders that member of the couple, which alone is open to direct observation, of especial interest and importance, since from its changes we can often safely infer the quantity, if we cannot judge of the nature or direction of the changes that are occurring in the other—just as from the verdure of a landscape we can judge of the amount of activity that is going on in the roots underground, though we may not be able to estimate its nature.

Instances of this relationship are abundantly numerous. White horses have from time immemorial been considered less vigorous and enduring than coloured ones. Albino animals of every kind are much feebler and less active than those possessing a normal amount of pigment in the skin. Many drugs which have a special action on the nervous system have a special action on the skin also. Bromide of potassium produces a pustular eruption. Arsenic has a powerful remedial effect on certain skin diseases. Silver given internally for epilepsy produces staining of the skin. Opium checks all secretions save that of the skin, which it promotes. Belladonna gives rise at once to delirium and a scarlet rash.

The temporary alterations in the skin that accompany transient changes of feeling are among the tritest of facts. The flushing of shame and of rage, the pallor and sweating of fear, the bristling of the hair in horror, are our commonest experiences of the connection under consideration; but with these we are not now directly concerned. What we are interested to know is whether changes of mind more profound or more enduring are accompanied by changes in the skin of corresponding magnitude and duration. If we accept the existence of physiological laws—if we believe that variations of bodily function necessarily result from antecedents, and neither appear in the absence of these antecedents, nor fail to follow their occurrence—we may be

certain beforehand that such correspondences do occur, and the evidence of their existence is neither dubious nor far to seek. Dr. Hack Tuke speaks of the harsh, or moist and clammy skin of melancholia, and states that in mania it occasionally emits a marked and diagnostic odour. Further, he says: "I have known alternations in the colour of the hair corresponding to alternations of sanity and insanity." Dr. Crichton Browne says that in some cases of insanity the state of the hair is a sure and convenient criterion of the mental condition. Dr. Bucknill states that in a great many cases of chronic mania the hair becomes harsh and bristling, and the skin of the scalp becomes loose. I am acquainted with a patient who, after an attack of mania, shed the nails of several fingers and toes. The frequency with which dements pick sores in their skin is worthy of remark here—urged to do so, no doubt, by some sensation referred to the part. But instances of slow and enduring alterations of skin accompanying slow and enduring alteration of the highest nervous centres—although a very wide consensus of opinion testifies to the frequency and definiteness of their occurrence—are by their very nature too inconspicuous to compel conviction on the part of those indisposed to believe or to attach importance to them. Fortunately there is another class of instances in which a rapid and conspicuous alteration of the skin has followed so closely upon a violent disturbance of the superior nervous system that no doubt can be entertained of the connection between them. Of such instances the blanching of the hair that accompanies or follows depressing emotions is one of the most striking. The following account by Staff-Surgeon D. P. Parry is probably the best authenticated case on record:—"On Feb. 19th, 1858, a prisoner in the S. of Oude was brought before the authorities for examination. Divested of his uniform, and stripped completely naked, he was surrounded by soldiers, and then first apparently became alive to the dangers of his position. He trembled violently, intense horror and despair were depicted on his countenance, and, although he answered the questions addressed to him, he seemed almost stupified with fear; while actually under observation, within the space of half-an-hour, his hair became grey on every portion of his head, it having been, when first seen by us, the glossy jet black of the Bengalee aged about 24. The attention of the bystanders was first attracted by the sergeant, whose prisoner he was, exclaiming,

'He is turning grey,' and I, with several persons, watched the process. Gradually but decidedly the change went on, and a uniform greyish colour was completed within the period named." Analogous cases present instances of the connection here illustrated in an equally unmistakable manner. Le Cat quotes from the "Journal Encyclopédique" the case of a man who had, after being very angry, an apoplectic attack, which ended in paralysis of the right side, and at the same time this side of the body became completely yellow, not excepting the right half of the nose. During the first French Revolution a woman was condemned to death by a Parisian mob, and the lantern (the instrument of execution) was actually let down at her feet. She was reprieved, however. Shortly after her colour began to change, and in a few days she became as dark as a moderately dark negro. She died in 1819, aged 75, more than 30 years after, her skin remaining dark until death. Laycock relates the case of a young lady, aged 16, who met a man in the dark, who insulted and greatly terrified her. In the morning her eyelids were yellow. The colour gradually extended over her face for eight days, until it was covered. Then the yellow deepened into black. Eight days after the arms began to turn yellow, and became slowly black. The colour remained for four months, at the end of which time she rapidly recovered. I have recently published in "Brain" the case of a woman whose skin always presented a conspicuous change of hue at the onset of her attacks of epilepsy, and resumed its normal colour on the termination of the attack.

Such occurrences as these show indisputably that between changes in the skin and changes in the superior nerve centres there is an intimate correlation; and these conspicuous instances are, we may be certain, only exaggerations of similar but smaller changes that accompany feelings of less intensity—changes whose recognition and measurement await the extension of our powers of observation.