II.—Insanity in the Lower Animals.—By W. Lauder Lindsay, M.D., F.R.S.E., Physician to the Murray Royal Institution (for the Insane), Perth.

> "With caution judge of *possibility*.
> Things thought unlikely, e'en impossible,
> *Experience* often shows us to be *true*."
> *Shakespeare.*

In 1853-4 I was engaged in a series of *experimental studies in comparative pathology*, which led me to entertain a very high opinion of the importance to the physician of a knowledge of the *pathology of the lower animals*, both in itself, and more particularly in relation to a better acquaintance with the diseases of man. The views which I was then led to adopt and express were received by the medical profession, even by some of its most eminent members, very much as the mere vagaries of youthful novelty and enthusiasm.[1] But in the interval—thanks especially to the appearance in this country of the cattle plague of 1865-6[2]—the rinderpest itself, the diseases of the lower animals as a group, and the important science of comparative pathology, received, from the medical profession, a degree of attention, which has now placed the *pathology of the lower animals* much more nearly on a par with that of man, as regards both our estimate of its importance, and the thoroughness with which it is studied. Physicians and veterinarians now vie with each other, as they should do, in the study of animal pathology, and it is to the former that we owe the best of our knowledge regarding rinderpest and many other animal diseases.[3] Nowadays, therefore, the laugh is no longer against the individual observer, who proclaims as a startling novelty the intimate inter-connection of animals and man, as concerns both their pathology and physiology, but

[1] To compare humble persons or small things with greater ones, I might have applied to myself the recent words of Disraeli in the general preface to the new edition of his works (1870):—"He who steps out of the crowd is listened to with suspicion or with heedlessness. . . . . I incurred the accustomed penalty in being looked on as *visionary*, and what I knew to be *facts* were treated as *paradoxes*;" or the still more recent utterance of my friend, Professor Blackie, at his last inaugural address in the University of Edinburgh (November, 1870):—"I knew too well that, in small as in great matters, the powers that rule the world are *authority and custom*; sometimes, indeed, beneficially supporting, but at other times perniciously defying, Reason."

[2] It lasted about a year, extending over the latter half-year of 1865 and the first half of 1866.

[3] For instance, Dr. Smart's Memoirs on Cattle Plague; Dr. Claude Bernard's and Dr. Brown-Séquard's Researches in Comparative Pathology; and Dr. Greenhow's Report on Pulmonary Murrain.

against the imperfectly educated physician or veterinarian who is not fully acquainted with their important inter-relations! In other words, I have lived long enough to see, in regard to comparative pathology, views that were once singular, and the subjects of much ridicule, become thoroughly established, both in science and popular belief.[1]

It is again my fate to broach opinions for which, I fear, my professional brethren may not be prepared, and which veterinarians especially will probably regard as equally heterodox and novel. But I have little doubt that a dispassionate study of the subject will, in the course of time, lead to as general a reception and adoption of my present views as occurred in the case of those above referred to.[2]

For the last three years (1869-71)[3] I have been engaged in the study of another department of comparative pathology, one which opens up, it would appear, a wide and novel field of the most interesting and promising kind for original research, viz. that department which relates to the *disorders of mind in the lower animals*.[4] Those who have given no attention to the subject of reason or intelligence, as distinguished from *instinct*, in animals, will probably require to be convinced that a *mind* of any kind exists in animals before they are prepared to listen to discussion as to whether and how far *disorders* of mind can be properly spoken of as possible in other beings than man. My correspondence and reading convince me that there are very few physicians, and still fewer veterinarians, who are ready to admit or believe that animals possess *mind* at all, referring, as they do, all the operations or phenomena in animals, that would be termed *mental* if they occurred in man, to the very convenient and heterogeneous category of *instinct*. Their non-

[1] Thus, Dr. Rumsey, the well-known advocate of "state medicine," expresses his belief "that a scientific study of comparative pathology is inseparable from medicine in its wider and truer sense; that the principal discoveries in animal disease are due to medical philosophers; and that in practice the subject is essential to a proper organization of state medicine."—'Brit. and Foreign Med.-Chirurg. Review,' July, 1870, p. 231.

[2] Relating more especially to the transmissibility of *cholera* from man to other animals. (*Vide* the following papers: 1. "On the Transmission of Disease between Man and the Lower Animals," 'Edin. Veterinary Review and Annals of Comparative Pathology,' July, 1858; 2. "On Choleraization," 'Lancet,' December 1, 1866, p. 600).

[3] The subject was alluded to in my paper on "The Causes of Insanity in Arctic Countries," 'Brit. and Foreign Medico-Chirurgical Review,' January, 1870, pp. 212, 216, 217.

[4] Professor Huxley wrote me (in June, 1870), "The line of inquiry which you are pursuing, respecting the *pathological relations of man with other animals*, is very interesting, and I hope you will follow it up." Dr. John Brown, the well-known author of the 'Horæ Subsecivæ,' calls it "a curious but baffling inquiry" (letter of December, 1869).

belief is as frequently attributable to most irrational prejudice as to mere ignorance. I cannot, in the present paper, undertake to convince the ignorant or prejudiced that the lower animals *do* possess *mind*. A long course of patient and laborious inquiry leaves my own mind in no doubt on this subject, but the results of that inquiry I must reserve for exposition and discussion in some other form.[1] Meanwhile it must suffice to give here only the general conclusions bearing more immediately on the subject of the present paper, which is a consideration of those *mental* or cerebral functional disorders in the lower animals that are comparable with, or analogous to, the group of affections embraced in the category of *insanity in man*.

The kind and amount of evidence I have collected sufficiently convince myself that—

1. Certain of the lower animals possess *mind of the same nature as that of man*.

2. There is therefore *no essential mental*[2] *distinction* between man and other animals.

3. Many of the same influences that are the *causes* of insanity in man operate, frequently in the same way and to the same degree, on the mind of animals.

4. Man and other animals are alike subject to *other diseases*,[3] including especially those of the brain and general nervous system.

5. The same sudden and marked *changes of character or disposition*, that in man so usually constitute the *prodromata* of insanity, occur equally in animals.

6. In animals, as in man, there is *hereditary transmission* of predispositions to disease, of qualities acquired by education, of deformities accidentally produced, of morbid lesions artificially created.

7. The diseases common to man and other animals are frequently at least due to *similar causes*.[4]

8. The lower animals are liable to the *same kind of mental disorders* as man.

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[1] I have already published the first instalment of these results in a paper treating of "The Physiology of Mind in the Lower Animals" in the 'Journal of Mental Science,' April, 1871.

[2] I use the term *mental* rather than *psychological* or *psychical* as being more restricted in the meaning usually attached to it. *Mind*, as defined by Professor Bain and our best modern authors, includes only Emotion, will, and intellect; and it is in this sense that throughout the present paper I use the terms *mind* and *mental*. But this definition of mind *excludes instinct* and *sensation*, both of which are so intimately connected with mind that it is impossible to dissociate them. It also *excludes self-consciousness*, *soul* and *spirit*, which are usually regarded (with what degree of truth I cannot here stop to inquire) as the special attributes of humanity.

[3] *Vide* Gamgee in 'Edinburgh Veterinary Review and Annals of Comparative Pathology,' vol. iii (1861), p. 3.

[4] Ibid., p. 4.

9. In comparing the mental or other diseases of animals with those of man, due allowance must be made for *ordinal*, *generic*, and *specific*—for anatomical, physiological, and therefore, also, pathological—*differences;* as well as for *individual idiosyncrasies* or predispositions.

I do not profess in the present paper to be able to adduce

> "*Proofs*—as clear as founts in July,
> When we see each grain of gravel"

that the lower animals are subject to *all* the forms of insanity that afflict man. But I hope to be able to submit evidence of the likelihood that sufficient *proof* will be forthcoming, when it is properly searched for—that man and certain other animals are subject *in common* to various forms of *mental disorder*. My own position does not give me the opportunity of collecting records, or investigating cases, of animal cerebral disorders that are likely to prove analogous to or comparable with what is called *insanity* in man. My paper claims, therefore, only to be *suggestive*. It is intended only to stimulate to research those who have the greatest natural facilities for, or opportunities of, collecting valuable evidence, viz. *veterinarians*. When I began my inquiry I looked to *them* for assistance in its prosecution; but I soon found them, not only more ignorant, but also more prejudiced, than I could have conceived possible, considering their intimate knowledge of the habits and disorders of at least the higher domesticated animals. One eminent veterinary professor informs me that animals have *no* mind, while several others announce their inability to furnish me with references to any cases of functional cerebral disorder in animals at all comparable with insanity in man.[1] All veterinarians, however, admit that they have given no attention whatever to the mental affections of animals.

I have met but with one (apparent) exception to the ignorance or prejudice of veterinarians on this subject. Professor Gamgee admits that "*much* could be said on the subject of *morbid mental* conditions in animals," but that, in short, "the history of nervous diseases in the lower animals has yet to be written;" and he goes on to explain, in relation to morbid mental conditions, "the ferocity suddenly manifested by animals which early in life have been very docile, the extreme irritability of some, and the apparently gross stupidity and listlessness of others, often indicate deviations from the normal state of either *instinctive* or *reasoning*

[1] Thus, Professor Simmonds, of the Royal Veterinary College, London, wrote me in January, 1870, "I do not know of any cases to which I can refer you." Similar was the result of an application to Mr. Charles Conacher, veterinary surgeon, Perth; while Dr. John Brown, who was intimate with the late Professor Dick, and who is noted for his knowledge of the habits of the dog, wrote me, in December, 1869, "I fear I can help you little or none in this curious but baffling inquiry; I don't know any references."

faculties. There are singular instances noticed of animals acquiring peculiar morbid tastes, which can only be explained as due to nervous disease; and there can be no doubt that, just as we find the greatest diversity in the amount of intelligence possessed by different individuals of the same species, so may we have perversions of *instinct* or *mind* similar to those which are manifested by the human idiot or lunatic."[1] The connection between diversity in the amount of intelligence and perversions of instinct or reason is here far from apparent, and much of his language, meaning, or assertion is confused, obscure, or erroneous; but it is obvious that it had occurred to him to compare certain *morbid mental* phenomena in the domestic animals with some of the forms of human *insanity*. It so happens that Professor Gamgee's work was one of the last I had an opportunity of consulting, and that I had worked out my own conclusions in opposition to the general opinions of veterinarians before I had access to these views of his. Such as they are, I now hold them as *pro tanto* supporting from a veterinarian's point of view the conclusions at which I had previously arrived as an alienist and a physician.

On the other hand, almost the sole support to my convictions I have received from the medical profession has been the following testimony of an author, whose affection for and intimate knowledge of the dog has been amply evidenced in 'Rab and his Friends.'[2] I refer, of course, to Dr. John Brown, of Edinburgh. In December, 1869, he wrote me, "Surely if animals have will, and thought, and affection, they may, in their modes, or functions, or organs, be *disordered* and *deranged*, as truly as are poor humans?" In his chapter on "Our Dogs," in his 'Horæ Subsecivæ,'[3] he speaks of a certain "Jock" as "*insane* from his birth . . . . more properly *daft* than mad;" and of a colt, which, "being nervous, *lost its judgment* . . . . and presence of mind."[4]

The fundamental question, which obviously underlies and forms the basis of my whole inquiry, is this, *Have animals a mind similar to that of man—capable of being disordered by the same influences?* In endeavouring to solve this problem I have carefully studied all the most recent and best works to which I have had access on the habits, character, and disposition

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[1] 'Our Domestic Animals in Health and Disease,' vol. iv (1864), p. 450.

[2] Dr. Tuke apparently recognises the occurrence of *insanity* in animals, inasmuch as he speaks ('Manual,' p. 507) of insanity "remaining at a minimum among barbarous nations, as well as among children, and *animals below man*." This estimate of the infrequency of insanity in the lower animals is, however, I believe, erroneous.

[3] Second series, 1861, p. 159.

[4] Ibid., p. 187.

of animals; noting all those peculiarities, good or bad, healthy or morbid, that in man would be referred to or connected with *mind*. On the other hand, I have equally carefully studied the definitions of Mind given in our best modern standard works; and, comparing the mental faculties of man with the phenomena of so-called intelligence or sagacity, educability, affection, emotion or passion, &c., in animals, have endeavoured to discover whether in these animals are absent any of the faculties which go to make up the human mind. Whatever may have been the definition of mind, or the classification of the mental faculties, of Man examined, I have never failed to satisfy myself that the lower animals, or certain of them, possess in varying degree *all* the faculties of the human mind. One of the most concise and modern descriptions of mind in man is that of 'Chambers's Encyclopædia,'[1] the articles in which are contributed by some of the highest living authorities. According to it, the three elementary constituent faculties or functions of the human mind are—

(1) *Emotion, or feeling;*
(2) *Volition, or will;* and
(3) *Intellect, or thought.*

Intellect, again—the thinking portion of the mental constitution—involves or includes *reasoning*, *comparison*, *memory*, *imagination*, *perception*, *reflection*, and *judgment*. There are *none* of these mental powers or properties, which are not possessed by some of the lower animals, especially by the dog, horse, elephant, whale, ant, bee and spider; while some of them are possessed *in a very high degree*—in a degree much higher, indeed, than by countless thousands of human beings!

I have found, however, the *phrenological* classification of the mental faculties a much more convenient standard than any of the more modern classifications of psychologists, the more especially seeing that the phrenologists distinguished themselves by their advanced, enlightened and liberal opinions in recognising *mental power in animals*, and in comparing this power, at least in health, with the human mind. In George Combe's 'System of Phrenology,'[2] there is a section on *comparative phrenology*,[3] which is equivalent, so far, to the modern *comparative psychology*, but which scarcely includes *comparative psycho-pathology*. According to phrenologists, animals possess *all the mental faculties of man*, whether (1) *affective*, or (2) *intellectual*. Thus, they possess the following:

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[1] Articles "Intellect," "Mind," "Instinct."
[2] Fifth edition, 1853.
[3] Ibid., vol. ii, p. 382.

I. *Perceptive* faculties.

Individuality, weight (resistance), locality, order, eventuality, form, size, time, tune (musical talent), number, and language.

II. *Reflective* faculties.

Comparison, causality.

III. *Propensities.*

Secretiveness, destructiveness, philoprogenitiveness, alimentiveness, combativeness, inhabitiveness, concentrativeness, adhesiveness, amativeness, acquisitiveness, and constructiveness.

IV. *Lower sentiments* (common to man and the lower animals).

Self-esteem, love of approbation, and cautiousness.

While believing, with the phrenologists, that certain of the lower animals exhibit, in some degree, *all* of these mental phenomena or attributes, there are *some* of the so-called faculties, whose existence in animals is capable of more ready and abundant evidence than others, while the occurrence of a few is so obvious as to require no comment.

The phrenologists recognise, however, a group of—

V. *Superior sentiments peculiar to man*—the so-called *moral sentiments*, which include—

Benevolence, veneration, firmness (perseverance), conscientiousness, hope, wonder, ideality, wit (mirthfulness), and imitation.

It is, I believe, a decided error to suppose that these faculties are not possessed by animals. There is quite as much, and as good, evidence in support of the belief that they exhibit these *higher* sentiments as that they possess the *lower* ones, or the propensities that are generally, but most erroneously, denominated, if distinctiveness is pointed at, *animal*.[1] There is good ground for believing that certain of the domestic animals possess what is known as "*the moral sense*" or "the feeling of moral obligation" in man. They can be at least trained to a knowledge of *right and wrong*,[2] and to an intelligent com-

[1] Dr. Tuke writes, "Animals possess, in degree, so many of the moral faculties, which man prides himself on possessing, and man is so largely influenced by the propensities, ... that the term '*animal*' cannot be employed in a very strict sense" ('Manual,' p. 87).

[2] "Animals *have* a sense of *right and wrong*," says Clayton, p. 220. Ants have *codes of laws, and punishments* for their infringement. "In their natural state," says Clayton (p. 230), "animals erect *moral laws*, and institute *punishments* on their infringement."

prehension of *praise and blame* for well or evil doing, and of the principle of *rewards and punishments* therefor. There is abundant proof of their also possessing *benevolence* and generosity, solicitude for, compassion or sympathy with, human joys and sorrows, as well as with those of their own kin or species; and there can be no doubt as to their powers of *imitation*. There are therefore *moral*, and there are also *immoral*, qualities in animals; there are both good and bad features in their "characters" or "dispositions," using all these terms in the popular sense in which they are generally applied to man. Their bad qualities include, for instance, anger, hatred or antipathy, quarrelsomeness, bad temper, retaliation, revenge, vindictiveness or the resentment of injury, unforgiveness, petulance, impatience, mischievousness, theft, cowardice, ferocity, viciousness, moroseness, intractableness, selfishness, obstinacy or stubbornness, spitefulness, sullenness or surliness, cruelty, tyranny, laziness. It will suffice, further, to illustrate at once the comprehensiveness of the animal mind and its similarity to that of man, to mention that certain of the domestic animals are capable of exhibiting a wonderful degree of self-command; *amour propre;* a keen sensibility to ridicule, affront, insult; a sense of shame, discomfiture, defeat, disgrace, detection in wrong-doing; agony, distress, remorse, misery, unhappiness, annoyance, uneasiness; emulation, sometimes amounting to fierce contests for supremacy; eagerness, impetuosity, ardour, vehemence, personal rivalry, apprehension, fear; pleasures and pains, joy and sorrow, excitement and depression.

The chief *causes of insanity* in man, as laid down in one of our latest text-books on the subject (Bucknill and Tuke's 'Manual of Psychological Medicine,' 1858, p. 241), are as follows:

I. *Predisposing.*

Hereditary, sex, age, season, town and country life, occupation.

II. *Exciting.*

A. *Moral:* disappointed affections, domestic troubles, wounded feelings, fright or fear, grief, anxiety, or jealousy.

B. *Physical:* general ill health, specific injuries or diseases (*e.g.* epilepsy and uterine derangement), pregnancy.[1]

[1] Compare also the section on *causes* in Prof. Aitken's 'Science and Practice of Medicine,' 4th ed. (1866), vol. ii, p. 408; and in the late Sir William Charles Hood's 'Statistics of Insanity,' 1855, p. 52, and 1862, p. 53.

There are very few of these causes or influences that do not, in some measure, operate also in the case of animals, while some of them operate in much larger measure. Certain causes may be held peculiar to man, for instance religious excitement and intemperance; but, on the other hand, there may be some that are peculiar to other animals. I have elsewhere already shown that certain of the same influences that injuriously affect the mind of man in arctic countries equally affect that of the dog.[1]

The important subject of *hereditary transmissibility* of healthy and morbid peculiarities has probably not been studied to the same extent among the lower animals as in man. But it has been sufficiently studied to show that no less interesting and valuable results are to be looked for from a full knowledge of the subject among the lower animals than in man. Quite recently some of our most eminent experimental physiologists and pathologists have been directing their attention to this fertile field of inquiry, and already it has been proved that various singular deformities in structure, and various mental peculiarities—the fruits of education—are capable of hereditary transmission, as well as are predispositions to disease. At the last meeting of the British Association for the Advancement of Science (1870), Dr. Brown-Séquard showed that *epilepsy* can easily be *produced artificially* in animals (*e.g.* the guinea-pig); that the disease so created is capable of hereditary transmission; and that other diseases of the nervous system or morbid conditions depending on depressed nervous action,[2] in animals, are equally capable of hereditary transmission.

In the article "Horse," in 'Chambers's Encyclopædia,' it is stated that domesticated peculiarities—*mental susceptibility* as well as corporeal symmetry—steadiness of habit, and other qualities valuable to man, are transmitted hereditarily. The writer of the "Anecdotes of Dogs" in 'Chambers's Miscellany'[3] remarks it as curious that the *results of instruction* are in them hereditary. There is, indeed, no reason to doubt that, just as in man, *talent* is—at least frequently—hereditary, it is equally so in the lower animals, *e.g.* the talent for mimicry, song, speech, &c., which are the results of high cultivation of their natural aptitudes.

The effect of *domestication* and *breeding* in the production of

[1] Especially the influence of the long and intense darkness of the arctic winter. (*Vide* paper on "The Causes of Insanity in Arctic Countries," 'Brit. and Foreign Medico-Chirurgical Review,' January, 1870, pp. 212 and 216).

[2] *E.g.*, dry gangrene of the ear in epileptic guinea-pigs—a condition somewhat parallel to the *Othæmatoma* of the insane, formerly supposed due to ill-treatment by asylum-attendants.

[3] Revised edition of 1869, vol. i, p. 24.

a *predisposition* to disorders of the whole nervous system—including especially the brain—is another subject of the first importance in relation to the *etiology of insanity in animals*. High breeding, for instance, in dogs and horses, begets extreme nervous sensibility, including *high mental sensitiveness;* one result whereof is great susceptibility to disorders of the whole nervous system. The result produced is, in fact, analogous to that which is the effect of *high civilisation in man*.[1] The distinguished Parisian experimental physiologist and pathologist, Claude Bernard, has pointed out the effect of breeding in the obvious differences, as regards nervous sensibility or irritability (using these terms in their strictly scientific signification), between artificially (high) bred animals and the same species, or even the same individuals, in the wild or natural state.[2] He remarks, "We may, I believe, take it for granted that not only *morbid*, but also physiological, *predispositions* exist in man as well as *in the lower animals*." (p. 109) . . . . "These important modifications are almost inevitably produced through the agency of the *nervous* system." (p. 110) . . . . "So exquisite is the nervous sensibility of dogs of the higher breed, that the slightest operations bring on fever and are attended with alarming symptoms. They cannot therefore be employed in researches connected with the gastric juice: in fact, all operations performed within the abdominal cavity are liable to superinduce peritonitis in these highly sensitive animals, and generally prove fatal. In dogs of a more vulgar class how different are the results of similar experiments?" (p. 110) . . . . "In the horse these differences are, if possible, still more strongly marked . . . It is therefore indispensable, whenever great powers of endurance are required for the purposes of scientific research, to select an animal of the lower breed; and if, on the contrary, sensitiveness and nervous irritability appear desirable, none but the nobler kinds will afford the requisite qualities. Experiments on recurrent sensibility, for instance, which in the greyhound and pointer are generally successful, if tried on a shepherd's dog would fail in almost every case." (p. 110.) Professor Gamgee, too, tells us that "*great nervous excitement*" attends various

[1] Dr. Tuke ('Manual,' p. 36) writes, "There is an acuteness of sensibility, a susceptibility of the emotions, an intense activity of the feelings, which would seem to be peculiar to *highly civilised life*. . . . . It would seem obviously to follow from this cultivated condition of the higher sentiments, that external circumstances are much more likely to produce an impression upon them, to excite or depress them, and thus induce a shock under which the *mind* at last succumbs."

[2] "Lectures on Experimental Pathology;" chapter on "Idiosyncrasies in Animals," 'Medical Times and Gazette,' vol. i, for 1860, p. 109. *Vide* also 36th Report of the Murray Royal Institution, p. 69.

disorders of animals, *e.g.*, the horse; while Jesse, in his 'Anecdotes of Dogs' (1867), relates that in *domestication* the dog has "wants and wishes, hopes and fears, joys and sorrows, to which in his wilder state he appears to have been a stranger." (p. 42.)

Professor Aitken writes, "There is no description of insanity, which, if traced to its source, may not be found either to consist in *perverted emotion*, or to emanate from that origin." (p. 409.) Now, many of the lower animals, especially those which are domesticated, are *eminently emotional*.[1] Jesse specially mentions this in regard to the dog. It is capable of exhibiting extravagance of behaviour both in joys and sorrows. He describes its "screams of gratitude and joy" (p. 307), and signs of "most extravagant joy." Much more frequently, however, its *grief* is extreme, resulting from the sundering of its attachments to man, or other animals. Not a few instances have been placed on record of *death* from such grief in the *dog*; while cases of *suicide* from the same cause will be found cited under the head of *melancholia*.[2] One of the most recent instances I have met with of *death from grief in the dog* is the following "Pathetic story of two dogs," as related in the San Francisco newspapers. In that city, it would appear, there lived for some time two dogs, "Bummer" and "Lazarus," which acquired quite a popular celebrity on account of their remarkable friendship for each other. After having long been inseparable companions, Lazarus died; while Bummer, "after a few days of foodless, moody grief, died also, and was buried beside the friend whose loss had been more than his dog's heart could bear." Bummer had originally played to Lazarus the part of the "Good Samaritan." The history of their friendship became known throughout the city; and the characters of the two dogs were so much esteemed that a public monument was, after their death, erected to the "memory of two friends who were lovely in their lives, and in their death are not divided!" The case of Bummer may legitimately perhaps be considered a *suicide by starvation*. Jesse relates instances of death from grief at the loss of master, mistress, or companion, in the *dog* (pp. 318 and 320) or at being left behind on a journey or change of residence (p. 457), in which he speaks of symptoms of "*broken heart*" (p. 320). He also describes the dog as expressing its grief by "*mournful cries*," or by mournful

[1] Bates, 'The Naturalist on the River Amazon' (1863, p. 212) mentions a Coaita monkey "which evinced the *most painful emotions* at being called hard names by its owner—seating itself quietly on the ground and *crying piteously*." What more could a sensitive child do?

[2] I have associated *suicide* with *melancholia* rather than with *emotional insanity*, because this act is usually preceded in animals by melancholia, of which, indeed, it may be considered one of the most frequent symptoms or concomitants—one of the most common and natural terminations.

looks and attitude at the death of a master, mistress, or playfellow (p. 450); and the bitch as frequently "*disconsolate*" for the loss of her whelps. Various other animals are known to contract friendships with man, or with animals of the same or other species, of such a character that their sudden cessation has produced a fatal degree of grief. Menault[1] (p. 281) cites cases of *death from self-starvation* among horses from loss of their companions, other horses; and he gives also an instance of a parrot. Jesse mentions the death of a partridge from grief at loss of a companion, a dog (p. 314); and cites the case of a cock becoming "*melancholy*," also from loss of a companion, a dog (p. 294). Menault states that the goldfinch has died of grief at loss of a companion prisoner, a canary. In Ceylon, elephants sometimes die of what the natives call a "broken heart."

The passion of *love* is quite as absorbing in many animals as in man, and it is equally liable to disturbance and disorder. Its intensity is but partially expressed in the song of certain birds at the pairing season. The maternal instinct, the natural domestic affections, general brotherly love, and even the high sentiment of patriotism, are frequently quite as powerful in other animals as in man; and any sudden or serious interference with the legitimate gratification of these affections is liable to produce in them the same *kinds* of results. Menault mentions that the social affections of the whale, when interfered with, lead to the development of determined courage and of the fury of desperation. As characteristics of the swallow, he describes conjugal fidelity, maternal devotion, social love, filial gratitude, generous provision for orphans, sympathy for the welfare of the race [or patriotism], and affection for birth-place or scenes of first love. *Jealousy* also sometimes acquires the position or power of a master-passion in some of the domestic animals. Thus, Jesse says, "Some dogs are of an extremely jealous disposition," and he gives instances of their jealousy prompting them to the *murder* of other animals (pp. 170, 171). Cases are known of one dog worrying another that had, in its estimation, monopolised, for the moment, its mistress's attention or caresses. Referring to such a case, some versifier writes—

> "Oh, reader! here you'll truly find
> The portraiture of *human kind*:
> The proud, the destitute of sense,
> Blinded by power, *will* take offence
> Where none is given; and use their might,
> Nor question whether wrong or right!"

In the struggle for existence, many animals, especially those

[1] 'The Intelligence of Animals,' translated from the French, 1869.

against whose life man wages perpetual war, are subject to the extremest strains of an *anxiety*, which includes the emotions of apprehension or fear, terror or alarm. Leroy[1] describes the wild life of the carnivora as "full of interest and of fears, which in some measure represent the agitations of civilised man."[2] The various classes of snares set for them by man keep them in a condition of incessant fear.

Maltreatment by man, as well as the cruelty or tyranny of other animals, are fertile causes of deterioration in the character or disposition of animals. There is too much reason to believe that many, at least, of the *bad* qualities of the animal mind or character are due wholly to *association with man*, and to the influence of a usage, which it would be a libel upon the lower animals to term *brutal*. Thus, the writer of the article "*Horse*," in 'Chambers's Encyclopædia,' remarks of the proverbial obstinacy of the *ass*, "In most instances this stubbornness is the result of *bad treatment*—a fact that says less for the *humanity* and intelligence of man than for the natural disposition of the brute" (p. 15). In the wild or natural state, Menault tells us, this animal displays energy, activity, courage, and discipline. The *mule* also exhibits, under favorable circumstances, traits of a very opposite character to those usually assigned to it; as does also the *pig*, which is represented by some authors as "naturally a very clean animal," its love of dirt, of "wallowing in the mire," being attributed to bad usage by man.[3] In regard to the *dog*, Jesse tells us that "ill-usage makes him sullen and distrustful of beings far more *brutal* than himself" (p. 16)! His faults are easily checked, but if used roughly he is apt to become sulky (p. 177). On the other hand, "*society* and *culture* soften and moderate their passions" (p. 25); a strong argument in favour of proper training or education, as well as good usage, for there can be no doubt that the "*character*" of domesticated animals may be said to be, in great measure at least, very much that of, or formed by, their masters. Animals are often tyrannical or cruel to each other; and it is known that some of them *punish* their young, or each other, for such faults as idleness,[4] stupidity, theft, and desertion of trust.

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[1] Charles Georges Leroy, a Frenchman, who was ranger of Versailles and Marly (near Paris) about the middle of last century. He wrote, partly under the pseudonym of 'The Naturalist of Nuremberg,' a series of letters, which have been recently translated and published in London (1870), under the title of 'The Intelligence and Perfectibility of Animals, from a Philosophic point of view.'

[2] Menault, p. 297.

[3] Ibid., p. 294.

[4] Jesse, p. 420. Elephants in India, for instance, *punish* each other, when so directed by their mahouts (drivers), "by thrashing with a heavy chain, wielded with tremendous effect by their long trunks." (Chapter "On the possible future

Maltreatment by man varies, both in kind and degree, from that which is habitual and long continued, to that which is a mere temporary provocation or irritation; from that which springs simply from ignorance or thoughtlessness to that which is cruelty, wanton and deliberate. The latter category includes mostly the cruelty inflicted on animals in connection with the so-called "sports" of man—bull-baiting, badger-baiting, cock-fighting, dog-fighting, and the like. In the dog, Jesse states that continued provocation or irritation causes loss of its usual patience or forbearance, its self-command or control over its passions, and developes a "*ferocious temper*," leading it sometimes to the *murder* of other dogs. In other words, it may be considered that a passion equivalent to homicidal mania is generated. We read of other animals being "irritated" or "*goaded to fury*;" and it would appear that they may be "*tortured into madness*," just as, in the days of old Bedlam, human beings are said to have been so excited by tickling the soles of the bare feet. To the category of maltreatment by man also belongs, in part at least, the *captivity* of wild animals, which, especially in the case of certain of the carnivora, cannot fail to be a source of the most intense irritation, opposed, as it is, to all their natural habits and suitabilities.

Solitude—especially in animals accustomed to the society, whether of their kind or of man—frequently produces change of disposition to moroseness or viciousness,[1] *e.g.* in the "rogue" elephant, buffalo, hippopotamus, and sperm whale; that is, in animals, which for some reason are expelled or outlawed from the herds to which they naturally belong. *Cold*,[2] intense or prolonged, would also appear to affect the animal, as it does occasionally the human, mind. Thus, Jesse mentions the case of a setter (dog) *going mad*, "possibly in consequence of his exposure to the severe frost of the night" (p. 404.) Nor is there reason to doubt that *hunger* and *thirst*, or the use of improper food and drink, uncleanliness of person or habitation, insufficient ventilation of dwellings, monotony of occupation, and many other indirect causes of mental deterioration or disorder in man, may and do, *mutatis mutandis*, also affect the mental constitution of the lower animals. Though a most un-

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Existence of the so-called Brute Creation," in Capt. Clayton's 'Scenes and Studies,' 1870, p. 208.)

[1] This term, as used by writers on the dispositions of animals, probably means mere irritability of temper or irascibility, which, however, may pass into *mania*.

[2] I have given illustrations of the influence of solitude, cold, darkness, and starvation, which are apt equally to affect the mind of man and other animals, in my paper on "The Causes of Insanity in Arctic Countries" (formerly quoted).

likely *cause of insanity* in animals, it is right, nevertheless, here to mention the fact that *alcohol* produces in some of them the same effects that it does on man, and that they have occasionally been seen in a state of genuine alcoholic intoxication. Thus, Menault describes fondness for wine as a characteristic of the parrot, which under its influence becomes tipsy, dancing and attitudinising as clumsily as an inebriate man would. The *poisonous stings of insects*, in foreign countries, sometimes *torture* horses and other animals (*e.g.* in Africa) into *madness*,[1] but, as will be afterwards shown, this so-called "madness" is not necessarily of the kind to which the designation "insanity" is usually attached in man.

No consideration of the *Etiology of insanity in animals* is complete, which does not regard *individual idiosyncrasy*. To this category apparently belongs the excitement produced in certain animals by particular *sounds* and *colours*. Jesse tells us that, in the dog, *music* sometimes produces intolerable pain or disquiet, or agony is gendered only by false notes. Some so-called highly-educated "musical" dogs have been stimulated or excited to utter loss of self-control, even to the most *dangerous fury*, by false notes accidentally or intentionally produced, *e.g.* in the case of the well-known "musical" poodle of Darmstadt. (p. 80.) The proverbial irritation to fury producible by the exhibition of a bright *red colour* to the bull, is a parallel illustration, if the excitement so producible is founded on fact and not apocryphal!

It would appear, then, that, while the lower animals are subject to most of the influences that produce insanity in man, the more frequent or prominent *causes of insanity* in them are—

I. *Predisposition*—produced by
   Previous attacks,
   Hereditary transmission,
   Domestication,
   Breeding,
   Idiosyncrasy.

II. *Maltreatment*, by man.
   Captivity,
   Direct ill-usage.

III. Excessive *emotion*.

IV. Undue excitement of the *passions*.

[1] I have given cases of *madness* in goats, sheep, and cattle, leading sometimes to *suicide* by drowning or otherwise, produced by the narcotico-irritant action of a poisonous plant, in my paper "On the Toot-Plant and Poison of New Zealand," 'Brit. and Foreign Medico-Chirurg. Review,' July, 1865, pp. 154, 166, 168.

V. *Physical* influences, connected with climate or season.

VI. *Diseases* of the general system; or specific disorders of the cerebral, nervous, digestive or uterine systems.

In judging of the probable effects of the operation of such influences on the mental constitution of animals, we must not expect the *same causes to produce the same results* as in man. Due allowance must be made not only for the remarkable *differences between man and other animals* in habits of life, in their anatomy, physiology and pathology; not only for the peculiarities, structural and functional, of races and breeds, of orders, genera, and species; but also for the idiosyncrasies of individuals. "We must not expect," says Menault (p. 113), "in creatures, whose cerebral organs differ from ours, intellectual manifestations equal to our own," either in health or disease. Animals necessarily use or exhibit their faculties in a different way and for different ends. The most signal difference between man and other animals consists in the possession by the former, and the absence in the latter, of articulate *speech*,[1] and of a *hand*, having fingers endowed with a fine tactile sensibility, and a thumb opposable to the fingers. Newfoundland dogs, Jesse asserts, "only want the faculty of *speech* to make themselves fully understood." (p. 168.) The author of the article *Elephant* in 'Chambers's Encyclopædia' remarks that it is only because man is gifted with *speech and a hand* that he excels animals in some respects as much as he is inferior in others. It is obvious that the *want of speech* must prove a serious obstacle to the detection of delusion, or of insanity at all, in the lower animals. As regards the *hand*, Professor Goodsir writes, "the peculiar manner in which the human thumb can be opposed to the fingers, and the entire hand folded around the object, as well as the *specifically human* manner in which the upper limbs can embrace an object, or enclose a space, are no doubt related to the requirements of the human self-consciousness." (p. 321.)[2] Menault points out that where animals have hands or feet at all like those of man, they can be taught to apply them to many of the same purposes, such as eating at table, sitting, standing or walking (*e.g.* the chimpanzee and ourang-outang). The elephant could not be taught to perform many of his feats

[1] Or, as the poet has it,

> "Since man from beasts by *words* is known,
> *Words* are man's province."

Of *animal reason* Clayton remarks that it requires "only *speech* to elevate it perhaps to a level with our own!"

[2] Note on "Psychological Science" appended to the chapter on "Life and Organisation," in his 'Anatomical Memoirs,' 1868, vol. ii.

"were it not that he possesses the wonderful grasping powers of the trunk, which, in this respect, is all but equal to the human hand." He surpasses other animals in certain exhibitions of skill "only because he is furnished with an instrument of higher capability." (p. 17.)[1] We know that the genus *dog* alone includes *many distinct races differing in instincts or dispositions;* while Claude Bernard[2] tells us, "*each particular species of animal has its own peculiar diseases.*" He points out also that "the vitality of the skin in animals is essentially different from that of man." (p. 50.) . . . "Even in a perfect state of health, *each individual* retains his own peculiar habit of body, and is in consequence more liable to certain accidents than his neighbour. The various animals, which serve for our experiments, are far from exhibiting the same phenomena under the influence of agents entirely similar in their nature" (p. 109). . . . "Not only do the *various species* of animals differ in this respect, but even *individuals belonging to the same species* are so far from resembling each other that they cannot be submitted to the same experiments. . . . It will, therefore, easily be conceived that a state which, in certain animals, would constitute actual *disease,* may be perfectly *natural* in others. . . . *Idiosyncrasies* are only peculiar susceptibilities, which exist in the normal state in various individuals. . . . If we compare an animal in a state of abstinence to one in full digestion, the most evident discrepancies will be noticed in the results of experiment simultaneously performed upon them. A dose of strychnia, which almost immediately kills the second, will not act before the lapse of a certain time upon the first.[3] . . . The lowering of the physiological activity of the nervous system is in reality the only cause to which the difference can possibly be referred." (p. 110.) . . . "But we also find in animals various *predispositions,* which not only modify the action of medicines administered to them; but also render them liable to *diseases entirely different from causes entirely similar.* Being about to perform certain experiments on animals kept fasting for a long space of time, I left some dogs without food for several days.

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[1] Art. *Elephant,* 'Chambers's Encyclopædia.'

[2] Than whom no living experimentalist is better entitled to speak with authority on the subject of *idiosyncrasy and predisposition in animals.*

[3] I pointed out some remarkable idiosyncrasies of animals, in relation to the *non-action of certain poisons that are fatal to man,* in the following papers:—1. Experiments with "Belladonna, as an Antidote to Opium," showing the *non-susceptibility of some of the lower animals to the action of certain poisons,* 'Association Medical Journal,' June 9, 1854; 2. "Toot Poison of New Zealand" (formerly quoted), pp. 161, 169, 170, 171, 175, 176, 177; 3. "On the Properties and Products of the Toot-Plant of New Zealand," 'British and Foreign Medico-Chirurg. Review,' Oct., 1868, pp. 470, 471.

But, during the late severe frosts, these animals died unexpectedly. In making the autopsies, we discovered pneumonia in one case, pleuritis in another, and inflammation of the bowels in the last." . . . "*Morbid predisposition* must therefore be viewed in the light of peculiar physiological conditions, which in most cases depend upon the *nervous* system. And an immense progress would be realised in medicine if it were possible to diagnosticate, in a state of health, the *predisposition to disease*, and foretell the coming danger." . . . *Idiosyncrasy* must then be regarded as the "mere natural manifestation of the ordinary laws of physiology" (p. 111).[1] Professor Dick[2] also points out that the form, in which cerebral excitement is manifested, is determined by the instincts and habits of different animals. Thus the horse, when unduly excited, bites and *kicks*, the ox *gores*, the ram *butts*, the dog and fox *bite*.

Certain of the lower animals, especially those which are domesticated, are subject to many of the *same diseases of the brain or nervous system* that are so common in man; and hence arises at least the probability that they are equally liable to those functional cerebral disorders that are productive of, or that constitute, *insanity* in man. According to Professors Dick and Gamgee, the following cerebral or nervous disorders occur in the lower animals:—*Epilepsy* occurs in all animals, especially in young dogs. We have already seen, moreover, that it can be artificially produced, and that, when so produced, it is capable of hereditary transmission. There is every reason that we should expect to find associated with epilepsy in other animals the marked changes in temper, or the exhibition of paroxysmal furious mania, that are so common concomitants of the same disease in man. *Catalepsy* is exhibited occasionally in the dog, wolf, and horse. *Chorea* is met with frequently in young dogs, and occasionally in horses and cattle. Various animals are also more or less subject —to *apoplexy, coma, convulsions, hysteria; meningitis; phrenitis* —the "mad staggers" of the veterinarian; *paralysis* (both spinal and cerebral), and *delirium;* with other diseases of the cerebral, cerebro-spinal, or general nervous systems, obscure in their nature and origin, and not admitting of accurate classification. Moreover, post-mortem examination of animals frequently reveals the existence of *cerebral* or *nervous lesions*, of the same

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[1] As regards *man*, Dr. Bucknill remarks, "No one brain is like any other brain. Either by the force of inheritance from parent organism, or through the influence of education, or other modifying circumstances, every mind possesses such a *peculiarity and individuality* in the relative susceptibility and strength of its organs that the same disturbing influence never produces in two brains exactly the same pathological effects" ('Manual,' p. 371).

[2] "Occasional Papers on Veterinary Subjects," 1869.

character as those which so frequently occur in man. These morbid conditions or lesions include *congestion, induration, softening, atrophy* and *tumours*, of the brain, and *hydrocephalus*. In short, there are probably few functional morbid conditions or organic lesions of the brain, spinal cord, or other parts of the nervous system, that are not as liable to occur in the lower animals as in man.

Further, the development of these morbid conditions and organic lesions is equally frequently accompanied in the lower animals by the exhibition of *mental disturbance*—cerebral functional derangement. Thus *excitement*, with or without delirium, is common in many of the same diseases in which it usually occurs in man, as well as in disorders that are regarded as more specifically peculiar to animals.[1] Sometimes there is *extreme sensitiveness to external impressions*—sound, light, touch, smell; in other words, there is a perverted or excited condition of the special *senses*. Thus the animal may be dangerously excited by any *noise*, even the rustling of straw, or by the mere *touch* of its body. Gamgee speaks of "aberration of the cerebral functions" in phrenitis (p. 482), while he describes atrophy of the brain as also accompanied by "aberration of the *instinctive* faculties, and sometimes by viciousness" (p. 492). It is probable that he here speaks of the "instinctive" faculties merely in deference to erroneous popular opinion, the faculties in question being really what in man would be assigned to mind; and what he calls "viciousness" is, perhaps, really a stage or form of what in man would be called *mania?*

Many of the lower animals exhibit the same sudden, apparently causeless, and marked, *changes in disposition or habits* that constitute the *prodromata* of insanity in man.[2] These phenomena include the development of perverted or depraved appetite, of alterations in the affections and temper, of remarkable change of the natural or normal habits of the individual. It has been frequently noted that the horse, dog, cattle, and other domestic animals become "bad-tempered" or "curious in their ways"—that they exhibit "viciousness," or "look wicked" prior to the development of various diseases of the brain or nervous system. Thus Gamgee mentions the display of temper

[1] The number of diseases absolutely confined to the lower animals, and thereby really peculiar to them, is, I suspect, very small. In my paper on the "Transmission of Disease between Man and the Lower Animals" (formerly quoted), I showed how many animal disorders are capable of also affecting man; and our knowledge of the diseases common to man and other animals has made such progress since 1858, that my former catalogue might now be largely added to.

[2] "One of the most striking features of insanity in general, and the strongest proof of the presence of any of its forms, is the *change* which takes place in the *individual's character and habits.*" (Bucknill and Tuke's 'Manual,' p. 180.)

and *eccentricity* in an apoplectic horse prior to its seizure, and he describes the "peculiar fierce look" associated with "sleepy staggers" also in the horse. The same author mentions *depraved appetite* as occurring in various forms of cerebral and spinal paralysis. Jesse describes the dog as becoming "cross and snappish" when petted, just as children do; and the same change from a naturally mild, patient disposition occurs in various disorders of that animal. Disappointment is evidenced by sudden and unusual quietude and lack of spirit. A "surly disposition," where not natural, is frequently developed by ill-usage. It is quite common for dogs and other animals, in their excitement, to attack, and even *kill*, the companions of which they had previously been fond.[1] Dick gives an instance of this kind in a dog reputedly *mad* (p. 361). Other changes of character or disposition are to be found in the development of laziness, apathy, or stupidity;[2] in the loss of natural animation or vivacity; in the exhibition of fits or paroxysms of passion, rage, fury; or of general nervous excitement, or irritability.

Eccentricities, not amounting sometimes to insanity, but quite comparable at least with the eccentricities of man, are not uncommon in the lower animals. Hogg, the "Ettrick Shepherd," speaks of the "humour and whim" of dogs; and describes their occasional singular *antipathies* to man or other animals, which are comparable with the sudden, unaccountable, and irresistible dislikes occasionally exhibited by man. He cites an example of eccentricity and exceptional stupidity in his dog Hector, which he describes as barking round the room "like a crazed beast"—recognising, apparently, by such an expression, the fact that "beasts" are apt to become "*crazed*"—that is, mentally deranged. The newspapers frequently contain records of the "*singular conduct*" of various animals. Thus, I read quite recently,[3] under the heading "Singular Conduct of a Dog," a paragraph of which the following were the leading features. A large bull-dog, "singularly ferocious in appearance," a watch-dog in a rope work near Greenock, suddenly rushed into a house, which was quite unknown to it, and which it had never before entered. It ensconced itself on a certain bed in a certain room; which bed "coaxing, threats, and food had no effect in inducing it to leave." It literally showed its teeth to the alarmed inmates of the house and the neighbours, who

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[1] "My tame Peregrine Falcon," says Mr. St. John, in his 'Natural History and Sport in Morayshire,' "after some years of perfect friendship and alliance with my pet owl, ended in *killing and eating her!*"

[2] Stupidité in man, according to various French authors (*e.g.* Baillarger), is a form of acute dementia or melancholia.

[3] 'Glasgow Daily Herald,' November 8, 1870.

were strangers to it, but who had, however, treated it only with kindness. But it "at once leapt from the bed, and began exhibiting as great evidence of kindness as it had previously shown of ferocity," when approached by one of its master's workmen, whom it recognised. This is not a very striking illustration of eccentricity, as reported by the press, but there was probably some suspicion at least of insanity to account for its attracting the notice of a newspaper correspondent at all during these war times. Dr. Bennett describes the Siamang as exhibiting "all the freaks of temper of a spoilt child." The *eccentricities* of animals are not, however, all unaccountable. Inquiry, in some cases at least, has traced their causation to *mental shock*, such as fright, or to *bad usage* by man; and it is, at all events, probable that many others would, on investigation, be traced to some similar source. Jesse describes the dog as sometimes becoming "*frantic*" without apparent or adequate cause; in illustration of which he mentions the case of one being invariably excited to *frenzy* by the sight of a four-wheeled carriage (p. 51). He speaks of other "*odd peculiarities*" (p. 283), adducing as examples the London fireman's dog (p. 56); and a canine "Paul Pry," which exhibited extraordinary curiosity (p. 289). The author of the "Anecdotes of Dogs," in 'Chambers's Miscellany,' gives a section on "*Eccentricities* in Dogs" (p. 30).

The question here naturally interjects itself: What is the so-called *madness* of animals as contra-distinguished from *insanity* in man? How are both to be defined, if they are definable? To what extent, or in what sense, is *animal madness* synonymous with *human insanity?*

It would appear that the term *madness*, as applied to animals, is usually supposed to refer to *rabies*,[1] a specific contagious disease,[2] that is sometimes spontaneously developed in the dog, wolf, and other animals, and which is transmissible not only to other animals of different species, but to man, in him constituting *hydrophobia*.[3] According to Professor Dick, the *form* of madness developed depends on the portion of the mucous membrane affected by the specific inflammation (p. 375). He speaks of two prominent forms of rabietic[4] madness, viz. "dumb" or "still" madness, as occurring in the dog (pp.

[1] There is no need whatever for *two* technical terms to designate what is essentially *the same* disease in man and other animals.

[2] Gamgee, p. 450.

[3] Prof. Dick did not believe in *human* hydrophobia.

[4] I avoid the use of the term *rabid*, which frequently means simply irritable, fiery, or ferocious. Thus I have seen the term "rabid *temper*" applied to the horse.

354, 366); and of "raging" or "furious" madness in a mare (p. 357). Mental excitement and delirium are, in his opinion, only common, not necessary, symptoms or accompaniments; and, when they occur, they depend on the extension of the inflammation from the nasal mucous membrane to the brain and its membranes. Among the *prodromata* of rabies there is frequently, according to Gamgee, a notable *change in the affections*, character, or habits of the dog. In human hydrophobia there are usually decided *mental* symptoms in the last stage, including irritability, apprehensions or suspicions, sometimes *delirium*, occasionally *mania*, the delirium and mania passing into each other, or not properly separable, or the one apparently being substituted for the other. Dr. Bettelheim, of Vienna, has quite recently described the mental excitement that characterises hydrophobia in children. He speaks of "*emotional* derangement—the psychosis, which, in the further progress of typical cases, forms the mid point of the symptoms;" "frightful dreams," and "gloomy excitement. They fall a prey to restlessness, which drives them aimlessly hither and thither. This excitement becomes more and more intense, till it becomes a fearful and indescribable agony. . . . . The movements beome violent and dangerous, and the speech loud and rapid. The distress is often concentrated into frightful paroxysms, especially in children, when anything unusual occurs; and the patient frequently exhibits the appearance of a person on the verge of a maniacal outbreak, the behaviour being wild and dejected, the countenance flushed, and the eyes restless and flashing. . . The mental irritation may amount to a real *maniacal* seizure, and this occurs all the sooner where restraint by manacles and such like is resorted to. Indeed, they bite also, as do all raving persons, to whom no other means of defence is at hand. But there are also *maniacal* attacks, which occur without any external stimulus, and in the intervals of which the patient himself is aware of their approach, and warns his neighbours. Sometimes *delirium* occurs, but generally of a kind out of which the patient may be easily brought to himself." [1] Now, a precisely similar series of *mental* phenomena occurs in the rabietic dog; and if, therefore, it is proper to apply the term *mania* or *insanity* to the mental condition above described in man, it must be equally right to do so in the case of the dog. Dr. Bettelheim speaks of the "*stadium melancholicum* of Swieten, which corresponds to a *completely analogous condition in dogs*—a condition of unrest and of going hither and thither,

[1] On "Hydrophobia," 'Journal of Mental Science,' April, 1870, pp. 100–102.

with simultaneous depression. The animals are still obedient; they recognise their masters; but they are irritated, and will even bite if they are played with" (p. 101). In a subsequent stage "the dogs have *unmistakable delusions and hallucinations;*[1] and according to their temperament and race are affected by more or less *maniacal* attacks" (p. 102). Such are the recent statements of the clinical assistant of one of the most distinguished living physicians of Vienna, Professor Oppolzer. How Dr. Bettelheim satisfies himself of the existence of "*unmistakable* delusions and hallucinations," he does not, however, explain. Even in man it is frequently difficult or impossible to *prove* the existence of delusion, hallucination or illusion! The disease known as *rabies* in animals and *hydrophobia* in man does not itself, however, belong to the category of *insanity*, which is defined (though erroneously) to be a disease *without fever*. It is to be classed rather with the fevers, or general disorders, produced by blood-poisoning.[2] But in so far as *mania* is a "disorder of the *intellect*,"[3] according to the latest "Nomenclature of diseases," that of the Royal College of Physicians (1869), there can be little doubt that *insanity* occurs equally in the rabies of animals and the hydrophobia of man. And, further, *mania*, and other unquestionable "disorders of the *intellect*," are developed in *many* morbid conditions of the lower animals. Mental derangement, however, equally in animals and man, may either be part of a major disease, a mere symptom of a general disorder; or it may itself constitute the major disease. Unfortunately an artificial distinction has been created according as it is merely symptomatic or not; and this distinction has been the cause of great confusion in the study of insanity,

[1] The differential definition of *delusion*, *hallucination*, and *illusion*, as given by authors, is most arbitrary and confusing, and their distinction mischievous. Unquestionably they pass into each other even in the same individual. Not only are these terms used synonymously by the best writers, but they are employed frequently in most improper senses; an illustration whereof may be found (as regards "hallucination" and "illusion") in Professor Aitken's 'Practice of Physic' (pp. 403, 416, 424, 425, 430, 431). It appears to me preferable to use the single term *delusion*, specifying impairment of the *senses* where it occurs. In the said work of Professor Aitken's, "delusion" is so defined (p. 417) as to include "hallucination" and "illusion." Forbes Winslow regards them as in certain cases synonymous; while Tuke also recognises apparently the difficulty of distinguishing them properly ('Manual,' pp. 127—129).

[2] It is one of the anomalies of the Royal College of Physicians' Nosology, that while glanders, farcy, equinia, and malignant pustule, are all classed, with fevers, among "General Diseases," *hydrophobia* is placed among "functional diseases of the nervous system;" hydrophobia and rabies, however, being both associated with glanders, farcy, equinia, and malignant pustule, also in the category of "poisoned wounds."

[3] This is an error. It is only so occasionally. In other cases it is a disorder of the *emotions* only. Professor Aitken describes it as essentially a disorder of the *impulses*, *propensities*, or *passions*, in the first instance.

even in man. In the human subject we separate from insanity the *delirium* of fever, of various acute inflammations, of starvation, of intoxication, of the action of certain poisons, as well as the *delusions*[1] of *delirium tremens*. But such a distinction is purely arbitrary and artificial.[2] *Delirium* and *mania* are merely stages of what is essentially the same kind of mental disorder;[3] and it is utterly absurd to separate them on the sole ground of the presence in the one case of obvious inflammation or *fever*, and its apparent absence in the other.[4] The use of the thermometer would show probably that, in the so-called insanity of man, "elevation of temperature," which constitutes the essence of fever,[5] is more common than is usually supposed. But fever itself is merely a "complex morbid state, which accompanies *many* diseases as part of their phenomena;"[5] and its introduction into any definition of insanity is most improper. The *definitions* of human insanity given by our best modern authors[6] are *eminently unsatisfactory:* but whichever one be adopted as a standard, it will be found to include much at least of the madness of the lower animals. In truth, however, equally as regards man and animals,

> "*To define true madness,*
> What is't but to be nothing else but mad?"

If the term *insanity* is a vague and indefinable one in man,[7] the word *madness* is still more so as applied to animals. It is obvious that many cases of animal madness cannot be attributed to rabies; and veterinarians themselves, by the terms they employ, appear to recognise in animals other forms of insanity than the furiosity or mania of rabies. Thus they speak variously of *vice*, *frenzy*, *fury*, *craziness*, *crankiness*, *franticness*, as something different from *rabidity*. Each, however, has his own interpretation or application of these terms, and the general designation *madness* is applied to *conditions of the most diverse kinds*. Principal Williams, of the Edinburgh Veterinary College,

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[1] *Vide* foot-note[1] on preceding page.

[2] *Vide* Bucknill and Tuke's 'Manual,' p. 357.

[3] Thus Professor Dick describes delirium and furiosity (or madness) in the same mare (p. 358). Many similar instances have been recorded as occurring in man, *e.g.*, in Bucknill and Tuke's 'Manual,' p. 120.

[4] "Without pyrexia" (Cullen); "without fever" (Aretæus); "apyrexial" (Guislain). *Vide* Bucknill and Tuke's 'Manual,' pp. 77, 78, 80—82, 313, 377.

[5] 'The Science and Practice of Medicine,' by Prof. Aitken, 4th ed. (1866), vol. i, p. 29.

[6] Ibid., vol. ii, p. 402; or Bucknill and Tuke's 'Manual of Psychological Medicine,' pp. 76—78, and 269 ("Diagnosis of Insanity").

[7] "Insanity may be occasioned by any and every *pathological* state, which is capable of taking place within the substance of the *brain*." (Bucknill; 'Manual,' p. 358.)

wrote me, in November, 1869—"During my experience as a veterinary surgeon, I have seen many cases of *acute madness* (if I may so term it) from inflammation of the brain and its membranes, arising idiopathically, traumatically, or from *sympathy*,[1] as in engorgement of the stomach. These are cases of short duration, and terminate favorably or fatally in a few days. I have also seen *intermitting madness* from various causes —tumours on brain, thickening of the meninges, abscesses, &c. I saw a case about a month ago where there was *intermitting frenzy* from softening of the cranial bones. I have the specimen, the horse having been destroyed. I have also seen a case of what I thought the nearest approach to *idiocy*[2] in a horse, supervening upon the formation of abscesses. This animal remained an *idiot* for many years. He was called a '*cranky*' horse, but was harmless and did his work well enough.[3] In all cases there has been structural alteration in the cranium, if we except that arising from gorged stomach." Nevertheless, he adds, "I do not think that they [the lower animals] have a *mind* to be affected by the causes that produce insanity in man!"

Professor M'Bride, of the Royal Agricultural College, Cirencester, wrote me, in April, 1870, "I do not remember to have seen any cases recorded of *madness* in the lower animals, except those of *frenzy*, resulting from blood-disorders, or diseases of the digestive organs. There are certain forms of excitement, commonly called *vice*, which I firmly believe to be *insanity*, and which is often seen to be *hereditary*. The whole subject is one that veterinarians have not given much attention to; but it is of such an interesting nature, that I shall be most happy to receive any hints from you as to the best mode of investigating it."

In the newspapers, especially during summer, one frequently

[1] Insanity by *sympathy* (*e.g.* with affections of or involving peripheral portions of the nervous system) is common in man, and is at least likely to be equally so in other animals. It is most liable to occur where "constitutional irritability" exists; that is, where "slight causes of nervous action produce great effects" (Bucknill and Tuke's 'Manual,' p. 394). It is by this powerful *law of sympathy*, that the irritation or injury of distant organs so frequently leads to functional derangement of the brain; that insanity so commonly follows chronic *dyspepsia* in man, and probably also in other animals.

[2] The term *idiocy* (=*Amentia*), as applied to man, refers to *congenital* defective development of brain and mind; while mental impairment supervening *subsequently to birth*, as the result (as in this horse) of disease, or of age, accident, or injury, is known as *dementia*. Popular or scientific distinctions between dementia and *imbecility* or *fatuity* (which are merely *different degrees of the same condition*) are, as in the case of delusion, hallucination, and illusion, both unnecessary and mischievous.

[3] The case is apparently analogous to the harmless industrious *dementia* so common among lunatic paupers.

meets with notices of "*mad*" animals of various kinds running loose in the streets, to the terror of the inhabitants; or of their being the cause of dangerous bites or other serious accidents to human life. Some of these instances of so-called *madness* may really be rabies; but in many other cases there is no evidence of the existence of that disease, and the furiosity is then probably attributable to suddenly developed and frequently ephemeral *mania*. "Give a dog a bad name" has become a proverb; and there can be no doubt that if a dog is considered, rightly or wrongly, "mad," and it is subjected to the human pursuit and brutality that are so common when a wretched animal does become possessed of such a reputation, a dangerous degree of mental excitement is easily provoked, which may amount to, or pass into, *mania*. Professor Dick speaks of *furiosity* in the ox (p. 362), apparently as attributable to rabies. Occasionally the public prints record the dangerous *eccentricities* of "an infuriated ox," its running-a-muck, or butting at and upsetting all who come in its way. This kind of furiosity is quite as likely to be *mania* as rabies. A recent New Zealand newspaper[1] relates that in the streets of Auckland a *mad pig* "bit a lady and several boys, and tore the clothes of a man whom it knocked down." A still more recent New York paper[2] cites the following case of a bloodhound mastiff, near New Brighton, Staten Island, N.Y. The animal was a "rare and costly" one, of a very large and fine breed, fully three feet high. It had long been "an object of terror to every one," though for what reason does not appear, inasmuch as it is described as having been "of a docile temperament." It was not, however, usually allowed liberty; but on a certain Sunday it was at large, reclining quietly on the lawn in front of the mansion to which it belonged, in company with a Newfoundland bitch, belonging to a neighbouring resident. Near the animals some of the female servants were squatted, lazily sunning themselves, in the absence of their master and mistress at church. "Suddenly, without any warning or provocation," the hound made a rush at one of the girls, who at once took to flight. "He betrayed the fiercest desperation, and with lowered head, protruding tongue, and flashing eyes, darted after her." Overtaking her, he "buried his long, fang-like teeth in her shoulder and back. Both rolled over, the dog snarling and biting." Another girl, having gone to her friend's assistance, "the hound sprang upon her, and bit her severely .... About twenty wounds were found upon the arm, breast, and thigh" of one, and "several upon the arms and thighs" of the other, girl. "Both girls are in a precarious condition. Bessie presented a terribly mangled

[1] 'Otago Daily Times,' July 30, 1870.
[2] September, 1870.

appearance." A surgeon "treated these wounds as *rabid bites*, although it is *not certain that they are*." The animal was at once shot, the usual *treatment of mania* and all kinds of mental affections in animals—a treatment which is based on utter ignorance of the natural history of animal insanity!

While the *madness* of animals includes many phenomena that belong to the category of *insanity* as it exists in man, there are cases of so-called insanity or *lunacy* in animals that may not be referable to that category. Thus Dr. Kane described his team of Esquimo dogs as suffering from a "disease which he considered *clearly mental* . . . . An *epileptic* attack was followed by *true lunacy*."[1] Now, Dr. Robert Brown informs me[2] that in his opinion the fatal disease alluded to by Kane is "only the contagious disease, which has for the last few years been decimating the native dogs of Greenland, the western shores of Davis's Straits, and Kamtschatka."

According to the latest Nosology—that already quoted of the Royal College of Physicians—the *chief forms of insanity* in man are—

1. Mania,
2. Melancholia, } including Monomania.
3. Dementia.
4. General paralysis.
5. Idiocy.
6. Imbecility.[3]

This is a most defective classification, embracing only "disorders of the *intellect*," and omitting, as it does, all separate disorders of the *instincts, emotions, passions, propensities*,[4] *volition*, or self-control, belonging to the important, though somewhat heterogeneous, category of *moral* or *emotional* insanity. On the other hand, its simplicity renders it preferable, for practical purposes, to the other more elaborate, confusing, and equally unscientific, classifications of modern times.[5] Accepting, however, the College of Physicians' classification as adequate for our present purpose, there is, I think, sufficient ground for believing that the lower animals are subject to all the forms of insanity enumerated in that nosology, with the single exception, perhaps, of general

[1] *Vide* my paper on "The Causes of Insanity in Arctic Countries," p. 216 (formerly quoted).

[2] January, 1870. *Vide* his paper on "The Mammalian Fauna of Greenland," 'Proceedings of Zoological Society,' 1868.

[3] 'The Nomenclature of Diseases,' 1869, p. 41.

[4] Bucknill and Tuke refer mania to *insanity of the propensities*—klepto-, eroto-, pyro-, and dipso-mania—homicidal and suicidal.

[5] I have pointed out some of the *absurdities of modern classifications* in papers on (1) "Temporary Insanity," 'Edinburgh Medical Journal,' vol. xi (1865), p. 445. (2) "Typhomania," ibid., vol. xiv. (1868), p. 331.

paralysis. And I have a strong conviction that this disease also will be found among them *when it is duly searched for*. In all probability it is at present confounded with and mistaken for a form of ordinary "palsy," spinal or cerebro-spinal.

I. *Mania.*—The evidences of the existence of mania in animals are comparatively numerous and convincing. Several instances have already been given from competent authorities, and many others might be cited. Dr. John Brown wrote me in December, 1869, "I have heard Professor Dick describe, with his coarse power, the delirium and *maniacal* excitement of a horse." Percival, too, describes the horse as *mad*—"furiously so in the worst sense of the word"—in the staggers[1] (phrenitis). Hartwig speaks of *ungovernable fury*,[2] approaching at least the character of mania, developed without external cause, as not uncommon among certain wild tropical animals, when subjected to *captivity* or unnatural *solitude*. Thus, he says the black rhinoceros not seldom falls into *paroxysms of rage* without any evident cause. It is very *furious* when provoked or attacked, and "when roused to passion there is nothing more terrific on earth!" Other writers speak of the fierce or violent *temper* of the rhinoceros and chamois. The "rogue" ("bachelor" or "outcast") hippopotamus sometimes runs-a-muck, attacking every person or animal that approaches it. Hence it is extremely dangerous. The same phenomena are exhibited by the sperm whale, sea bear and elephant under similar circumstances.[3] Indian officers speak of "*insane*" elephants. Chambers alludes to their "*paroxysms of madness*," and "periodical *fits of rage*." Various writers refer to the fury or passion of both the elephant and camel as sometimes fatal to man. In the latter animal Palgrave ascribes it to "forethoughted malice;" while other authors assign to it a notoriously bad temper. Chambers speaks of violent *fits of rage* occasionally occurring in tamed, young, Asiatic horses.[4] Menault describes the cat as exhibiting great excitement or fury under unusual circumstances. In some of these cases the temper-excitement may amount only to *passion*;[5] but it is impossible to define or determine where passion merges into *mania*. In certain cases the temper may be

[1] Gamgee, p. 482.

[2] *Empathema—ungovernable passion*—was one of the *forms* of insanity according to Dr. Mason Good's Nosology. It was also the "emportement maniaque" of Pinel:—an *instinctive fury* excited by the least provocation (Bucknill and Tuke's 'Manual,' p. 189).

[3] 'The Tropical World,' by Dr. Hartwig, 1863, p. 443.

[4] Article *Horse*, 'Encyclopædia,' p. 3.

[5] Paroxysms of blind fury, we have seen, occur also in man; and in him are regarded as manifestations of disordered brain and mind—being referred to the category of *emotional* (=*impulsive, instinctive, or volitional*) *insanity*.

naturally passionate. More frequently, it is to be feared, it is rendered "ferocious" by various kinds of provocation, some of them unavoidable (in the case of animals in a state of nature), but others unquestionably avoidable (in the case of ill-usage by man). It has already been mentioned that maniacal or other passion in animals leads them sometimes to *murder* each other. This cannot be called, but it is apparently the equivalent of, *homicidal mania* in man.

2. *Melancholia* would appear to be as common as mania. Several cases have already been cited of inordinate *grief* amounting or leading to melancholia. The *friendships* of animals for each other or for man are sometimes of such a character that one companion is incapable of surviving the death of another. *Grief* at the loss of masters is also frequently so extreme as to lead to apathy, abstinence, melancholia and *death*. Such deaths have been described as virtually *suicides*. Thus Menault says of such a case in a horse, "or rather, as we may justly say, *committed suicide from grief* at the loss of an old friend" (p. 281). No doubt, in such cases, there is *self-starvation;* but the *deliberation* implied in suicide is far from proven. All we can venture to assert is that mental shock leads to melancholia with abstinence,[1] and that the abstinence and mental depression, combined with the general shock to the nervous system, lead to death. In some instances, suicidal deliberation may have been present. Thus, Jesse records what he calls two *suicides by starvation* in the dog from grief at the loss of masters (pp. 305 and 306); and from jealousy of attentions shown to a child, to a wife, or to another dog (p. 269). Menault gives various instances of *self-immolation* in dogs—of their sacrificing themselves to death on the funeral piles of their masters (p. 332). Captain Hutchinson, R.A., in his work on 'Lapland' (1870, p. 166), relates the following anecdote: "Our Lapp dog, tired of the *monotony* of the long journey, sought to put an end to it by *suicide*. He jumped out and hung inside the wheel by his rope, which was fastened to our gig. He was very nearly strangled before we could release him. The facility with which we could stop the pony at the word *Phu-r-r-r* no doubt saved his life." There is no proof so far that suicide was intended. It might have been a mere accident, a jumping out ignorant of the consequences. But that suicidal intention was present is rendered at least probable by the sequel; for it is of the same dog (apparently) that he further writes (p. 172): "Feeling how impossible it would be to survive our departure, he employed the first night in prepar-

[1] As of Dryden's typical melancholiac, it may be said of such a dog, "He eats not, drinks not, sleeps not. . . ."

ing himself a *grave*, in which he was found the next morning with nothing but the tip of his tail appearing above ground!" Much more decided, however, was the following narrative, headed "*Suicide by a Dog*," which occurred recently in the Irish and Scotch newspapers.[1] "The 'Cork Examiner' tells a long tale of *self-murder* by a dog attached to the Cunard tender, and well known in Queenstown by the name of 'Ney.' Divested of an amatory episode and other irrelevant circumstances, the facts of the case, vouched for by an eye-witness, one of the Cunard Company's officers, are these: Early on Friday morning he fled to the beach, and howling a farewell to all his friends, threw himself headlong into the sea. Several spectators rushed into the water and attempted to drag him out. But the animal, *deliberately* evading every grasp, plunged again and again beneath the water, through which he was observed *clutching the bottom* with his paws as if in *desperate endeavour* to hurry his death; while more than once, on coming, despite his struggles, to the surface, he *snapped savagely* at the hands outstretched to save him. The men, thinking the dog *mad*, at length left him to his fate, which he soon achieved, and sank to rise no more." Jesse also relates two cases of *determined suicide* by drowning in the dog, preceded by want of its usual animation, and a condition analogous or equivalent to *melancholia* (p. 145). If, as Davey asserts,[2] *all* suicide in man is the result of insanity—an opinion in which I am disposed to concur—it must be regarded as equally so in the lower animals. So long ago as 1804, this view—*quoad* man—was clearly set forth by Dr. Rowley, in a little work 'On Madness and Suicide,' wherein he says, "Suicide should ever be considered an *act of insanity*." The same opinion is generally adopted and acted upon throughout the United States; and it must be regarded as an illustration of the superior enlightenment of our Transatlantic cousins that it is so. The 'Philadelphia Medical and Surgical Reporter' has stated quite recently,[3] that in America "the idea of *crime* is no longer connected with such attempts. The universal presumption is, that the person who attempts self-murder is *insane*, and therefore not amenable to judicial inquiry. . . . Suicide, as a crime, is no longer recognised in this country, and the term ceases to be applicable. No penalty is inflicted for the attempt, and posthumous proceedings against the estate are unknown in America."[4] But as in the case last narrated, the act of suicide

[1] 'Edinburgh Evening Courant,' June 16, 1870.
[2] On "Felo-de-se," 'Journal of Mental Science,' October, 1870, p. 390.
[3] *Vide* 'Edinburgh Medical Journal,' November, 1870, p. 477.
[4] Compare with this procedure and state of public opinion the practice of our own colonies, as illustrated by a case cited in my paper on "Insanity in the

in dogs is, at least usually, preceded by, or associated with, *other* mental phenomena attributable to the category of insanity. Hartwig describes the black rhinoceros as of a "gloomy, melancholy[1] temper" (p. 443); while Jesse also speaks of the dog having occasionally a "melancholy" or "anxious" expression of countenance. Here again, however, must be borne in mind the distinction between a temper that is naturally morose, and one that is rendered so by disease or irritation; as well as between temper and insanity. *Nostalgia* is quite likely to occur in domesticated animals having strong attachments to locality, *e.g.* the dog and cat.

3. *Delusional insanity.*—In the absence of the power of *speech*, it may be impossible to *prove* the existence of the faculty of imagination, or of delusions, illusions, and hallucinations, in animals. Nevertheless, there is good ground for believing that the said faculty, and the said perversions of the intellect or the senses, really occur. Professor Goodsir, who held that man has "a mind higher than and entirely distinct from the *instinctive* consciousness of the animal" (p. 222), nevertheless admits that "the brute is *undoubtedly capable of memory and imagination*" (p. 311). Lord Brougham[2] relates that dogs *dream*, apparently just as we do: while Sir Alexander Morison[3] says that some of the lower animals, especially the dog, "appear to be subject" to *nightmare*, which implies dreaming; and dreaming involves the play of fancy, the operation of the *imagination*. In certain wild animals, especially those which are much hunted by man, his stratagems and snares beget a morbid cautiousness that passes into suspiciousness and timidity; while gradually *delusions of suspicion or fear* appear sometimes to be developed. Thus, Menault says of the wolf, that a morbid timidity is apt to be engendered, sometimes giving rise to "*idle fancies* and false decisions, which are the fruit of *imagination*;" that is to say, delusions, illusions, or hallucinations are created just as in man. "If these false opinions extend to a certain number of objects, he will become the plaything of *illusions*,[4] which will precipitate him into an infinity of false proceedings. He will see traps where there are none. *Fright*, deranging his *imagination*, will

British Colonies," 'Brit. and Foreign Medico-Chirurgical Review,' vol. xliv (1869), p. 485.

[1] Whole nations have been described as of a "melancholy disposition," *e.g.* the Icelanders (*Vide* paper on "Insanity in Arctic Countries," p. 212). Bucknill and Tuke recognise a man "constitutionally sad and morose" as being nevertheless quite sane.

[2] Lord Brougham's works, vol. vi, 1856; "Dialogues on Instinct," chapters on 'Animal Intelligence.'

[3] 'Outlines of Mental Diseases,' 3rd ed., 1829, p. 124.

[4] "*Illusions*" are here confounded with "*Hallucinations*" (*Vide* foot-note [1], p. 46).

represent to him in another order the different feelings which he has received, and will form out of them deceiving forms to which he will attach an *abstract idea*[1] of peril. This, in fact, is noticed in carnivorous animals everywhere, when they are often hunted and continually besieged with traps" (p. 308). Dr. Bettelheim's opinion regarding delusions and hallucinations in the dog has already been recorded. Naturalists tell us of *singular impressions* that are sometimes made in the mind of the *pregnant* bitch, and which are liable to affect parturition, or the offspring, just as in man.[2] (*e. g.* Jesse, pp. 75 and 408.) Some of these at least imply disorder of the *imaginative* faculty.

4. *Amentia*[3]—original deficiency, or imperfect development, of the intellectual faculties, and *dementia*[4]—their disorder subsequent to birth, are probably both to be found among the lower animals, though the evidences of their existence are less numerous and obvious than in the case of mania and melancholia. The various grades of *imbecility* and *fatuity*[5] are probably accompaniments of *age*, as well as of cerebral disease, just as in man. They include, perhaps, many of the cases referred by veterinarians to *craziness* or *crankiness*. What they call *idiocy* is also probably *dementia*, rather than *amentia*, inasmuch as it is usually developed *subsequent to birth* in animals for a time really or apparently sane.[6]

5. *Moral insanity*.[7]—Equally in man and animals there are *many* forms of insanity that do not involve manifest *intellectual* disorder, but include derangements of the *emotions or feelings, passions, propensities, volition, moral sense, or instincts*.[8] Though

[1] Bishop Berkeley, in his 'Introduction' to the 'Principles of Human Knowledge" (Sect. XI), says, commenting on Locke's views as to *animal reason*, "I readily agree with this learned author that the faculties of brutes can by no means attain to *abstraction*. But then, if *this* be made the distinguishing property of that sort of animals, I fear a great many of those that *pass for men* must be reckoned into their number!"

[2] Moreover, a constant state of alarm or anxiety during *pregnancy* is as likely to lead, in other animals as in man, to the production of young subject to convulsive or nervous diseases, or to forms of *insanity*, especially dementia.

[3] *Vide* foot-note [2], p. 48.

[4] Ibid. [5] Ibid. [6] Ibid.

[7] See its definition by Pritchard in Bucknill and Tuke's 'Manual,' pp. 154, 190, and 328. It is the "*emotional insanity*" of the last-named authors.

[8] Alienists recognise *instinctive* insanity in man. Thus, Marc says, "It is necessary to admit, since facts demand it, that there are two sorts of monomania, one of which is *instinctive*, the other reasoning. The first bears the monomaniac on by the effort of his *will*—primarily diseased—to *instinctive* and automatic acts, which are not preceded by reasoning; the other determines acts which are the consequence of a certain association of ideas" (vol. i, p. 244). Esquirol, too, divided monomania partly into *affective* and *instinctive*. In the first case the affections and dispositions are perverted. In the second, "the actions are involuntary, *instinctive*, irresistible." (*Vide* Bucknill and Tuke's 'Manual of Psychological Medicine,' p. 189, where it is shown that Pinel also admitted an

agreeing in the non-involvement of the intellectual faculties proper of reason, thought, or judgment, these other phases of insanity form a somewhat heterogeneous group, for which the designation *moral* insanity is only partly appropriate, and which have been partly also arranged by nosologists under the heads of *emotional, affective, impulsive, instinctive, or volitional* insanity. To this category belong some forms of *mania* and *melancholia;* for instance, those in which the *propensity to murder or suicide* exists without the presence of delusion or intellectual disturbance. Self-preservation or love of life is an *instinct* both in man and animals, and equally in both it is disordered or abrogated in *suicide*.[1] Love of offspring—maternal affection—is another instinct equally in man and animals. In man it is deranged, where, as in the puerperal state, the mother sacrifices her child; while in animals the same species of *murder* is occasionally exhibited as a phenomenon distinct from and unconnected with the gradual alienation of affection for their young that is common in many of the lower animals as a concomitant of maturescence. And, lastly, disorder of the *sexual instinct* is illustrated by *Erotomania*, which may be held to include the so-called *satyriasis* (of the male), and *nymphomania* (of the female). Both in man and other animals the instinct in question is liable to extreme excitement from pathological changes in the nervous system.

I have little doubt that much of what is called *instinct* in animals is the exact equivalent of what is known as *reason* in man, and has quite as good a title to be so designated; while, on the other hand, much that is called reason in man is the precise counterpart of instinct in animals, and has equal claim to be so considered and denominated. Little, however, is known—of a character that has any scientific value—of human instinct; and in truth Instinct, whether applied to animals or man, is a term that has hitherto served as a cloak for ignorance, and has been a serious obstacle to all inquiry. It ought undoubtedly to be disused, unless in its rigid application to what is really *primitive*, original, or innate in the mind, as contrasted with knowledge that has been *acquired* by experience and education.

"*instinctive* madness;" while Dr. Tuke himself speaks of "*instinctive* fury." See pp. 78, 79, 191, 197, 201, 207.)

[1] "Perversion of the natural *instinct* of self-preservation is undoubtedly the immediate cause in one class of cases; and it may be said that in all, this conservative principle, so deeply implanted in the inner recesses of our constitution, is overborne, if not itself primarily at fault, by the diseased action of other mental faculties or *instincts*. . . ." "There can be no doubt that it is capable of being *pathologically* affected *strictly by itself*. . . . The desire to die by one's own act appears to be the one mental symptom, and to present the most undoubted instance of disease affecting *only one function*"—that is *true monomania*. (Bucknill and Tuke, pp. 201 and 327.)

There is not, perhaps, in the whole science of *comparative psychology*, a study that is more interesting than the much misunderstood subject of *instinct as contradistinguished from reason in man as well as in the lower animals!*

The category of *moral insanity* includes probably many of the cases that have been already mentioned of remarkable *changes in the habits or disposition* of animals. *Erotomania*, as we have seen, is most likely to occur among them; but we are much less prepared to recognise the existence of *kleptomania*. Jesse tells us that dogs can be educated to *steal*, knowing well in some cases that they are stealing (p. 316); and this is only one of the many evils, which accrue to the lower animals from their intimate association with man! He represents them as becoming "shy, sullen, and sheepish," when charged with *theft*, showing their possession of "a kind of *moral sense*"[1] (p. 47). So obvious is the sense of shame, disgrace, or discomfiture—of detection in wrong-doing—that, "slinking away with its tail between its legs," like a dog, has become a proverbial term for the expression of a self-feeling of merited disgrace. Jesse speaks of sheep-stealing dogs being *incapable of honesty;* and he cites the once well-known case of "Yarrow" (p. 222). It is difficult, however, to distinguish in such cases the mere force of habit or vice, which is the result of man's evil training and example, from such perversion of the moral sense as amounts to *disease*, placing the propensity beyond the regulation of will or self-control. The raven, we are told, is a dexterous *thief*, frequently stealing for the mere *pleasure afforded by the act*.[2] The magpie, too, is noted for theft, exhibiting the most ingenious tricks for the accomplishment of its end.[3] Here, however, as in certain other cases, the propensity to steal is perhaps to be regarded as natural to the animal.

Cats are described as liable to a malady, which "manifests itself by an irrestrainable *propensity to run away;*" the equivalent of which in man is the *drapetomania* of the negro. (*Vide* 'Bucknill and Tuke's Manual,' p. 48.)

[1] "Many animals have all—all animals have some—of the passionate elements of *morality*. If a dog could *speak*, he could be taught a good deal of morality.... He knows when he has done *wrong* and deserves to be flogged, and he views *deserved punishment* quite differently from wanton cruelty. How far this goes it is impossible to say, by reason of *our* lack of sympathy with animal understanding." ... And yet "To many persons the *moral* distinction between man and brutes may appear broader than the intellectual one." ... The dog "must have an indistinct notion of *principles* of conduct, in some degree analogous to *moral obligation*." ... His "affection for his master is very like *piety*.... He has a perception of *duty*.... Every dog *knows* when he has done *wrong*. So, too, he is capable of distinguishing between a wrong and a hurt, which is not a wrong—at least, where the contrast is glaring."—'Saturday Review,' July 30, 1864.

[2] 'Cassell's Brehm's Book of Birds,' edited by Professor Rymer Jones.

[3] Menault.

There are some eminent authors who hold animals *irresponsible* for their acts, *irrespective of insanity*. Thus, Professor Goodsir writes that animals have "no field . . . for the exercise of judgment, and can, therefore, commit no error, nor be responsible for any act" (p. 327). If this assertion implies, as it apparently does, a denial that animals possess reason or judgment, or have an understanding of the nature of right and wrong, of reward and punishment, it is obviously and utterly opposed to multitudinous observations on animal habits.

I do not doubt that I might have made large and important additions to these Illustrations of Eccentricity and Insanity in the Lower animals, had I had opportunity of consulting *foreign* works on veterinary science, or on animal habits and disorders; for all these subjects have attracted much more attention, and have been more fully studied, on the continent, where also the veterinary schools and colleges are greatly superior to our own.[1] According to 'Nature,' a "Course of Lectures" was in the spring of this year (1870) delivered in Paris on "Madness in Man and Animals," by Professor Bouley, Inspector-General of Veterinary Schools in France. I have not seen the work itself, and the present is not a favorable time for communicating by letter with Paris.[2] But such notices as I have seen in 'Nature,' or other British journals, refer exclusively to rabies or hydrophobia.

In all likelihood the facts and inferences above recorded will be regarded, by a proportion at least of my readers, as pointing only to a *probability* that the lower animals are subject, like man, to insanity. I am quite willing to accept this conclusion, though I think the evidence already accumulated warrants us in going much further than the admission of mere probability. But, assuming that only a probability yet exists, I submit that the testimony already adducible is of such a character as to render worth while immediate search for the *proofs*, and indi-

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[1] In France, for instance, there are three celebrated "Écoles Impériales Vétérinaires"—at Alfort, Lyons, and Toulouse. Of these, the first named is the most important—situated about three miles from *Paris*, near Charenton, accessible by rail or bus. It contains a botanic garden, museum, library, chemical laboratory, pharmacy, dissecting room, shoeing forge, class rooms, infirmary for horses, kennel for dogs under treatment, pig stye, and sheep fold, with specimens of most of the known breeds of sheep. The modern school of *Alfort* is a development of the old veterinary school of Paris. In some of the Continental *Universities*, moreover, there are Professorships of Veterinary Science. For instance, in that of Prague there is a chair of "Theoretical and Practical Veterinary Medicine and Veterinary Police;" while in that of Göttingen Dr. Luefling is Professor of the "Anatomy, Physiology, and Pathology of the Domestic Animals."

[2] While I write (October and November, 1870) Paris is invested by the Prussians; is daily looking for bombardment; and all letter communication is by balloons

cates the nature of the further evidence that may be expected to be forthcoming *when duly looked for*. I therefore venture earnestly to recommend the subject to the attention equally of the physician and the veterinarian, of all who come much in contact with the lower, and especially the domesticated, animals, in order that more, and more authentic, materials may be collected towards a knowledge of the phenomena of *Animal Insanity*, of a fullness and accuracy commensurate with its importance.

I have only to add, in conclusion, that I know of no department of Psychology, which, at present, promises so rich a reward to the investigator as that relating to the "*Physiology and Pathology of Mind in the Lower Animals!*"[1]

[1] I have given an outline of the general bearings of the subject in a pamphlet published in Edinburgh in May, 1871, on 'The Physiology and Pathology of Mind in the Lower Animals.'