Melancholia, from the Physiological and Evolutionary Points of View.

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I.

Probably no form of insanity includes so many varieties, or is characterized by so peculiar and even contradictory symptoms as melancholia. Under this form of mental derangement most authors include a variety they term excited or active melancholia which is characterized by a motor excitement, sometimes equalling that of acute mania, and they also include another variety termed melancholia with stupor, in which the patient remains absolutely motionless and quiet. Two more strikingly different varieties of insanity it would be impossible to describe, and we are at once confronted by the question — What explanation is there of the existence of these symptoms in melancholia?

In answering this question, we must know that we are investigating a function of an organ which has become diseased; the function being the production of depressed or painful emotion, and the diseased organ being the brain. Disease of any organ usually affects the performance of its functions, and before one can recognize the alterations of function produced by disease, it is necessary in the first place to understand the normal functions as they exist in a healthy organ. It is therefore necessary to study the production of depressed or painful emotion in a healthy brain, in order to elucidate the alterations we observe in the performance of this function in a diseased brain.

Before proceeding to study this function of the brain in health and disease, I must mention two or three general principles which must guide us, and the truth of which I have assumed.

In the first place, we must understand the difference between health and disease. Prof. Hamilton * defines health as "that condition of structure and function which . . . we find to be commonest," and disease as "any departure from the normal (or healthy) standard of structure or function. . . ."

As we are not considering the alterations of structure that take place in melancholia, but merely the alterations of function, the first part of each definition does not concern us.

* "Textbook of Pathology," p. 161.

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Health and disease are thus relative terms, and there is no sharp line dividing the two.

As a corollary to this definition of disease I assume that the symptoms of disease are the normal functions modified.* To explain this more fully, I mean that the symptoms we perceive in disease all originate in some healthy function, and that disease superadds nothing new to the existing functions of the body. The departure from the normal intensifies, diminishes, abolishes, or perverts the function, and this departure from the normal standard we call a symptom of disease. We will subsequently find that most of the symptoms of melancholia can be traced to some normal function.

In the second place I assume the correctness of Darwin's "Theory of Evolution," and secondary to this the "Theory of Reversion" to a lower type. Darwin has conclusively shown that many of the expressions of the emotions in man are modifications of similar expressions in the lower animals.† If, then, reversion to an older and lower type sometimes takes place ‡ we have grounds for assuming that when disease affects the production of depressed or painful emotion, the expression of this emotion may sometimes acquire a closer resemblance to the expression of the same emotion in the lower animals.

A light appears to be thrown on some of the symptoms of melancholia by this assumption.

On analyzing depressed or painful emotion in health we find that it consists of at least three important elements.§ There is—

1. The characteristic feeling of depression or pain;
2. The train of ideas connected with this feeling; and
3. The special relationship to the different bodily organs, and especially the muscular system.

1. In the emotion we are considering there always exists a painful or disagreeable feeling. The intensity of this feeling, however, admits of various degrees, it may be slight or it may be intense, and distinctive names have been given to the various graduations which range from feelings of slight uneasiness or unhappiness to those of fright and of the most abject terror. That disease of the brain we term melancholia affects the production of depressed or painful emotion, and consequently it may affect the production of any of these graduated

* Gairdner, "The Physician as Naturalist," p. 259.
† Darwin, "Expression of the Emotions."
‡ Darwin, "Descent of Man," p. 137; and Maudsley, "Body and Mind," p. 47.
§ Ladd's "Elements of Physiological Psychology," p. 516.

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states of depression. Remembering the corollary to our first assumption, this may be expressed in other words—that the symptoms of melancholia are modifications of the functions which produce any of the emotional states of pain or depression. It is most important to remember this fact, that a symptom of melancholia may be traced to any of the states of depressed emotion for its origin.

2. The second element in the constitution of an emotion is the change in the current of ideas. In depressed emotion there is a sudden interruption to the normal flow of ideas, and ideas are stimulated which are all of a gloomy or disagreeable nature. Owing to this fact, judgment is impaired, and if the sudden interruption to the flow of ideas be great, temporary confusion may result.

3. The most wonderful and characteristic accompaniments of the emotions, however, are the changes in the bodily organs, including the muscular system. These organic changes are not merely the expression or effect of the emotion, they are its "material cause and support," and experimentally this receives confirmation from observations in hypnotism. If a hypnotized person is made to assume the facial expression and other motor accompaniments of fright, that emotional state is at once produced,* and so also to a lesser extent this occurs in acting.† At all events, these organic changes are recognized to be a most important element of the emotion,‡ and from the evolutionary point of view, they come before the ideational changes, as many of the invertebratæ show the organic changes accompanying fear, though they cannot possibly have many ideas.§ The organic changes in states of painful or depressed emotion extend over a wide range and involve the voluntary muscles, whereby their tone is increased or diminished, the involuntary muscles like the heart and intestinal muscles, the vaso-motor system producing paleness or flushing, the respiratory system, secreting glands, etc. Some of these particular changes will be subsequently investigated.

II.

After these preliminary remarks we will now take up a consideration of depressed or painful emotion in disease. As melancholia is such an extensive disease and embraces so many

* Hack Tuke, "Influence of Mind on the Body," 2nd Edit., Vol. i., p. 228.
† Archer, "The Psychology of Acting."
‡ Prof. James, "Mind," 1884, ix., p. 188.
§ Romanes' "Mental Evolution in Animals," p. 342.

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diverse forms, one must adopt a classification in describing it, and the best classification is a simple and physiological one. As this emotion has been found to consist of three important elements, any of these may serve as a basis for classifying the different varieties.

There are, firstly, the different degrees of intensity of the depressed or painful feeling, which might be ranged in regular order, but as this feeling is entirely subjective it cannot be conveniently adopted as a basis of classification. There are, secondly, the degrees of disturbance of the ideas, but there are practical difficulties in using this for a basis, as the degrees of disturbance are subtle and difficult to test. There are, thirdly, however, the organic changes, and of these especially the motor changes, which may form a basis of classification. These changes are readily observed, and can be accurately estimated, and though they do not exactly correspond with the degree of change in the ideas or feelings connected with the emotion, they do so roughly.

Taking the changes in the muscular system as a basis, the varieties of melancholia may be divided into the following three great sub-divisions* :—

I. Passive melancholia, in which there is an absence of tone in all the muscles;

II. Active melancholia, in which there is excitement and increased tension of the muscles;

III. Melancholia with stupor, in which the muscles do not respond to stimuli.

Passive melancholia.—I will now commence a consideration of passive melancholia by first giving a description of the healthy emotional condition, from which its symptoms may be traced. The condition I describe may be imagined to occur in a sane man after some heavy loss, such as the death of a near relative, and it may be called sorrow, despondency, gloom, or misery. It is not to be taken as the accurate description of a real case, yet all the symptoms are true; all the symptoms may never have been seen in one case, but still the description is a correct one, in the same way as a composite photograph is.

An individual in this state is a picture of inaction and want of energy. He usually sits languidly in a chair with all his muscles relaxed. The eyelids droop, the angles of the mouth fall, and the face lengthens owing to relaxation of the jaw.† The head lies on the chest, the back is bent, and the hands fall

* Savage, "Insanity," Chap. vii., p. 151.
† Darwin, "Expression of the Emotions," p. 178.

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listlessly by his sides or lie semi-closed in his lap. Even the respiration is slowed, and the voice is monotonous and low.

His sensations afford him no pleasure; pictures, music, food and drink, and physical exercise do not give him pleasure. Even his organic sensations are unpleasant, and he has lost his appetite. He does not sleep, and there is also a distinct feeling of bodily illbeing.

He is inobservant, and takes little interest in his surroundings. He dresses untidily, and he neglects his daily work. He cannot be bothered with questions, because thinking is unpleasant, and he cannot carry on a conversation. He lays undue stress on the gloomy side of all things. His mind continually dwells on one subject—the cause of his sorrow—and he cannot forget it. He feels so miserable that he often wishes he were dead, and he may occasionally think of committing suicide to end his sorrow.

This condition is only temporary, and he gradually comes round to the normal.

It has been pointed out that there is no boundary line between health and disease, and this condition, which I have described as occurring in health, often becomes one of disease. It is an exact description of a variety of insanity termed (*a*) Simple Melancholia by many authors, who recognize this condition as one of disease when it is produced by a totally inadequate cause, or when its duration is excessive.

The Rubicon of insanity is, however, crossed when once the judgment—that is the ideational element of the emotion—becomes much impaired, and the symptoms then differ markedly from the normal. This divergence from the normal is not, however, regular all along the lines, but in different cases is more marked in different directions. The special divergence from the normal marks that case out as a distinct variety, and hence we have the clinical * varieties of Passive Melancholia.

Thus we saw that the man suffering from deep sorrow could not carry on a conversation, could not think, and held biased opinions. If his ideation becomes more impaired he passes from holding false opinions to entertaining delusions, and if these refer to phenomena outside himself, we say he suffers from (*b*) Delusional Melancholia.

If coupled with this impaired judgment, the want of pleasure in his organic and other sensations, and the feeling of bodily ill-being become more marked, and if the delusions

* See Clouston, "Mental Diseases," Lecture II. and III.

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are concerning his bodily health, we say he suffers from (*c*) Hypochondriacal Melancholia.

If one of the delusions concerning his bodily health be selected—it is usually an abdominal one—and if this be regarded as the cause of the depression, and the mind continually dwells on it, as in profound sorrow, it becomes a fixed delusion, and the variety of insanity is called (*d*) Visceral Melancholia.

If, instead of the wish that he were dead, and the occasional thoughts of suicide, there is a constant desire to commit suicide, whether founded on a delusion or in order to escape his intense misery, the variety is termed (*e*) Suicidal Melancholia.

We have thus described a variety of healthy depressed emotion; we have watched its passage into a diseased condition, and we have distinguished five clinical types of the diseased condition. In none of these five types has any new symptom been suddenly sprung upon us; all the symptoms are seen to be developments of phenomena which exist in health, from which their origin is obvious. As the disease progresses, all the symptoms deviate more from the normal phenomena; thus the want of appetite may form the basis of a delusion of poisoning, and there results a refusal to take food. All manner of eccentricities of conduct may also develop from delusions of various kinds.

Active melancholia.—I will now preface a consideration of the next sub-division, that of the Active Melancholia, in which the muscular system is characterized by tone and excitement, by a description of the healthy emotional states, from which its symptoms take origin.

In some cases of recent grief or acute anxiety the following phenomena may be observed:—The person is agitated and restless; the eyebrows are corrugated and the forehead is wrinkled; the hands are firmly closed or the individual is, as it is said, wringing his hands with grief. If he sits he keeps swaying his body, but he usually walks up and down the room. He is seldom silent, and usually continues repeating some phrase, such as, "What shall I do?" Mentally his condition is similar to that of profound sorrow, though his ideas are more vivid and excited, and he is more entirely absorbed in the subject of his grief, so that he does not observe sensations such as cold and hunger. As this condition is altogether a much more acute one than that of profound sorrow previously described, it lasts normally a shorter time.

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The condition, however, of healthy, painful emotion, which is characterized by the greatest amount of muscular tone and excitement, is that of terror, and it is best seen in children.

The child gives a loud, high-pitched scream, and the breathing becomes agitated. The eyebrows are drawn up, and the eyes stare and protrude. The mouth is opened, and the facial muscles are tensely contracted. Even the hair may stand on end.

The general muscular tension is very great, and the child may run away. If caught by the object of its terror, it fights, struggles, and screams with extraordinary violence, till exhausted. The disturbance to the train of ideas is very great, and mental confusion and want of judgment prevail. It is useless to reason with the child; its ideas and actions are completely controlled by its emotion. Very similar conditions occur in the timid lower animals, such as birds or rabbits.

The condition of this emotion in disease may also be conveniently divided into two groups. In the first group the muscular excitement, though present, is not very great, and the ideational element of the emotion is often the most marked feature of the disease. We may thus have the same clinical varieties as exist in Passive Melancholia, but the symptoms are, as a rule, more acute. In the second group, however, as in terror, the motor excitement is the most marked feature of the disease, and completely overshadows the ideational changes. Dr. Clouston writes of this type, that "the patients rush about, are violent to those about them, wander ceaselessly, walking up and down like tigers in a cage, or roll about on the floor, or wring their hands, or shout, or groan, or moan, or weep loudly, or tear their clothes, or in their cries, attitudes and motions, express strongly their mental pain. In short, the muscular expression of the pervading emotion is strong and uncontrollable by volition."* They are most troublesome to manage, are very obstinate and resistive, and sometimes assault those about them. As a rule they are very confused and incoherent in their ideas.

Such are the symptoms of a typical example of Active Melancholia, and it will be noted that the chief symptoms—the motor excitement, the resistance, the violence, and the confusion—are developments of similar phenomena which are found in terror.

Melancholia with Stupor.—The third sub-division is that of Melancholia with Stupor, which from the motor point of view

* "Mental Diseases," 2nd Ed., p. 90.

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may be defined as "more or less complete loss of reaction to stimuli."*

Melancholia with Stupor is divided into three varieties on account of three different conditions in which the voluntary motor system may be found.† It may be —

(1) Quite passive, unresistive, and having no tendency to keep fixed positions; or

(2) Resistive, in a condition of tension, showing more or less strong passive resistance, to external efforts to change the position; or

(3) Cataleptic, there being slight tension, little or no resistance, and a decided tendency to keep fixed attitudes and positions. The third condition is, to a great extent, intermediate between the other two.

1. A person suffering from the first variety of stupor has a vacuous expression of face. He sits or stands for hours where he is placed, and in the same attitude. When spoken to he takes no notice, and he shows no active desire or interest. His extremities are cold, and he does not obey the calls of Nature. In fact, the person is altogether a passive or negative quantity. He sees, hears, and feels nothing, he does nothing, he makes no resistance, and usually he seems to think of nothing. The emotional feeling and the state of the intelligence vary a good deal. In some cases there seems to be no feeling of depression, in others it is well marked; and in some there is no recollection of the state afterwards, which seems quite a blank, whilst in others there is a fair memory, and the existence of delusions is admitted.

This first variety of stupor corresponds with that state in health in which people say they are "paralyzed with fright," and they become powerless to move, even for self-preservation. It is commonly seen in the lower animals, as when a rabbit lies on its side and allows a weasel to approach it, and the so-called charm exercised by snakes over birds is believed by Sir Joseph Fayrer to be an example of it. In these instances intense fear usually exists, but we also have examples in which, along with the other phenomena of this emotional state, there is no conscious feeling of pain or fear. Dr. Livingstone has given an excellent description of how he felt no pain or fear, but was paralyzed when in the clutches of a lion. Two other instances are on record.‡

* Savage, "Insanity," p. 179.

† Clouston, "Mental Diseases," p. 289.

‡ Sir Lyon Playfair in "The Queen," Feb. 16, 1889 (quoted from the N.Y. "Forum").

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2. In the second variety of stupor there is tone and passive rigidity in the voluntary muscles, and the individual resists efforts to alter the position of his limbs. This persistent passive resistance to all movements is very remarkable. In all other respects the case resembles the former variety, except there is, perhaps, a better peripheral circulation and a more melancholic expression. Etiologically it differs also in this respect, that whereas the former may occur after mania, stupor with resistance always occurs after melancholia.

The condition in health, from which this variety takes origin, is one which occurs in sudden terror, and is described in the popular expressions "frozen with terror" and "rigid with fright." Darwin* describes a case of stupefied amazement, together with terror, in an (Australian) native, who had never before seen a man on horseback. "He stood incapable of moving a limb, riveted to the spot, mouth open and eyes staring." He also remained motionless, and could not speak.

3. The third variety of stupor is that accompanied by catalepsy. Emotionally there is little depression felt during this condition, and the mind, as a rule, appears a blank after recovery. The cataleptic condition is too well known to need description. It appears to be a half-way stage between the two above varieties. The muscular tone is intermediate, resistance is slight, being what is described as "waxy," though it may be greater, and the limb continues remaining in the position it was placed.

The phenomenon in health, from which the cataleptic condition accompanying melancholia takes its origin, is, I think, that fixation of movement or gesture which occurs in surprise or astonished fright, surprise being regarded as a painful emotion.† The individual's attention has been suddenly seized, perhaps when doing something, and, while watching the object of his surprise, he becomes fixed and motionless for a variable number of seconds in one position, often an awkward and ludicrous one. The transition from this to melancholic catalepsy is bridged over, to some extent, by the cases of distinct temporary catalepsy which have been known to occur suddenly in fright. From the evolutionary point of view, also, a connection appears to be established between this state and the so-called "simulated death" of insects and other animals, which will be subsequently mentioned.

We have now concluded a brief description of all the chief

* "Expression of the Emotions," p. 280.

† G. H. Lewes, "Problems of Life and Mind," p. 385.

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varieties of melancholia. The three broad types have been found to be very dissimilar from one another, but they nevertheless show their relationship by tending to pass into one another. Thus a case of passive melancholia may pass into active melancholia, and finally end in stupor. There are also connecting links between the three varieties. Thus in simple melancholia there is slowness of ideation and some degree of confusion, which may be regarded as the first stage of stupor; and cases of passive melancholia, and even of stupor, show their connection with active melancholia by becoming suddenly impulsive every now and then, which is a condition allied to that of excitement.

III.

We have so far studied melancholia from the physiological point of view, and I have attempted to show the gradual development of the symptoms of disease from the normal functions. We will now investigate melancholia more from the evolutionary point of view, in order to explain the primary origin of the symptoms. In doing this it will be most convenient to take up the individual symptoms and discuss them. The first symptom we will discuss is that of the increased tone of the muscles in active, and their relaxation in passive, melancholia.

The active and passive states.—In the evolution of the emotions, as of other functions, the finer and more complex are developed from the coarser and more simple.* Thus in the painful or depressed emotions such complex feelings as sorrow and anxiety must have come after fear, and it is to this primary feeling we must go in studying their origins. Hughlings Jackson has said† that anxiety "is only fright spread out thin;" he might have said with truth every form of depressed emotion was fright spread out thin. It is thus to fear or fright in unevolved man and the lower animals that we must go for a solution of the above problem, and on this, as on most questions of evolutionary origin, Darwin's genius has shed light. He says that "men during numberless generations have endeavoured to escape from their enemies or danger by headlong flight, or by violently struggling with them. . . . As these exertions have often been prolonged to the last extremity, the final result will have been utter prostration, pallor, perspiration, trembling of all the muscles, or their complete relaxation.

* Herbert Spencer, "Principles of Sociology," p. 53.

† "Lancet," p. 338, Sept. 4, 1875, on "Softening of the Brain."

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And now, whenever the emotion of fear is strongly felt, though it may not lead to any exertion, the same results tend to reappear through the force of inheritance and association."*

In the struggling, therefore, that takes place do we find the cause of the increased tone, and in the subsequent exhaustion we find the cause of the relaxed tone, according to Darwin's "Law of Serviceable Associated Habits,"† which is assumed all through this part of the article. A confirmation of this fact is obtained in the forms of emotion that tone or relaxation accompany. In those emotions produced by anticipation of future misery there is increased tone and excitement; in those which dwell upon the past there is relaxation.‡ "If we expect to suffer we are anxious; if we have no hope of relief we despair."§ In the one, by action and resistance, we may surmount the danger, hence there is increased tone; in the other the time for action is past, or action is useless, hence there is relaxation.

The analogies between active and passive melancholia on the one hand, and the struggling and exhaustion of a frightened animal or man on the other, are much closer than merely tone and relaxation of the muscles, and into this we will now enter with greater detail.

Resistance and obstinacy.—The tension of the muscles in active melancholia takes the form of resistance, and usually combined with it is the allied mental condition of obstinacy. Almost all melancholiacs are obstinate, some are dreadfully so, and it makes them very difficult to manage. The active varieties of melancholia, including resistive stupor, also show a perpetual resistance. They seem to resist on principle anything and everything that is done to them. There is in these cases a perpetual meaningless resistance, which can only be explained by the struggling animal theory.

Impulsiveness and violence.—Patients suffering from active melancholia are very commonly violent, and patients suffering from any kind of melancholia may become suddenly and impulsively violent. This tendency to strike their fellow patients

* Darwin, "Expression of the Emotions," p. 308.

† *Ibid.* p. 28. "Certain complex actions are of direct or indirect service under certain states of the mind, in order to relieve or gratify certain sensations, desires, &c.; and whenever the same state of mind is induced, however feebly there is a tendency through the force of habit and association for the same movements to be performed, though they may not then be of the least use."

‡ Bucknill and Tuke, "Psych. Med.," 4th Ed., p. 449.

§ "Expression of the Emotions," p. 178.

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or attendants, especially if thwarted in any way, resembles very closely the actions of a struggling animal.

Homicide.—It is not surprising that a desire to kill should occur, and that there should be a distinct homicidal variety of melancholia, if the emotion be evolved from a condition in which one animal is doing its utmost to kill another.

As a symptom, homicide is not common, but it is just when a theory holds true, even with exceptions such as this, that it proves to be correct.

Restlessness and craving to be on their feet.—Many melancholiacs are restless, and most of them give the attendants much trouble to keep them in bed, or sitting. Almost all seem to have a craving to be on their feet, and while some simply stand, and others wander aimlessly, there are still others that have a perpetual impulse to run away. The greatest "bolters" in asylums are frequently melancholiacs. It may be that getting up and running away have so often brought relief from danger or from enemies, that in melancholia one naturally gets up either to be prepared to run or fight, or to obtain mitigation of the depressed emotion from previous associations of relief. Wild animals in menageries walk up and down their cages, like some excited melancholiacs. The desire to run is also experienced when panic seizes soldiers.

Groaning, repetition of phrases, and shouting.—Darwin states that when suffering severe pain groaning brings relief, by letting off energy, and after becoming a habit one groans reflexly, by association of painful states, in mental depression. Some excited melancholiacs shout and roar, and repeat phrases such as "Oh, dear me!" loudly and unceasingly. Some of these are the noisiest patients in asylums, and render both day and night hideous by their shouts. These symptoms have probably been derived from the scream of terror, which is common to man and the lower animals. The scream may have been derived from the groan, which brings relief to pain, but most probably it was primarily the terrified call for help, and used by the young of an animal when in danger to attract its parents, or by the member of a flock.

Staring eyes.—This is a symptom of active melancholia, especially if there be much excitement. The frightened animal opens its eyes widely that there may be no obstruction to vision in order to discover the enemy, or means of escape.

Selfishness.—Almost all melancholiacs are selfish, and think entirely of themselves. An animal struggling for existence in

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a pre-eminent degree is looking after number one, and may be said to be selfish.

Destructiveness, cruelty, etc.—As an occasional symptom we observe in melancholiacs destructiveness; they spoil plants, tear clothes and leaves out of books, break articles of furniture or ornaments wantonly, and put things in the fire. They may also be wicked in many ways, being sometimes indecent, telling lies, and cruel. Such symptoms are totally inexplicable regarded from the point of view of physiological depressed emotion alone, but regarding the evolution of the emotion from the animal struggling for its life, bent on doing injury, and exercising no self-control, they become understood.

Coldness of the extremities and feeble circulation.—This occurs in passive melancholia and in stupor, and is derived by association of emotional condition from the muscular and cardiac exhaustion which succeeds a severe struggle for life.

Drooping of the eyelids and general languor.—This occurs in passive melancholia, and is derived from the collapse after a struggle.

Paralysis of the sphincters is also traced to the same origin.

Refusal to take food.—The origin of this has already been traced, but it is interesting to note that it is a common symptom in wild birds and other animals, when they are caged, and probably suffer some form of depressed emotion. Want of appetite plus resistance may produce persistent refusal to take food.

Suicide.—This symptom cannot be studied from the evolutional point of view, in spite of the fact that some people believe in the suicide of scorpions.

Erection of the hair.—Bristling of the hair may occur to some extent in a small percentage of cases, but it is quite common to observe a downy appearance on the face owing to the fine hairs being erect. This has its origin in the erection of the hair or feathers of a frightened animal in order that it may appear larger and more dangerous to its assailant.

Secretions.—The urine is increased in amount and is rendered more watery under fear, and I have observed one case of diabetes incipidus in melancholia. In terror there is also an increased secretion of sweat, yet in melancholia I have observed no affection of this secretion.

Catalepsy.—This symptom is a very interesting one, and there being tone in the muscles it probably has the same origin in evolution as active melancholia. It is a comparatively rare symptom in melancholia, and it is not peculiar to

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that form of insanity; yet there is a close connection between the two, and it may precede an attack or come on during one. Physiologically, I have said it is derived from the "fixation" of surprise, and this may account for its not being limited to melancholia, as surprise, though fundamentally a painful emotion,* is sometimes pleasurable.† This "fixation" in surprise, especially in the less acute degrees of the emotion, as in surprised attention, is one which has been overlooked, and I can find no mention of it in Darwin, Sir Charles Bell, Hack Tuke, or in Bain, and still it is a well-known experience. Have we not all seen our friends, for example, when eating and raising a spoon to the mouth being suddenly surprised at some occurrence, and while watching it have noticed them holding the spoon for a considerable time in a fixed position near the lips? In this fixation, I believe we have the physiological elements of catalepsy.

In some of the lower animals I believe this tendency has been highly developed by natural selection, having proved useful in certain circumstances, and it is the real explanation of the so-called simulation of death by insects and other animals.

Darwin‡ investigated this question of shamming death among insects, and after many observations found that in no one instance was the attitude similar to that of a dead insect of the same species, and in many instances it was very unlike. He came to the conclusion that the position was due to the "paralyzing effects of excessive fear." I think Darwin's observations prove that there is no conscious simulation of death, and I believe the condition to be entirely due to an exaggeration of the "fixation" in surprised fright. It occurs in most, if not all classes, of the animal kingdom according to Romanes§ and of the higher animals with us, it is probably best seen in mice, in which animal I have myself observed a distinctly cataleptic condition of the limbs. The theory that this condition is a cataleptic stupor produced by fright is believed by several eminent comparative psychologists.‖ There is also a connection between this condition in the lower animals and catalepsy in melancholia in a number of

* Darwin, "Expression," p. 307.

† "Emotions and Will," Brain, p. 13. "Influence of the Mind upon the Body," Hack Tuke, Vol. i., p. 163, 2nd. ed.

‡ Darwin, Essay on Instinct in Romanes' "Mental Evolution in Animals," p. 365.

§ "Mental Evolution in Animals," p. 306.

‖ Romanes, Prof. Preyer, Prof. P. W. Duncan, and Couch.

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recorded cases of sudden catalepsy produced by fright,* and these instances may be regarded as bridging over the borderlands between health and disease. An analogous condition to fright rigidity and catalepsy is also probably experienced in nightmare, and I have met two instances of medical students who on awakening when under this peculiar condition of depressed emotion found themselves unable to move for nearly a minute.

At this time, when hypnotism is so much in vogue, it is interesting to note that Heidenhain writes, "that the hypnotic state is nothing more than an artificially produced catalepsy."†

In the foregoing remarks I have traced back the symptoms of disease to the functions of health, and carried both back to their origin in evolution, and by these means I have attempted to give a rational explanation of the symptoms of melancholia.

CLINICAL NOTES AND CASES.

Case of Chronic Meningitis. By J. W. PLAXTON, M.R.C.S., Medical Superintendent of the Lunatic Asylum, Kingston, Jamaica.

Around pachymeningitis curiosity and interest have long circled: the pages of the "Journal of Mental Science" bear witness. Men felt that the current explanation of its development was inadequate, and, if they did not deny its truth, they received it with suspended contradiction rather than acquiescence.

Huguenin's explanation ("Ziemssen," Vol. xii., p. 306), that pachymeningitis, as we usually see it, is merely a case of new tenants in a deserted house, is one which must ultimately oust the older idea.

In support of the newer I put on record in the "Journal of Mental Science" for January, 1889, a case of "Shrinkage of a Hemisphere and subsequent Pachymeningitis." In that case a one-sided pachymeningitis existed, complementary to an equally circumscribed shrinkage of the cerebrum.

Huguenin's explanation will stand good for those cases of which hæmorrhage is the essential fact, and of which antecedent diminution of the natural contents of the skull is almost

* Hack Tuke, "Influence of Mind on the Body," p. 308.
† Heidenhain, "Hypnotism," p. 25.

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