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STUDIES IN PSYCHOLOGY.

A LECTURE

DELIVERED TO

The Eastern Province Literary and Scientific Society,

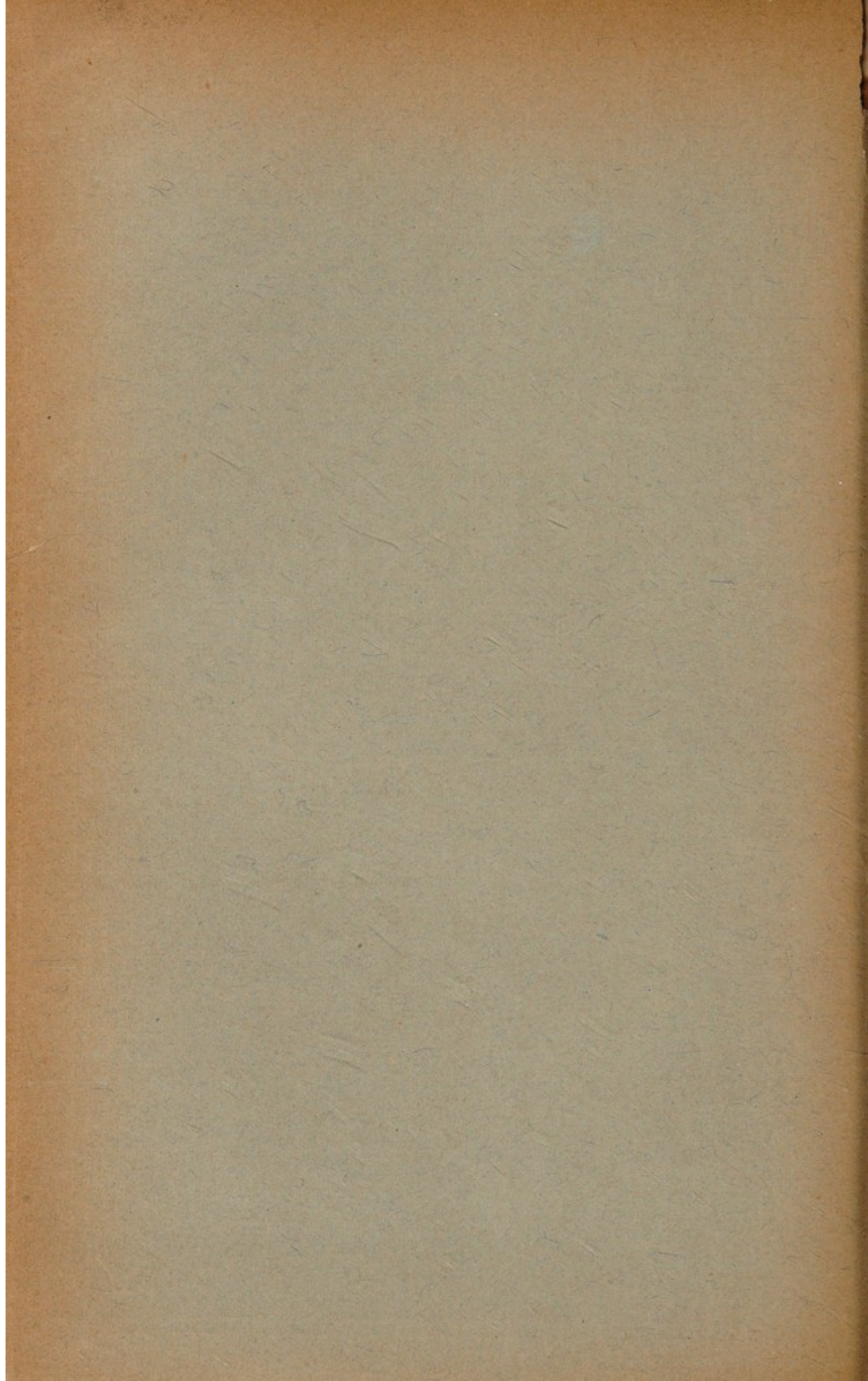
GRAHAMSTOWN,

BY

T. DUNCAN GREENLEES, M.B., EDIN., F.R.S.E., J.P.

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ON THE THRESHOLD:

STUDIES IN PSYCHOLOGY.

WHEN requested to deliver a lecture before this Society, the usual difficulty presented itself to me: I speak of the selection of a suitable subject.

Naturally my preference tended towards that subject which has been the study of my life, but how to present to you some facts, some gleanings, of an interesting character, from this extensive field of labour has entailed no little trouble to me, and if I succeed in so explaining things to you that they are brought within your comprehension, I will be amply repaid for any labour I have had in the compilation of this lecture.

Some two years ago I delivered a lecture in the Assembly Rooms of this City, on "*The Brain: its Architecture, Development, and Functions,*" and several of my auditors expressed the opinion that I had not gone far enough in my discourse; that I had stopped, as it were, on the threshold of a most interesting study, and that I had merely whetted their appetites for further knowledge.

It is true that in this lecture I limited myself chiefly to the structure and functions of the brain, refraining, to a great extent, from entering upon the psychological characteristics of the mind, and even saying extremely little of insanity—a subject that may in itself be of interest to the curious—but I considered I had gone far enough on that occasion, and preferred deferring a discussion of some further studies in this direction to another time.

It will be my endeavour now to satisfy the desires of those who are willing, with me, to advance a stage further into the maze of our mental faculties, and tread on the threshold of the mind deranged, and when it is like a ship which has lost her rudder: is swayed to and fro helplessly on the broad ocean, exposed to winds and waves alike!

In such a discourse as this it will be necessary for me to make a few introductory remarks on the appearance and structure of the brain—the organ of mind—and if what I now state may be familiar to some of you, I would request you to bear with me, for the benefit of those who have never seen a brain, and who know nothing of its structure.

And, further, when the mental faculties are under consideration, there are many facts that must be stated with which you—or many of you—are already conversant; but before I can discuss that condition I have elected to call “on the Threshold,” it will be necessary that I guide you through *mens sana in corpore*, before entering upon the much more intricate subject of *mens insana*, because “to know disease you first must know health.”

That organ called *the Brain*, the organ of mind, is, as you know, a delicate and most complicated structure, weighing from 45 to 50 ounces, and is encased, for protection, in a strong bony box called the skull, having the further protection of two membranes, one of which fulfils the function of being a vascular membrane from which pass vessels into the cerebral tissue for the nourishment of the brain.

When the brain is examined externally it is seen to be divided into two similar halves with a deep depression separating them, and the whole surface, of a greyish colour, is arranged in folds, separated by shallow furrows, which at first glance seem distributed in an irregular fashion, but on more careful examination, the surface of the brain is seen to be

divided into different areas, bounded by the more prominent of these depressions or furrows.

Now when a section is made into the substance of the brain, we find a difference in the colour of its constituent parts; on the outer side the colour is of a dull greyish hue, and internally it presents a white creamy tint, with grey patches here and there. The outer grey portion, called the *cortex*, measures about $\frac{1}{4}$ to $\frac{1}{3}$ inch in depth, and follows the various folds and depressions of the surface, dipping down wherever the brain shows a furrow—thus presenting a very extensive area of tissue, considering the size of the brain and the small space it occupies.

The grey cortex consists of three elements—cells, fibres, and matrix, and the interior portions (except those grey patches already spoken of) are made up of fibres and matrix, the latter being a cementing substance uniting the different parts together. The grey patches within the interior of the brain, scattered throughout the white matter, are similar in their structure to the grey cortex, only the cells which they contain differ in their shape.

While the white internal matter, consisting of nerve fibres, is an important portion of the brain—conveying by the fibres impulses (both sensory and motor) to and from the cortex, it does not possess that interest for us that is found in the grey matter which forms the origin of all mental functions.

To examine the brain properly it is necessary that a microscope be used, and if a thin section of the grey cortex be made, and placed on the stage of a microscope, on examination it is found to consist of several layers of cells arranged parallel to the surface of the brain. The cells forming these layers differ in shape, size, and function. Some are very minute and rounded, with but little protoplasmic matter surrounding the nucleus, others are of a square shape, with numerous minute processes

passing from their angles. Again, others called "spider cells" are many-branched and most irregular in contour; and, finally, we have numbers which are likewise branched but are pyramidal in shape.

It is presumed that it is in these last described cells the evolution of mental, motor, and sensory impulses takes place, for the entire nervous system consists essentially of a cell, a nerve which is simply a prolongation of the cell, and a peripheral organ which may be the skin.

In addition to these cellular constituents of the cortex, we must not forget the binding material—the matrix—which unites all the structures together, and numerous bloodvessels conveying blood to and from the different structures; for this portion of the brain is more richly supplied with blood than any other part of the body.

We may look upon the structure of one of these cortical pyramidal cells as consisting of a delicate and highly organised mass of protoplasm surrounding one or more nuclei, each containing a nucleolus; and, to understand more fully the function of a cell, imagine that this protoplasm consists of innumerable molecules of matter, which, by a change in shape or relative position, set up some kind of disturbance that is propagated along its branches, and thence along some nerve fibre, and which, being interpreted, forms an impulse—resulting in motor, mental, or sensory effects, according to the nature of the original stimulus setting up the disturbance of the protoplasmic molecules.

We thus see that the entire nervous system consists of threads enclosed within sheaths—these form the nerves—and corpuscles embedded in protoplasm. The former are directly or indirectly connected with the corpuscular constituents, which are chiefly to be found within the central nervous system.

When considered along with a nerve corpuscle, the nerve fibre constitutes what Spencer calls "the unit of composition of the nervous system."

We thus see that it is within these cells that nervous energy, whether it result in muscular or mental activity, is stored; and, as soon as required, the cell discharges its energy along one of the many channels which connect it with the outside environment.

What are some of the simplest acts of our lives are accompanied, in reality, by the most complicated mechanism, entailing the use of cells, evolving energy; nerves propagating energy, and muscles receiving, and responding to, energy. The physiology of the simplest reflex act is as intricate as the evolution of an erudite speech.

The change within a nerve cell whereby a mental state or an emotion results, as I have already indicated, is of a molecular character. For example, a blow on the head causes a great commotion among the constituents of the nerve cell, and, as a result of this, molecular changes take place whereby the sensation of *pain* is experienced; or, if the blow be severe enough, free movements among the intracellular molecules are so impaired that there is a temporary abolition of nerve functions, resulting in loss of consciousness.

Certain nerve poisons, such as opium and alcohol, so paralyse or clog the molecular movements within the cortical cells as to produce stupor. In these cases no discharge of nerve energy can take place, and, as Mercier says, "since there is no discharge, there can be no mental accompaniment, and, consequently, states of mind cease to exist."

In studying the nervous system both from the aspect of its structure and that of its functions, a great aid is afforded us, by following its development, and the evolution of the intellectual faculties

in the lower animals, and noting how both the structure and functions increase in complicity as we ascend the scale of the animal kingdom.

Starting with the lowest organism that presents a nervous system at all, we find that certain plants display a peculiar function which we call *sensation*; they are sensitive to the touch, or to the influence of light; some even are so formed as to have the power of enticing flies, etc., and then enclosing them within their flower leaves, where they are digested and then cast aside. These movements may be simple, but they are more complex than those that are to be found among examples of the lowest forms of animal life.

Beginning with the lowest organism of animal life that presents a nervous system, we find that this is first represented by a minute nerve nodule with radiating branches; then several ganglia or cells make their appearance, connected with each other by means of nerve threads; higher up, we find a double row of nodules arranged alongside each other and united in the same way; but when we enter the vertebrate world we note the nervous system becomes more and more organised and differentiated, until the spinal cord becomes a relatively important structure in the anatomy of the animal. Still further up the evolutionary ladder, as the relative importance of the spinal cord decreases, that of the brain increases, and the portions of the brain to increase are those essentially concerned in the animal functions; these latter again are replaced or surmounted by higher functions and faculties such as are found to exist in man.

And, even in the lower human races, and in childhood, it is noted that the higher intellectual and controlling faculties are still absent, and the animal or organic passions and functions have full sway.

Thus it is that while the individual is evolving itself out of nothingness, the brain and its functions are progressing on an upward path, whose goal is man.

We have seen that the brain and nervous system are concerned in two great functions—motor and mental—but as our discourse to-night is mainly made up of a consideration of the latter functions, it will be necessary at this point to consider what we know of the mind in health before we proceed to its consideration in disease, or on the threshold thereof.

When we come to consider the capabilities of the brain, and when we endeavour to analyse the nature of that process which results in a mental phenomenon, we find that the subject bristles with difficulties, around which philosophers have struggled for ages to arrive at satisfactory and universal conclusions.

In the presence of a company, therefore, many of whom have given this subject much study, it is with no little diffidence that I enter upon such remarks as I am about to make.

This field of study may be entered upon by, as it were, two gate-ways. Firstly, psychology may be considered from the aspect of the moral philosopher, whose teachings pertain to the higher or moral aspects of the subject, and who studies it from the standpoint of an *immaterial* basis; and, secondly, the physiologist, essentially *material* in his arguments, is more disposed to consider psychology as viewed in its lower aspects, and endeavours to explain the evolution of a mental process by a comparison with some function, the nature of which he is already acquainted.

I need hardly say that, both from disposition and education, I am inclined to take the latter view of the nature of the mental processes; but, from

my studies of these processes, especially when thwarted by disease, I am willing to admit that "there are more things in heaven and earth than are dreamt of in our philosophy.

In a consideration of what has been termed "the functions of the brain," some authorities have endeavoured to explain them as being similar to the functions of other organs. As the liver secretes bile, so does the brain secrete mental phenomena!

There is no doubt that there is a very close connection between nervous and mental phenomena, for, as Mercier states, "when a nerve current reaches the highest centres and sets them in motion, then this activity is attended by a mental state. . . . The one set of changes takes place in the nervous system, and is an affair of molecules, and discharges, and nerve currents; the other set of changes takes place in the mind, and is an affair of ideas, and feelings, and volitions; and the one set of changes accompanies the other invariably and instantly just as the movements of the shadow accompany the movements of the man."—(Page 51, "Sanity and Insanity.")

To take an example: "When a certain nerve centre discharges it stimulates certain muscles in such a way as to produce a movement of the arm. That is the bodily process. Simultaneously with this an idea of moving the arm arises in the mind—the shadow, as it were, of the arm being moved is thrown upon the screen of the mind, and we know we are moving."—Mercier.

We thus see how closely associated together are mental and nervous processes; so closely indeed, that we may take it as an axiom "that there is no thought or mental condition without a nervous process."

All mental phenomena are associated with the action of the higher centres only.

It will be necessary that I explain what we mean by higher and lower mental centres, and I will now do so as briefly as possible.

In viewing the cortex of the brain, I showed you how it consisted of different layers of cells, superimposed the one over the other. In a similar way, when we come to consider the psychological structure of the brain, we argue that there are higher and lower centres, and of these, in the course of the evolution of the mind, the lower centres are first developed and are consequently the oldest, while the higher centres are last developed, and are therefore the youngest.

In what manner do these centres appear, and how is it that the younger, or more recently formed centre comes to overstep the older psychic centres?

The answer to this query can be best given by examples:—When we undertake the study of any subject that has hitherto been unknown to us, then a new centre within the psychic area makes its appearance, and is called the higher centre until it is replaced or surmounted by the evolution of another. The same holds good with regard to motor centres when we learn some new actions, as, for example, in the child learning to walk, this begins the development of a new centre in the motor areas of the brain.

In the former example, it may be that we are anxious to learn some piece of poetry. At first the impression on the mental sensorium is slight and evanescent, but after a time, when we have mastered the piece, the impression on the sensorium becomes more marked, although the meaning of the poetry has gradually been losing its influence over us; until, after a time, we are able to repeat the poetry, all unconscious of its meaning, and, perhaps, even thinking of something else all the time.

Here, therefore, a new centre has formed itself,

but, by constant usage, its functions come to be performed without the immediate supervision of our consciousness, and the process becomes in time attended with much less mental exertion. Indeed, probably by then, some new centre has made its appearance.

“A new act becomes, after a time and after repetition, habitual; habitual acts become automatic, and automatic acts become reflex, and, at the same time, the mental accompaniment, which at first was vivid, becomes more and more faint until it disappears altogether.”—Mercier.

Now these grades, or strata, or layers of the mental functions, as they ascend, are the latest in development, and are associated with the most vivid manifestations; and the lowest of these layers are those concerned in such functions as are performed unconsciously, and over which the will has no power. Any of our acts which become automatic, tend to remain in the lower strata, and such acts as require some mental concentration, occupy the psychic position of a higher centre.

As examples of the lowest of all strata, we include the movements of the heart and intestines, over which the will has no influence.

Next in order come the functions of breathing, swallowing, and other reflex acts, and here the will may be brought into evidence, and there accompanies the act a mental process, but this is not essential for the proper fulfilment of these functions.

Higher up we have layer upon layer concerned in automatic and habitual acts, which entail a certain amount of consciousness in their performance; and, highest of all, we have layers concerned in such functions as to call forth, for their due performance, an intense concentration of consciousness, and which are accompanied by mental states of exceptional vividness.

The will overrides all these mental strata, and is, according to the moral philosopher, "that power of control over the other faculties or capacities of our nature by means of which we are enabled to determine personal activity."—Spencer.

Consciousness has been defined as the *ego* of philosophers, and is the uniform experience of all; the knowledge of self, and our knowledge of the world at large, comprise the totality of consciousness.

There is a normal condition of mind which has been wrongly called "unconscious cerebration," or "unconscious reasoning"—a contradiction of words, for we cannot reason without a state of consciousness existing, nor can the brain "unconsciously cerebrated!" These terms have been applied to a condition in which we can pursue two actions at once; we may carry on some complicated work and yet be thinking of something different all the time. A woman may knit a stocking, and be able even to count correctly the number of stitches on the needles, while she is enjoying reading an interesting novel, or carrying on a conversation coherently and connectedly.

What we term "absence of mind," is really an accentuated form of "unconscious cerebration;" here the attention is so concentrated upon a single subject, or a train of thought, that one loses the sense of his present situation, which accompanies less intense mental action. Here consciousness runs only in one channel, and the individual wakes up, as if from a dream, when the concentration is relaxed.

The amount of concentration of mind, or, to put it another way, the intenseness of the consciousness, determines the amount and complexity of the physical actions or mental processes that can be carried on at the same time.

In some cases the mental concentration may be

so intense that no physical movements take place—the individual in a “reverie” illustrates this condition.

In a lesser degree of mental concentration, the movements become slower or more awkward than usual, but they really need not cease; for, as I have already shown, walking is, after a time, a purely automatic process, and can be accomplished without the cognisance of the higher layers, here represented by consciousness. It is only when we have to turn a corner, or avoid some obstacle, that it is necessary to bring into play some mental attention to guide our feet aright, and here for a time our consciousness concentrates itself on the act of walking.

The advocates of “double consciousness,” or unconscious cerebration, maintain that the mind can attain to two things at the same time, and this is generally admitted by metaphysicians. For example, Sir William Hamilton, in his lectures, stated that “the greater the number of objects among which the attention of the mind is distributed, the feebler and less distinct will be its cognisance of each.”

Consciousness is thus at its maximum of intensity when attention is concentrated on one subject alone.

The question naturally arises, however, how many several objects can the mind simultaneously survey, not with vivacity, but without absolute confusion?

In answer to this question, there seems to be a consensus of opinion among metaphysicians, that our attention can be given to *six* different objects at once with a certain amount of mental concentration.

It is noted that we can carry on, with greater ease, a mental and a physical process simultaneously, than we can two mental processes: thus we can go on thinking and walking better than we can think of two subjects at once.

Further, we can go on dancing and remembering the words and music of a song—actually three pro-

cesses—better than we can think of the words of two songs at the same time.

The story is told of Sir Edwin Landseer, who, being challenged by a lady at a dinner party, called for paper and pencils, and sketched simultaneously, with both hands, the heads of two different animals—all the details in each being faithfully drawn.

This curious faculty of being able to do two things at once, or what comes under the same category, being able to see several objects at the same time, is possessed by some people in a greater degree than by others, and by practice it can be improved.

If the description of the mental processes is a difficult one, when considered under normal conditions, it is even more difficult comprehending the nature of these processes when they are deranged, or “out of gear,” as is seen in insanity.

There is a condition, however, which can neither be considered as sane or insane, and which marks the borderland between these two states of mind, but is in reality on the threshold of the latter condition, that must receive some of our attention.

We have here an extensive field for investigation; the many curious states of mind that are not evidences of insanity, and yet cannot be looked upon as manifestations of a healthy mind, require the closest study—a study which is amply repaid by the discoveries made, both as to the normal functions of the mind and its disorders.

Much has been written on this subject—the borderlands—but the articles are scattered through innumerable pamphlets and books. Perhaps the most interesting series of articles illustrating this condition, is to be found in Dr. Ireland’s work—“Through the Ivory Gates”—a work to which I am indebted for much information, and for many examples given in this lecture.

Under this section we will describe various undoubtedly abnormal mental symptoms which, while they are to be found among the insane, are not considered necessarily as evidences of insanity: these are examples of hallucinations of the senses, delusions, and illusions; what is called "double cerebration," and "fixed ideas." Indeed, the more one studies insanity, the less does it seem to differ from sanity. In the latter condition, we have all the various emotions and passions as are to be found among the insane, only in different degrees, and this is due simply to the want of, or variation in, the controlling power.

In the same way as we can aid our study of the normal functions of certain organs, by a consideration of these organs in a diseased condition, so we can get to appreciate and understand more fully the healthy mental processes, by a study of these processes when in a deranged or diseased condition.

There is an interesting study of certain cases by which we are able to obtain a clearer insight into the morbid workings of an insane mind, and this is in the observation of some of the initial disturbances of thought which affect the minds of some persons, who are still sane enough to analyse and record their experiences.

We are all acquainted with persons who, while they experience insane symptoms, are yet sane enough to recognise them as abnormal. In these cases the will power, although not strong enough to dispel these hallucinations and illusions, is still strong enough to analyse them and recognise them as non-existent.

Certain drugs have the curious effect of temporarily deranging our mental processes, and under a large and experimental dose of Belladonna, I recollect carrying on a conversation with an imaginary person, although I knew at the time

no person was near me. Here my will-power was impaired by the poison, but not to such an extent as to affect my reasoning power, for I knew perfectly that I was suffering from a hallucination, and that this abnormal condition was due to the poison I had taken.

Further, certain conditions of the body affect temporarily the healthy working of the mind, and the story is told of two African travellers, who were suffering from fever, and who saw their "doubles" lying in bed beside them; and, although they were not delirious, yet they spoke of their doubles in the third person.

The individual with a "fixed idea" is generally in ill-health: he is somewhat depressed mentally, and may belong to a family, several members of whom have been insane. Some foolish or silly idea enters his head, and he is thereafter a perpetual source of annoyance to his neighbours.

These have been classified as follows:—

(1). **METAPHYSICIANS**: who, like the old school men, occupy themselves with the subtlest questions in philosophy.

(2). **ARITHMETICIANS**: who can't refrain from constantly counting and calculating: these are men of little faith, but who are possessed with dominant ideas of their own capacity.

(3). **REALISTS**: who are constantly worrying themselves and others about the most trivial matters.

(4). **THE MUCK RAKE MAN**: who is always in search of specks of dirt, and trying to remove them.

(5). **THE SCRUPULOUS**: who spend most of their time making introspective studies of their own moral character: they are constantly fancying they are "doing the things they ought not to, and leaving undone the things they ought to do."

Finally, there are the—

(6). FEARFUL: who are always afraid of compromising themselves, and, being constantly on the look-out for imaginary dangers, life is a state of perpetual alarm to them.

Dr. Oscar Berger gives such an interesting example of this condition called "fixed ideas," that I do not hesitate to quote it. His patient was a well-educated man—a law student—who describes his own symptoms. Thus, the idea comes to him, "Why has a chair four legs?" "Why not only one?" The answer occurs to him, because, according to the laws of nature, a chair with one leg would not stand. But then his wandering thoughts hurry him away into a succession of endless and useless questions. "Why is it a law of nature?" "Why is there not an attractive force that would keep a chair upon one leg?" At the same time, while his thoughts were hurried on, with feverish activity, in such useless speculations, his attention was still occupied in the observation of the accustomed objects of life, though after a weak and drowsy fashion. He also described himself, while subject to these paroxysms, as being in such a hazy condition that he could not distinguish what he had dreamed from what he had read; nor could he distinguish between what he had seen in a picture and what he had actually lived through. His memory and powers of concentration were weakened, and often all things around him appeared small, so that he seemed to himself unusually large in relation to them; or, again, sometimes the opposite condition obtained, in which things around him seemed to him abnormally large, while he himself was relatively infinitesimally small.

The condition described above, *viz.*, mistaking the relative sizes of things, is sometimes to be found among the insane; but in these cases it

affects the general conduct of the individual, making him do foolish things; while, when it occurs among the sane, the reasoning powers are strong enough to prevent the individual acting in accordance with the morbid perceptions.

In *Delusions* we treat of false notions or conceptions. A man may believe himself to be a God or a teapot, and yet, *unless his conduct is influenced by these false perceptions, he is not considered as insane*. I do not say he is not insane—undoubtedly he is. I only speak of the legal aspect of the case, although examples of persons possessing fixed delusions, and who are entirely uninfluenced by these morbid ideas, are extremely rare.

There is no reason, however, why the labourer, who believes himself to be Cecil Rhodes, should not continue to break stones by the wayside; but, if the delusion that he is Cecil Rhodes is at all deeply impressed upon him, the logical conclusion that it is beneath his dignity to break stones, will soon occur to him.

The influence of a delusion, not only upon the individual, but upon the race, is immense; and history is full of examples, both in religion and politics. So superstitious and bigoted are people in the end of this nineteenth century—a century during which the world has advanced more in civilisation than ever before during its history—so superstitious, I say, that to-morrow, were a man to stand forth and proclaim himself the Messiah, he would find hundreds of believers! Strange as it may seem, the only place where such a pretender would fail to obtain adherents would be within the precincts of an asylum. There it is extremely rare indeed that one patient can persuade another of the truth of his delusions. A patient in an asylum may believe himself to be the Emperor of China, but when his fellow-patient says *he* is Jesus Christ, the

Emperor will laugh, and, touching his forehead, will inform you quite seriously that his friend is "a little gone there," and "never to mind him."

It is a curious fact that persons who live constantly together sometimes seem to influence each other with the truth of their delusions: there seems to be a sort of sympathy between them, and occasionally we get, in asylums, examples of different members of the same family suffering from identical symptoms. This has been called *folie à deux*.

Sir David Brewster tells the story of a lady who frequently saw a spectral cat, and who had, at the same time, hallucinations of hearing. Now although this lady's mind was disordered, yet as her conduct was perfectly rational, and as she was unaffected by what she saw, recognising them as illusions and hallucinations, she was never considered as insane.

Again, in the peculiar condition which sometimes follows an epileptic fit, the individual may perform acts entailing complicated muscular movements, and yet be totally unconscious of them, so that when he recovers he has not the slightest recollection of what he did, and, unless his conduct is violent or his actions absurd, he is not considered to be insane.

The curious condition of sleep-walking comes under the same category: here the individual may walk long distances, avoiding all dangers and obstacles, even partaking of a meal, and yet be sound asleep all the time.

In these cases the will-power is, for the time, in a state of abeyance, and the acts performed are more of an automatic nature—or to explain the condition in accordance with our previous description of the mental processes—the higher or latest developed mental layers are, for the time being, disassociated from the lower strata, which comprise such acts as can be performed without the cognisance

of the controlling centres or of consciousness.

An example of what are called "fixed ideas" is to be found in the case of the lady and the cats, and these conditions constitute some of the initial forms of mental perversion. The individual hears a sound, sees a sight, or experiences an odour which he knows full well do not exist. They arise from within the cerebrum, and are uninfluenced by extraneous causes acting on the senses.

To understand this condition it is necessary to briefly review the methods whereby impressions are conveyed from without to the brain by means of the senses.

Take the eye for an example: light impinging upon the retina sets in molecular motion the ingredients of certain cellular elements of this delicate membrane, and this is conveyed to cells in the brain, which form the terminal organs of the optic nerve—that nerve concerned in the sense of sight. The sensation of light is thereupon reflected on the mind, and the knowledge is evolved that there is light. This explains what takes place in the normal condition of things, but when the functions of the mind are deranged, the perception of light may arise within the sensorium, without the external sense organs being primarily affected. The eyes being closed, a sudden knock on the head, by setting in commotion the molecular elements within the cells of the cerebrum concerned in this function, may produce a sensation of light, and here we have the rudiments of an abnormal idea, and if this condition arise within the brain, without the external stimulus to cause it, we call this a *hallucination*.

I observe, in a recent number of the "*Idler*," the Book Hunter reviews a new illustrated magazine entitled "*The Realist*," in which all the illustrations are to be done by "colour-blind artists." Under this idea the reviewer points out that in all races it

is the minority who possess wisdom, and are the most intelligent. The question arising from these facts is, are we not justified in believing that those we call colour-blind people, who form the minority of observers, do not see nature in her true colours, and whether it is we, who are in the majority, are not really the colour-blind members of society?

It will be interesting to us to see pictures coloured in accordance with these ideas: the grass appearing red, the sky green, and the yellow tints of sunset blue! Are we certain that the majority, who are least wise and intelligent, see correctly, while the minority, who are acknowledged to be the most intelligent, but who happen to be what we call "colour blind," because they don't see colours as we do, should see wrongly?

Colours affect the terminations of the retina in the same way as a note is struck on the piano, each colour affecting certain cells, and the impression is conveyed to the brain accordingly, and the perception of the colours is evolved within the sensorium. When combined colours are seen a "visual chord" is struck as it were, different series of cells are affected, and the effect registered within the cerebrum.

The same laws hold good with regard to the other senses, and, in the case of auditory hallucinations, either the cells within the internal ear, or those within the cerebrum, are so affected that the perception is impaired and a wrong impression of the note produced in the mind.

Speaking of fixed ideas, the following is an interesting example given by Dr. Legrand de Saullé:—

"M.A.B., a merchant, thirty years of age, father of two children, intelligent and well-educated, was diligent and successful in business. He says his mind is quite absorbed by two things: whenever

his attention is disengaged for a little he falls to pondering on something connected either with colours or numbers. He asks, for example, why colours are unequally diffused? Why the trees are green? Why women are married in white? Why black is the colour of mourning? Wherever he goes he counts the number of articles of furniture or clothes of the same colour. If he is travelling by train he calculates how many bridges he passes, or how much braid, or how many buttons, nails, and nuts there are in the carriage. He deplures his condition, professes himself ready to do anything to effect a recovery, and, when leaving the consulting room, he says, 'you have forty-four books on that table, and seven buttons on your waistcoat! Excuse me but I can't help counting.'"

There are certain peculiar conditions of the nervous system to be found in persons of a neurotic type and which border on insanity:

Among these we have the condition called *Mysophobia*, which consists in an absurd fear of contracting some disease or dirt by contamination. The individual suffering from this disease will wash his hands a hundred times in the day in scented or disinfecting fluid. If he shakes hands with you, or comes in contact with you in any way, he will promptly retire to his ablutions, which are carried on to a ridiculous extent. The condition is frequently found among ladies of the "old maid" type, and these persons know perfectly well that such excessive care is unnecessary, yet they have not sufficient will-power to overcome this, which is, in reality, an insane habit.

It sometimes happens that the habit or idea that occupies the mind — perhaps to the exclusion of everything else — is the very last the individual would willingly entertain. The parson or the prim lady may sometimes have an uncontrollable desire

to utter the most obscene and profane language. Sometimes the society belle feels the intensest and most unconquerable desire to give utterance, in the drawing-room, to the most outrageous remarks, or uses language as insulting as it is uncalled for.

Here I would note that it is often my experience in an asylum to hear ladies, whose surroundings and breeding have been of the purest, whose companions have been most select, and whose education has been most refined, give utterance, when insane, to the most foul language. Now the question naturally occurs—how, when, and where do these ladies get to learn even the words of bad language? If, as the minister informs us, they are the result of inherent wickedness, that we are naturally bad, and that it is only the controlling power of the will which hides or glosses over, as it were, our real characters, then there may be something in this explanation; for, in insanity, if the above explanation holds good, the true character of the individual is laid bare, and the lower moral passions and emotions have free scope, untrammelled by the controlling influence of the will.

There is another condition of the mind similar to Mysophobia, but a step further on in the borderland, and more closely approaching insanity; this has been called *Agoraphobia*, and it has been lucidly described by Dr. Westphal. The individual has a fear of open places or squares. For example, he would suffer the most intense uneasiness—amounting in some cases to actual anguish—if he were called upon to cross Church Square alone.

The feeling overpowers him that the space is miles in extent, and that he will never be able to get to the other side. The condition is usually accompanied by a trembling and throbbing of the heart, and a feeling of flushing in the face. It is not experienced if his attention is completely dis-

tracted, or if he has hold of the arm of a friend; but alone, a certain terrible fascination seizes him, and rather than cross, he will go round the square. One individual, being asked what he would do if he had to cross a field, said he thought he should fall down and hold on to the grass.

The condition is due to a hypersensitiveness of the nervous system, producing a feeling of personal insecurity, is accompanied by great irritability of the nervous system, and is not unfrequently due to the nerve exhaustion caused by a bout of excessive drinking.

There is still another condition of the nervous system, similar to the above in its nature, but differing from it in its symptoms, called *Claustrophobia*. Here the individual fears closed spaces; entering a small room, or a cave, the most abject terror seizes him lest the roof should fall in, or the impending rocks topple down and engulf him, and relief is only experienced by the miserable claustrophobic when he gets out to the open air.

Sir Grainger Stewart describes the case of a lady who suffered the intensest agony in buildings with a high ceiling, and at church used always to sit under the gallery where the roof was low.

We may refer to several other conditions of the mental system, not so closely allied to insane symptoms, and which, I have no doubt, many in this hall have experienced. Some people fear to climb heights, for the impulse to throw themselves from a precipice is so intense, as to be almost uncontrollable. Again, sometimes when one is standing on the platform of a station, an express train rushes past—the peculiar sensation arises within him to throw himself in front of the engine. There is an almost irresistible attraction, aided really by the suction caused by a rushing body through the air, to overcome which the

strongest effort of the will is required.

The last subject that I purpose considering in this section of my lecture is perhaps the most interesting of all, and goes far to prove the complicity of that entity we call *mind*, as found in the human race. This condition is called "the duality of the mind" or "double cerebration," and the remarks I made when considering "unconscious cerebration" should prepare us for the questions—"How far has each side of the brain an independent function?" or "Do the two sides of the brain perform the same functions simultaneously?" and "Have we a double set of sensations and perceptions?"

Now, when we come to examine the human frame, we find that its general plan is symmetrical: externally the two sides of the body are formed on exactly the same design, our bones, muscles, etc., are made in duplicate; but when we proceed further, and examine the interior of the body, we at once note a general want of symmetry. The heart is situated slightly towards the left side; there is only one spleen, and it occupies the left side; the right lung is larger than the left, and the larger mass of the liver is situated on the right side. When the study of the development of the body is taken up, it is observed that originally all these organs were symmetrical, and it is only as the parts became specialised, and the various organs take on different functions, that they become less so.

On opening the cavity of the skull everything at first appears in symmetrical pairs. The brain seems divided into two equal hemispheres, united it is true, but only by slight bands of nerve tissue, which are called *commissures*.

This symmetrical appearance of the brain agreed so little with what men conceived of the unity of the mental operations, that, in olden times, some philosophers refused to believe that the brain was the

organ of mind at all. "The mind," they said, "being one and indivisible, must have a seat which was single and central; but how could this be in an organism that was visibly double?"

Searching for an organ within the cranial cavity that was single, Descartes hit upon the pineal gland, and there located the soul; unfortunately, however, for this theory, investigation proved that this organ itself consisted of two symmetrical halves. Thereafter the soul lost its place of habitation, until a home was found for it in the fluid contents of the lateral ventricles, by Scëmmering. It has since been turned out of the ventricles, and its further wanderings are beyond the scope of this paper!

Although such speculations are beyond the ken of the physiologist, perhaps some of our clerical friends may be able to throw light on this and analagous questions, and I would respectfully propound to them several queries, which, so far as we actually know, have never yet been satisfactorily answered:—

- (1). Where is the soul situated?
- (2). What is the relationship between the soul and the mind on the one hand, and the soul and the body on the other?
- (3). When the soul separates itself from the body, what part or parts, if any, of the intellectual faculties does it take away with it?

We presume, as I have hinted at in the first pages of this paper, that the mind, although confined to the brain, is not limited to any particular portion of the cortex; but is distributed throughout in close juxtaposition to the areas concerned, in one and all, both of the motor and sensory functions. It is only by such a theory that we can explain the simultaneous action of all these parts.

If the brain be functionally double, are our mental operations also double, or are they ruled

into an unity by something—a soul perhaps—that we haven't yet discovered? And does this "something" at times relax its hold on the reins of our intellect, and allow the two hemispheres to act independently of each other, as is seen to occur in the condition known as "double consciousness."

Although, for purposes of demonstration, we are inclined to look upon the functions of the brain in a very material spirit, yet it is a fact that psychology, physiology, metaphysics, and chemistry, all combined, or each separate, have as yet failed to explain the nature of those changes that result in intellectual life, and whether or not these changes actually take place in any materialised portion of the brain.

If we knew the nature of these changes as well as we now know the physiology of the changes taking place in the other organs of the body, then, I believe, metaphysicians and physiologists might combine their forces, and the true nature of the mind and soul be discovered.

As it is, we are still working in the dark, building theories which are constantly being changed to suit varying ideas, and I don't know that we are any nearer the truth now than were the ancient Greek, or still more ancient Egyptian, philosophers.

But we are digressing by considering such questions, and to return to the subject we were discussing before being carried away by such interesting psychological matters, we find, on an examination of the brain, by separating slightly the two hemispheres, that they are held together by a band crossing from one hemisphere to the other.

This structure is called the *Corpus Callosum*, and consists of nerve fibres and a few cells and nuclei. Phrenologists, and the older physiologists, believed that the functions of this band consisted in keeping in co-operation the two halves of the brain.

Thoughts or impressions, generated in the cells of the grey matter on the one side, were conducted, by means of this band, to the other half of the brain, so that one side of the brain knew what the other side was doing.

This is still the accepted theory of its functions, and, so far as its motor functions are concerned at least, the experiments of Mott and Schaeffer, and the effects of disease, especially tumours—implicating this portion of the brain—go far to support this theory.

You are so far conversant with the structure of the brain, I presume, as to enable you to understand, how the motor and sensory nerve fibres coming from the two hemispheres, pass down and cross each other at the upper portion of the spinal cord, so that any disease affecting the course of these fibres in the one hemisphere results in loss of motion or sensation (or both) in the opposite side of the body, and thus each hemisphere has to do with the sensations and movements of the opposite side of the body.

There are certain fibres, however, which do not cross in the region of the cord, but cross over to the other side of the brain by means of the *corpus callosum*, and this is shown by the fact that in the case of paralysis of one side of the body “a strong effort to grasp with the unaffected hand will sometimes cause a movement in the paralysed hand”—(Gowers); and, therefore, we are led to the belief that each half of the brain may be held to have presiding functions on both sides of the body, but in unequal proportions; or, as Hughlings Jackson puts it, “all parts of both sides of the body are represented in each half of the brain.”

There is no more interesting example to prove the above statement than that which obtains in certain cases of *aphasia*, or loss of the speech function.

Here the part of the brain concerned in speaking is situated in the frontal portion of the left hemisphere; disease at this point completely obliterates the centre, and its functions, which also include paralysis of the right side. Nevertheless, certain patients recover, after a time, the function of speech, and the paralysis disappears; and the only explanation that can be offered for this is founded on the theory that there must be some sort of connection between the centre in the left side of the brain and the corresponding portion in the right hemisphere, whose functions have, until they were called upon to exercise themselves, been dormant; so that this right centre comes in its turn to fulfil the functions that originally belonged to the left side.

There is an undoubted sympathy between corresponding parts of the body. A diseased eye may so set up sympathetic inflammation of the other eye as to necessitate the removal of the diseased organ. So likewise in the brain: it is reasonable to suppose that one portion of the brain, whose functions are deranged, may come to affect the corresponding portion in the other hemisphere.

And what does all this preamble lead us to? Have I, by my arguments, succeeded in proving that, while there is a connection existing between both hemispheres, yet it is possible to find in certain cases that this connection may be severed, and both sides of the brain act independently of each other?

Dropping the physical evidences of such conditions, when we consider the mental processes as existing in both halves of the brain, it is easy now to imagine a battle raging between reason and unreason—the insane half of the brain striving to overcome the sane half—and in ourselves have we not often found, when we wish to consult ourselves as to some important step we are about to take in

life, that we feel within us two spirits, as it were, waging war against each other: sometimes the one being in the ascendant and sometimes the other?

Are we not here closely in touch with what moralists call the *conscience*—a something within us, if whose dictates are followed, will guide our steps aright?

The poets have described two persons in one man, and the novelist has delineated this dual condition in “Dr. Jekyll and Mr. Hyde,” illustrating the struggle between our moral and animal natures.

Insane persons, suffering from the delusion of altered personality, seem to lead a double existence. A case is described by Dr. Grierson where a stone-breaker, while believing he was a wealthy land owner, continued to follow his usual occupation as a labourer. He would talk to, and fight with, imaginary persons; by and bye his mental faculties became blunted, dementia supervened, and, at his death, the entire right half of his brain was found to be destroyed by disease. Now, in this case, the question naturally arises—did the left half of the brain belong to the imaginary person—the wealthy land owner—whom he thought himself to be, for the functions of the left half were in a state of abeyance, and may have represented the half that belonged to the real person—the stone-breaker?

There is another and similar case bearing upon this point, described by Langlois, of a patient in the Asylum at Dijon, who always spoke of himself in the third person, and who used to strike himself, and then laugh and rub his hands, saying—“G. has been bad; he has been punished.” When asked where G. was, he would point to his breast, but when his head was touched and he was asked whose head that was, he would say it belonged to Coch—himself; and he used to chastise either the one or the other when they were bad. Here we may

surmise that there was some sort of antagonism between the two hemispheres, which was interpreted by a person of weak intellectual powers, as really indicating two separate beings—himself and G.

A somewhat similar case has recently been described by my friend, Dr. Macphail, of Derby Asylum, where a patient of his appeared to lead two separate lives. In the one state he could speak Welsh fluently, but was quite unable to converse in English; but while he was insane—and he suffered from periodic attacks of insanity—he could only speak English, and he seemed to have forgotten his knowledge of Welsh.

All these cases I have described, illustrate the condition called “duality of the mind.” True, the examples quoted are undoubtedly those of insane persons, but the description can easily be made to refer to persons who need not necessarily help to fill our mad houses!

Further, a description of this condition as found in the insane only helps us to understand similar conditions as found among the sane. The only difference is, that, whereas in the latter they are controlled by the will power, and the individual takes care never to allow such conditions to influence his relations with his surroundings, in the former cases the individual is controlled by these morbid influences, and often his conduct, where, for example, the second person within him compels him to do something absurd, is such as to justify his being classed as an irresponsible being.

I have now endeavoured to explain to you the nature of the mental processes under healthy conditions, and when influenced by such instability as to produce certain symptoms approaching to, but not actually consisting in, insanity.

We have, as it were, arrived at the threshold

of the ivory gates of the diseased mind, and there is but little separation between these conditions, and those found in true insanity.

Without entering upon the subject of mental disease itself—a subject which would take longer time than is at my disposal to describe—I should like, ere I close, to direct your attention briefly to some points, explaining to you the nature of mental disease, a matter that, with our previous remarks before us, should be simple enough; and the causes, both direct and indirect, that go towards the production of this disease.

All the examples I have already referred to, are to be found in a certain class of persons.

For convenience of description, it is considered that every one belongs to one or other of several temperaments, or *diathesis*, as they are called in scientific works. Temperaments vary, and may be *phlegmatic*, where the individual is fat, slow, and heavy; *bilious*, in which the characters are sallowness of complexion, the patient of melancholic disposition, and subject to derangements of the liver; or *nervous*, or neurotic, in which the person is active, restless, possessing what are called high-strung nerves, and liable to diseases of the nervous system.

Now it is mainly in the last series of cases that we find examples of disordered mental faculties, short of insanity, and many cases which are, on the one hand, put down as insanity, are really within the category of “borderland cases;” while, on the other hand, many examples of the “borderland type” are ranged under the class of the insane.

The question whether such cases are insane, depends much on the individual who makes the examination, the social and other surroundings of the patient, and the influence such conditions have on his conduct.

Such considerations naturally bring us to the subject of *insanity* itself, and when the question "what is insanity?" is raised, our difficulties, with regard to its definition, become at once evident, for insanity varies in its definition according to the individual concerned, the race to which the individual belongs, and the person who is attempting to make the definition. For example, lawyers have one definition of insanity, doctors offer another, alienists or experts, trained in mental disease, have many, and, finally, the public themselves are allowed to express their opinions on this subject.

When we consider the causes of insanity, we are thereby able to arrive, to a certain extent, at its nature, and an investigation into the influences that act on the mind as to render it so unstable as to produce morbid symptoms, is one full of much interest—alike to the physician and the people; for in all diseases the means to eradicate them is first searched for among their causes, and in this dire disease, if means could be discovered, by inoculation or otherwise—chiefly the latter, we would prove benefactors to our race indeed.

According to averages, and taking into account the total population of the world, I calculate that at the present time upwards of 5,000,000 persons are insane, so that it is a by no means light and trivial matter, insanity. Further, in the County of London it is estimated that, if the general population goes on increasing as it at present is, the authorities will require to erect an asylum sufficient to accommodate 2,000 insane persons every five years!

The cause of any disease is a variable quantity. An ordinary cold may not proceed any further in one person than a simple cold, while, in another, it may produce pneumonia. We therefore infer that, in the latter case, there is some condition of

the system that existed before the onset of the cold, which predisposed, as we call it, to pneumonia, while this condition is absent in the former case.

We therefore term this condition of the system the *predisposing cause*, and the cold itself we call the *exciting cause* of the pneumonia.

So in insanity; the predisposing cause here is a hereditary taint, or some instability of mind. A man may pass through great mental, physical, or pecuniary troubles, and, if there is some history of insanity in his family,—if originally he was of a high-strung nervous temperament, or had an unevenly balanced mind,—he is almost sure to break down; while, if such troubles come upon a man possessing a powerful and stable mind in a healthy body, he is almost sure to tide over his afflictions without any mental injury.

Every person has what we may term a “breaking point:” if you subject him to sufficient stress, his mental faculties will give way and he will become insane. If we take a piece of iron, we find that a certain strain—represented in this case by so many pounds—will break it. Now, if we take a piece of pliable steel, we find that it will take a much greater strain—namely, more “pounds pressure,” to break it. The amount of strain in any given case depends on the original resistive powers; and so, when the mental faculties are considered, the amount of strain, included under worries, etc., that will cause insanity depends, in any one case, on the original resistive powers, or stability of the mind—or we may term it “its strain-resisting capabilities.”

We thus see that everyone is liable to become insane provided the strain is great enough. The only difference between different persons is that what will produce insanity in one individual does not affect another, simply because, in the latter

case, the strain-resisting capabilities are greater than in the former case.

Of all the predisposing causes of insanity, *heredity* occupies the paramount position. In from 30 to 50 per cent. of all the cases of mental disease, regarding whom the histories are known, a hereditary tendency to insanity has been ascertained. The insanity may exist in the mother or father, in the uncles or aunts, in the grand parents, or in the cousins; and, according to the closeness of the relationship, the tendency to the disease showing itself in one of the descendants is the more marked. Further, heredity produces insanity much more frequently in country districts than in town districts; and as it is well known consanguineous marriages are most frequent in the former, there may be some relationship between these two facts. An American authority has proved that the hereditary taint comes more frequently from the father than from the mother; in female children the tendency is propagated chiefly through the mother, the father conferring upon his sons his mental characteristics, while the mother influences mentally her daughters.

The question is often put to us, and, unfortunately for the race, our advice is not often enough followed—"should a person who has been insane, or or who presents the insane diathesis, or who has a hereditary tendency to mental trouble, marry?"

In such a case our answer is guarded by the question—what will be the effect on the children, if there are any, of such a marriage? When we consider the enormous risks run, the awful curse of bringing into the world a number of children who may be idiots, or who, in after life, will help to swell the ever increasing crowds within the walls of our asylums, then the wise physician, laying aside all sentimental ideas, will only consider "the

happiness of the greatest number," if he follows the advice of Punch and advises such persons not to marry.

The ban of insanity is such a burden that many persons compelled to carry it throughout their existence, curse the day their parents ever married! They are handicapped in every sphere of life, and in the struggle for existence they are soon pushed aside.

The same might be said of persons with a consumptive taint; by marrying they are almost sure to hand down to their children, and perhaps to several generations, a most uneviable legacy.

How true it is that if such persons did not marry, the world would be healthier, and the millions spent to relieve the consumptive and to house the insane, might be applied to more useful purposes.

In so strongly advising against marriages in such cases, I go upon the principle that "it is better that one should suffer than that the race should perish." I am, however, only expressing my own views on this momentous question; they are, nevertheless, supported by nearly all authorities on mental disease, although several writers are most lax in their opinions. Thus Dr. Maudsley states, "that to forbid the marriage of a person sprung from an insanely disposed family, might be to deprive the world of singular talent or genius, and so be an irreparable injury to the race of men;" and, again, "he doubts whether science has yet the right to forbid marriages to those in whom some tendency to insanity exists.

In view of the above statements, a most interesting essay might be written on the close relationship there exists between insanity and genius, and this goes to prove an opinion I have frequently expressed, namely, that it is not the clod-hopper's coarse brain that is likely to give

way, but the highly developed and finely organised brain of the poet or philosopher—so delicate in its structure, and so beautifully formed, that it is most unstable. Whether will the cable rope or the spider's web break soonest? and yet the structure of the threads of the web differ only from that of the cable in their delicacy!

Insanity is essentially a disease of civilisation. The more we ascend the scale of mental and physical improvement, the more unstable will the elements of the mental system become, and the easier will they break under gradually decreasing strains.

How many of our finest writers, our giants in literature, poetry, and the arts, have been insane? I can think of Rousseau, Edgar Allan Poe, William Watson, the gentle Lamb and his sister; Swedenburg, the leader of an extensive religious sect, and Mahomet, whose followers are still counted by the million, both of whom were confirmed epileptics, and whose visions were all seen when suffering the after effects of epileptic seizures.

The influence of heredity and its study is, under any circumstance, a most interesting one. Most of you have read the story of Grant Allen, entitled "What's Bred in the Bone," where the heroine, whenever she sees a snake, or has her boa round her neck, at times, and without warning, passes suddenly into a condition of intense excitement, swinging round and round, all the time encircling her boa about her person like a snake, and ultimately falls down exhausted. Her gyrations comprise the movements of the *Naütch* dance, and, according to the author, an explanation of these strange attacks in an English lady, highly educated and most refined, is to be found in the fact that somewhere in the dim past, one of her ancestors was a native of India, and probably either a snake charmer or else a *Naütch* girl.

A curious thing I often see hereabouts at native dances, and the cause is to be found, as in the case of Grant Allen's heroine, in hereditary influence. Have any of you seen the fascination on the face of a half-caste while watching a Kafir dance? The white blood within the Bastard's veins seems to rebel strongly against joining in such savage orgies. He resists the inclination arising within him to join in the dance as long as he can; by and bye the fascination of the dance makes him waver in his resolution—the attractions become too great for his will-power to resist any longer, and he suddenly throws himself in among his half-brothers, and no one thereafter dances more energetically than he. Here we have a custom which existed, and was followed by some ancestor of this man, but association with white men has gradually obliterated the recollection of all these savage dances. But the time comes when "What's Bred in the Bone" will out; the Kafir influence within him becomes stronger than, and overrules, the civilised habits later acquired, and he reverts to the customs of his forefathers without further hesitation.

To revert to the subject of marriage in its relationship to insanity, the question of the marriage of blood relations or cousins is so important as to justify some few remarks. I observe that in the Orange Free State the marriage of cousins is considered illegal. I regret such a law doesn't exist in this Colony.

I can see little or no harm in cousins marrying, provided there exists no tendency to disease in either of the families; but it is a fact that should any disease, that tends to be hereditary, be found on either side, then that disease is liable to make its appearance in the children, and in an intensified form. To illustrate what I mean: in the case of two persons marrying, who are not related to

each other, and one of them suffers from phthisis; this disease might, or might not, make its appearance in the children of the marriage, but not to so marked or fatal an extent as it would were the parents cousins.

The system of intermarrying, so common in this country, is to be condemned. We have not to go further than the Royal Families of Europe to prove my statement. As a result of cousins marrying amongst Royalty for the past few hundred years, there is not a Royal House that is free from either insanity or phthisis, and sad examples of both diseases have occurred within recent years.

And a similar state of matters has been going on for years in this country, with what results do you think? Is it possible that the fact that there are upwards of 800 idiots in the Colony, according to the last census, has anything to do with the marrying of cousins, and, if so, what can be done to prevent this steadily increasing army of deformed creatures from growing larger.

It has been seen that educating the people has no effect, for surely the Royal Houses of Europe are educated enough. Religion and its teachings refrain from expressing an opinion; experience—that experience which is supposed to teach even fools—does not seem to have any influence. *Love*, that all-powerful sentiment, and *money*, the root of evils, fear no locksmiths and dread no physiological laws, when custom considers it politic to enter into consanguineous marriages.

The law alone can forbid the bans in such cases, and to it we look for relief and protection against our passions, if, by the satisfaction of these passions, we are to bring into the world idiots and imbeciles!

In a consideration of the prevention of any disease, we have first to bear in mind the causes and remove them; so in insanity—unfortunately in

this condition the causes are often beyond our control. There seems to be a steady increase in the number of cases of both nervous disease and insanity. The environment in which we live is becoming more and more complex, and there is a corresponding complexity of brain centres and functions, with consequent more and more instability, and liability to disorder and deterioration of these centres and functions.

With regard to heredity, which, as I have already pointed out, forms one of the most important causes of insanity, it is curious how people will deny its existence in their families. I have heard the most barefaced lies made by persons who were anxious to hide the fact that an insane history existed in their progenitors, and this to the medical man who was only anxious to benefit them by his enquiries. Mr. Francis Galton, in his collective investigations, comprised in his work "*Natural Inheritance*," stated that he refrained from asking the question "does insanity exist in your family," because he knew perfectly well that the answers he would receive would be quite unreliable!

If, by some means or other, we could stamp out all insanity due to an inherited mental instability, we should have gone far towards the ultimate extirpation of the disease, for many cases supposed to be due to drink, etc., are in reality due to an inherited mental weakness.

Dr. Blandford made the following pertinent remarks in a lecture recently delivered by him:—
"If we wish to save our race from gradual mental decay, and raise up a strong and vigorous breed of healthy men and women, it is absolutely necessary that more attention shall be paid, than has been hitherto, to the selection of the individuals who are about to marry."

I am often surprised at the fact that, whereas in

our racehorses, our cattle, and even our pets, the greatest selective care is taken in breeding them, so as to produce the best results in their progeny; in the human race nothing is done—no effort made to stay the marriage of two individuals dying from consumption, or full up to the hilt in nervous or mental disease! The whole matter is left in a haphazard manner to nature, and should a family follow, some of whom are idiots, others irreclaimable drunkards, others again incurably insane—the friends stand by, utter melancholic expressions of sympathy, and try to make matches with the families of the uncles or aunts. Not with any idea of improving the breed, as they would were they dealing with their cattle, but in all probability “to keep the farm in the family.”

As man himself has failed in making an effort at human selection, it is left to the legislature to introduce compulsory laws on the subject, and until this is done we need express no surprise that we hear more and more of insanity in our midst.

After hereditary transmission, there is probably no cause of insanity which exercises so potent an influence as alcoholic drinking. There is far less drinking among the upper than the lower classes, but it is sad to relate that in the upper classes drinking among the ladies—I speak of private tipping—is more common than among women of the lower classes. This is bound to have a deteriorating influence on the race, and here again it would seem that stringent and compulsory laws are necessary before man can be made to see the baneful curse of drink. Indeed, in some of those respects, a general interference with the liberty of the subject for the subject's own good is indicated.

To diminish insanity, it is necessary to early attend to the education of the child, and, as I have done before, I must again raise my voice against

“cramming” and competitive examinations as doing more to break the mental systems of children than anything else.

I am not single in my protest against examinations, as conducted in our public schools of the present day. Mr. A. Herbert, in the *Nineteenth Century*, has protested strongly against this spirit of prize winning and place getting in education; and, curious to find out how far this idea extended among the educated classes of England, he issued a circular on the subject, and 377 teachers, including university tutors and headmasters of schools, 130 ladies concerned with the education of girls, and 62 medical men, all agreed with him against the horrible idea, now extant, of making our children in the public schools merely “grant-earning machines.”

In the medical profession itself the student's career has for its aim, not the acquisition of knowledge, but the passing of examinations and the obtaining of medals.

Children, who are predisposed to mental troubles, should not be subjected to narrow views of religion. Self-introspection is one of the earliest symptoms of insanity, and if children are told to “search themselves” too closely we need not be surprised at unfavourable results following.

I have finished. There is much more that I might have said on any or everyone of the heads of my discourse to-night, but while time prevented me enlarging on these subjects, I have endeavoured to explain, in as simple words as possible, what we know of the brain, the mind, and the threshold, and I have added some few remarks on a subject beyond the threshold, not with the object of describing to you the symptoms of insanity—a matter that alone should be considered in an audience of medical men, for we can never popularise medical subjects—but

with the object of showing you the dire effects of such a disease as insanity, pointing out the connections between this disease and the race, and endeavouring to show how, by education and proper selection, we may in time, not by inoculation, but by legislation, expel this disease from our midst.

I have raised several questions of a controversial nature, and will be pleased to hear the opinions of those present on such subjects as may be dealt with, by those who hold different views to myself.

I am grateful to you for the patient hearing you have given to a tedious paper, and must apologise as much for the defects in its composition, as for the imperfections of the lecturer.

THE END.



