Madness in Animals. By W. Lauder Lindsay, M.D., F.R.S.E., Physician to the Murray Royal Institution [for the Insane], Perth.

"There are many *errors*, which are easy of conception; and many *truths*, which task us severely" (p 172).

"It is more probable that a *law*, already found to extend without exception over all the phenomena hitherto accurately studied, is also operative in the phenomena not yet clearly known, than that, in these unknown cases, a new law should be in operation" (p. 169).

Lewes: in "Blackwood's Magazine" for February, 1861.

If the term *insanity*, as applied to man, is one that it is difficult, if not impossible, accurately to define;—if *human* insanity includes a great number of the most diverse mental and bodily conditions or phenomena,—the term *madness*, as applied to other animals, is still more vague and unsatisfactory in its definition, and *animal* madness includes a much more heterogeneous group of the most opposite kinds of maladies. While the said term madness has been borrowed by veterinarians from human medicine, it is evidently regarded in a different signification when applied to other animals than man. So much so, that while the character of the mental phenomena in certain diseases of the lower animals must be, and is, admitted by all veterinarians, they deny, nevertheless, their parallelism to those of insanity in man, on the ground that animals have not sound minds, and cannot, therefore, possess unsound ones! Such a belief merely illustrates the utter ignorance and prejudice regarding the mental constitution of animals, which appear to be characteristic of *veterinarians* as a class.*

In the older works on veterinary science, animal madness is merely a synonym for *rabies*. Thus Blaine's† long chapter on madness refers exclusively to rabies.‡ Physicians of the present day also speak of canine madness as synonymous

* Dr. Cobbold has lately shown ["British Medical Journal," January 28, 1871, p. 100] how utterly *un*trustworthy are veterinarians and butchers in matters passing daily under their notice; in those relating, for instance, to the entozoic diseases of meat.

† Blaine was himself bred to the medical profession; a circumstance that gives the greater weight or importance to his observations on the mental disorders of animals.

‡ "Canine Pathology," 1817, p. 76.

with rabies.* Naturalists have used the word in a similar sense. Thus when Linnæus speaks of the dog *spreading its madness*,† he probably refers to rabies being propagable by the diseased saliva of the animal. Unquestionably, *mental* disturbance—frequently amounting to insanity—is an accompaniment of animal rabies, just as it is of human hydrophobia.‡ There is, for instance, a parallel series of *mental* symptoms in the hydrophobic child§ and rabietic dog.‖ Blaine speaks of *alienation of mind* in rabies (p. 109), and describes among its prodromata—treacherous disposition, peculiarities of habit and manner, perverted appetites, antipathies, peevishness or irritability (p. 104). He also speaks of "total alienation of mind" as accompanying fits (convulsions and epilepsy) in the rabies of the cat (p. 176). Prof. Aitken describes, as characteristic of human hydrophobia, a *rabidity*¶ which consists of "paroxysms of *phrensy*, or of uncontrollable impulsive violence."** There is marked *sensory* disturbance—touch, sight, and hearing being chiefly affected. Thus we find "spasmodic catching of the breath consequent even on touching the lips with any liquid. Subsequently the eye and

* (*e. g.*) Professor Aitken in his "Science and Practice of Medicine;" 4th ed., 1866, Vol. i., p. 679.

† Jesse's "Anecdotes of Dogs," 1867, p. 74.

‡ There is much confusion in the use of the terms *rabies* and *hydrophobia* by different writers—medical or veterinary. By some, the first is restricted to animals—the second to man; while, by others, they are used indiscriminately and synonymously. Professor Aitken, in his "Science and Practice of Medicine" (Vol. i, p. 67), uses the terms synonymously; while on p. 672 he distinguishes rabies as the disease of the dog, and hydrophobia as that of man. Inasmuch as it is unquestionably the *same disease* that occurs both in man and the dog, the use of two appellations is not only *un*necessary, but mischievous. That which is the most objectionable in its etymology and application is the term *hydrophobia*, which it would be well, therefore, henceforth to give up as inappropriate. Some writers (*e. g.* Sauvages, in 1769) restrict the term to the single *symptom*—dread of water, inability or refusal to swallow fluids.

§ In Poland, hydrophobia in man appears to be regarded as a *form of insanity*. At least we are told that "The *Lunatic Asylum at Warsaw* receives every year a certain number of persons who have been bitten by dogs *suspected* of being mad, during July and August. The number of these individuals sent there by the authorities on the ground of *possible* development of hydrophobia amounts sometimes to as many as 20." ("Med. Times," Vol. ii. for 1858, p. 486.)

‖ Among symptoms in the *sheep* [pregnant ewes] are "extraordinary and unnatural solacity, in which the manner, and gesture, and sounds, of the male were closely imitated; followed by unhealthy appetite—swallowing wood, straw, dung, &c.—intense pugnacity and frenzy." ("Med. Times," Vol. i. for 1863, p. 616.)

¶ Similar mis-application of the terms *rabid* and *rabidity* is not uncommon among medical writers. Thus Prof. Laycock applies the word rabid to the delirium of malignant pustule in animals ["Edin. Med. Journal," November, 1856, p. 367], and it is frequently in a similar way applied to delirium or mania utterly unconnected with *rabies*.

** "Science and Practice of Medicine." (*Op. cit.*, p. 672.)

ear become distressed by every ray of light or impulse of sound; likewise the sense of touch is most painfully excited on the slightest breath of air passing over the surface of the body." Moreover, *mental* derangement is associated with, if it does not lead to, *motor* disturbance; for we are told that "in a still more advanced stage, the suspicion, the irritability, the violence, and generally the outrageous and uncontrollable derangement of *mind*, which often seizes the patient," bring on epilepsy and convulsions.* Dr. Carpenter, too, in speaking of human hydrophobia, points out how *sensations and ideas* give rise to *motor* phenomena; for "the sight or sound of fluids, or even the idea of them, occasions, equally with their contact, or with that of a current of air, the most distressing convulsions."† A patient of Majendie at the Hotel Dieu, Paris, is described as having become "absolutely *insane*, so as to require to be restrained."‡ Aitken says that even in the first, or premonitory stage of hydrophobia, the patient is "more excited or depressed than usual."§ In the second, typical, or true hydrophobic, stage, there is a "highly exalted state of every corporeal *sense*,"‖ as well as a general "overthrow of the *mind*."¶ But he somewhat confusingly describes the third, or final, stage, as commencing by disturbance of the cerebral functions!** That hydrophobia equally involves the brain and spinal cord, he holds is "evinced by the disorder of *intellectual function and special sense* even early in the disease."†† On the other hand, according to Aitken, the parallel symptoms in the rabies of the dog include morbid appetite, "some singular departures from his ordinary habits," and a marked "readiness to be roused to extreme rage."‡‡ Veterinary authorities themselves have pointed out, moreover, that what is unmistakeably *mental* disturbance accompanies *other* diseases in animals than the specific disease rabies, or precedes them as prodromata; these other diseases including (*e. g.*) the various forms of distemper; hydatids in, and tumours of, the brain; abscess and other lesions of that organ; as well as gastric engorgement and other disorders or lesions of the digestive organs or functions. Thus veterinarians describe the mental disturbance that accompanies phrenitis in animals as *mania*.

* "Science and Practice of Medicine," p. 675.
† Ibid, p. 682, (quoted by Prof. Aitken).
‡ Quoted by Prof. Aitken in his "Science and Practice of Medicine." (*Op. cit.*, p. 683.)
§ Ibid, p. 677.
‖ Ibid, p. 678.
¶ Ibid, p. 677-8.
** Ibid, p. 679.
†† Ibid, p. 680.
‡‡ Ibid, p. 682.

Blaine tells us that in cats and dogs, "when any unusual violence is observed, it is directly attributed to madness" (p. 176); and it is much more correct to do so than he evidently supposes, if we are to understand madness in animals as equivalent to insanity in man, and not as a mere synonym of rabies. What veterinarians are in the habit of speaking of [*e. g.* in the horse] as *craziness*, *crankiness*, *phrensy or fury*, *vice or viciousness*, is, probably, in the majority of cases, some form of what in man is called *insanity*. The older writers on human insanity, whether medical or legal, in the 17th and 18th centuries made use of similar terms in a similar sense; they described what is now called mania as *phrensy*, *fury*, *or furiosity*, and a quotation has already been given from the author of one of our most recent standard works on "The Science and Practice of Medicine,"* in which he uses, in a single sentence, the terms *rabidity* and *phrensy* as applicable to *man*.

The main object of the present paper is to draw attention —especially of *veterinarians*—to what I believe is an easily proveable fact, that *much, at least, of the so-called madness of the lower animals is strictly equivalent to what is called insanity in man.* I do not propose submitting the grounds on which I confidently base this assertion. I have elsewhere sufficiently shown, I trust, that *other animals have minds of the same character as that of man;*† and I have also fully pointed out that these minds are subject to the same kinds of disturbance or disease as in man.‡ I have already explained that as respects the *physiology of mind*, man and the lower animals occupy essentially the same platform; and I will by-and-bye show —or endeavour at least to do so—that, as regards the *pathology of mind*, the same statement is equally true.§ In other words I hope to be able to prove§ that, *both in its normal and abnormal operations, mind is essentially the same in man and other animals.*

It is no part of my present object to say anything specially of *rabies* in animals, or *hydrophobia* in man, save that—

* By Professor Aitken. (*Op. cit.*, p. 672.)

† In a paper on "The *Physiology* of Mind in the Lower Animals:" "Journal of Mental Science," April, 1871.

‡ In a paper on "*Insanity* in the Lower Animals:" "British and Foreign Medico-Chirurgical Review," July, 1871.

§ A paper on the "*Pathology* of Mind in the Lower Animals" as a sequel to that on its *Physiology*, is in preparation for the "Journal of Mental Science."

(1) I believe both to be comparatively rare.*

(2) Hydrophobia in man is frequently, if not generally, the result of terror, ignorance, prejudice, or superstition, acting on a morbid *imagination* and a susceptible nervous temperament.

(3) The majority of cases of so-called *madness* in animals, which are usually attributed to *rabies*, are really of the nature of *insanity*, strictly comparable with that of *man*.

(4) The majority of the cases of animal madness, which are not assignable to rabies, are of the character of *mania*, as it occurs in *man*.

Inasmuch as (a) certain animals possess all the constituent elements of mind; and (b) as they are exposed to many, at least, of the same influences that are productive of functional cerebral disturbance in man,† it would be strange indeed were these other animals exempt from *insanity*, of the character—*mutatis mutandis*—of that which occurs in man. Dr. Maudsley‡ tells us that the elephant, at certain periods of the year, is "veritably mad;" when it becomes dangerous to man from its furious assaults. He does not, however, give his authority or evidence for the statement, though I have no doubt as to its truth. Here the insanity is apparently a form of *acute mania*, of an ephemeral or temporary, as well as periodic, character. The following is an illustrative description of one of the periodic maniacal outbursts so common in that animal:—"An elephant, employed by the government of India in hauling teak logs for the Forest Department, in the Anamallay Forest, lately brought about a suspension of operations for above a fortnight. He began by knocking down his keeper, but luckily did not kill him. He then made for the huts of the keepers, whose wives and families were driven into the jungle. He displayed his skill in pulling down the huts; smashed up the carts and implements; and destroyed a

* Dr. Lindley Kemp has pointed out that animal rabies is epidemic, and that human hydrophobia is very rare during the prevalence of epidemic rabies. Dr. Wilks and other physicians of the London hospitals have also remarked the extreme rarity of cases of either true or spurious hydrophobia in the metropolis. A correspondent of the "Association Medical Journal" (1855, pp. 767 and 840), asserts, on the authority of Dr. Watson, "that but few of those persons bitten by rabid animals become subsequently affected with hydrophobia" (*Vide* paper on "The Distribution of the Mortality from Hydrophobia in England," by J. N. Radcliffe, "Med. Times," vol. ii., for 1858, p. 22).

† I have quoted cases of madness in the dog—produced by cold, darkness, and hunger—in my paper on "The Causes of Insanity in Arctic Countries:" "Brit. and Foreign Medico-Chir. Review," January, 1870, pp. 212, 216, 217.

‡ "Genesis of Mind:" "Journal of Mental Science," April, 1862, p. 64.

quantity of provisions stored up for his brother elephants. After keeping the settlement in alarm for fifteen days he was shot in one of the legs, and then caught and chained"*—a much less barbarous and summary procedure than that adopted with rabid dogs and horses at home! In this case there is no appearance and no suspicion of rabies. We frequently read in Indian newspapers, or quotations therefrom, of elephants being "on the rampage," and in this condition destroying numbers of men, women, and children, as well as horses or other domesticated animals. The term "rampage" applies apparently not to animals that are simply in their wild or natural state, but to a condition of *acute mania*, marked by the development of dangerous destructiveness. The condition, indeed, would appear to be strictly analogous to what, among the Malays, is known as "running-a-muck," when they deal out indiscriminate destruction to every human being coming in their way.

On the other hand, I introduce, by way of contrast in certain respects, what appears to be a similar incident in the case of a horse, in which both diagnosis and treatment were very different.

Extraordinary Case of Madness in a Horse.—A Huddersfield correspondent writes:—Lately we have been unfortunate enough to have had several cases of madness in this district, but we believe the following is the first authenticated case of madness in a horse:—The animal in question was the property of Mr. Councillor Aston, and was an old favourite. On Saturday week he was first noticed to be unwell, and Mr. Kirk, veterinary surgeon, of this town, was called in to attend the horse. We are informed that on Saturday night the animal showed no symptoms of any disease, only seemed to be in a state of great nervous excitement. Mr. Kirk was called in again early on Monday morning, when he pronounced the horse to be rabid. We understand the horse seized the man who was in attendance on him, and would have worried him had not assistance been quickly rendered to him; as it was, he was very severely bitten. The horse with his teeth tore out the manger and shook it as a dog would shake a rat. He then seems to have broken loose and gone into the next stall (the horse which was usually confined in it had very fortunately been removed), and to have torn out the manger,

* "Athenæum," Decem. 17, 1870, p. 807.

as he had done that in the stall set apart for him. He then seems to have knocked down the partition dividing the stalls, and rushed about the stable, worrying everything he came across, until he had made the stable into a perfect wreck. The horse was observed to occasionally paw with his fore feet, and worry his fore leg something like a dog gnawing at a bone. Mr. Astin, veterinary surgeon, was afterwards called in, when he at once confirmed Mr. Kirk's opinion, and the horse was accordingly shot.—[Quoted from the "Leeds Mercury" by the Edinburgh "Daily Review," Novem. 25, 1870.]

Of the popular accounts given so frequently in the public prints of instances of madness in the dog, there are very few indeed in which there are any decided indications of the existence of *rabies*. "All dogs that are *mad* are *not mad from hydrophobia*," says the Honble. Grantley Berkeley, writing on hydrophobia (in the "Globe," in January, 1871), giving the results of a long and intimate experience of the habits and diseases of the dog. He has had (he says) many hundreds of dogs *mad* in his own kennels. The insanity, however, was attributed to "distemper," and was "attended with no hydrophobic symptoms whatever. Such dogs would bite, but their bite was not dangerous; many of these mad dogs recovered; many more were seized with fits and died. But in no case did harm arise to man from their bite." *Only one case of genuine hydrophobia* occurred in this kennel. He speaks quite properly of the "*insanity* of hydrophobia," and describes its prodromata as including dulness of spirits, loss of natural vivacity, and playfulness—in the puppy, refusing to play as usual with his fellows. He describes the "intermittent symptoms of *insanity*" in this single case of genuine hydrophobia. "The noise of water being splashed about him, or a little cast upon his face, threw him into rabid convulsions." He considers the symptom of "unconquerable hatred to and dread of water" . . . . . "the fact as to whether a dog will or will not touch water" . . . . as "the one solitary but never-failing" distinctive mark by which to separate *insanity*—at times curable and not transferable to man—from true hydrophobia.

As regards hydrophobia in man, Dr. Tuke* has shown that many cases, at least, are the *result of mere emotion or imagina-*

* "Illustrations of the Influence of the Mind upon the Body in Health and Disease, with especial reference to the *Imagination*:" "Journal of Mental Science," January, 1871, pp. 539, 540.

tion; they are due simply to mental anxiety, grief, or terror, associated with or acting upon a morbid fancy. For, on the one hand, *fatal* cases have occurred in man *without the bite of an animal at all;* the mere *belief* that a bite has been received from a rabid animal has sufficed to induce violent hydrophobia. While, on the other hand, the bites of dogs reputedly rabid or mad have been frequently followed by no symptoms whatever. Chomel and Trousseau* hold that certain cases of hydrophobia—terminating in recovery, or occurring after a given interval from the period of the bite—are spurious disorders *due merely to fear and imagination!*

According to Professor Aitken, the human hydrophobic patient "for a time . . . . usually suffers no other derangement of health than the depression of spirits which his *apprehensions* are calculated to excite!"† He admits that undoubted inoculation with the rabietic virus is not always followed by the development of the specific disease hydrophobia in man;‡ and he confesses that "there are many reported cases in which the *imagination* of a patient bitten by a dog has been so powerful as to induce symptoms *resembling* the disease"§—hydrophobia.|| He asserts, moreover, that "no instance is known of any person being affected with hydrophobia unless antecedently bitten by a rabid animal capable of communicating the disease."¶ In order to the reconciliation of the extremely discrepant opinions of veterinary and medical writers, it is necessary to recognize the

* In the "Gazette des Hôpitaux," for 1861 (p. 45), the report of a clinical lecture on hydrophobia, by Trousseau, is given, in which he mentions having met with a number of cases "*simulating* this disease, but really arising from *mental* impressions." (Quoted in the "Year Book of the New Sydenham Society," for 1862, p. 221. *Vide* also "Med. Times," vol. ii, for 1861, p. 172, which refers to cases "in persons, who had been *alarmed, supposing* themselves to have been bit by rabid animals.") Dr. Scriven also reports a case, "which, although not referable to a bite of a dog, closely *resembled* hydrophobia, and was saved from death by prompt laryngotomy with a penknife." ("Year Book," for 1859, p. 441.)

† "Science and Practice of Medicine:" *op. cit.*, p. 677.

‡ Ibid., p. 672.

§ Ibid., p. 682.

|| The celebrated Cullen ranked hydrophobia with hysteria, and divided it into two varieties, "one caused by the bite of a rabid animal, and characterised by the desire to bite; the other not having this tendency to bite and (probably) *not* produced by the bite of a rabid animal. Several instances of hydrophobia of the latter kind have been recorded by Dr. Innes, a Professor of Medicine in the University of Edinburgh, in 1732; and by Pinel, Sarriotte, and other writers." ("Association Medical Journal," 1855, p. 514.) An admirable review of the whole subject of animal rabies and human hydrophobia, by Dr. Lindley Kemp, is to be found in the "Edinburgh Medical and Surgical Journal," for Jan., 1855, or in abstract in the "Association Med. Journal," just quoted.

¶ "Science and Practice of Medicine:" *op. cit.*, p. 681.

existence of *two* forms of rabies in animals, and of hydrophobia in man; the one distinguished from the other only by the saliva containing a specific virus, capable, when inoculated in certain other animals, of reproducing the original disease, the communicated disease possessing a similarly poisonous oral secretion.* But it must be obvious that, practically, it will seldom be possible to *prove* or demonstrate the existence of the specific virus in the saliva; for even in cases in which crucial inoculation-experiment is attempted—as has been already seen there must be cases, both in other animals and man, that are *in*susceptible of the action of rabietic or hydrophobic saliva. And, in short, the distinction between true and spurious rabies and hydrophobia, will *practically* remain just what it is at present.

Many of the recorded cases of animal rabies and human hydrophobia are of the most anomalous and worthless character. Thus the "Year Book of the New Sydenham Society," for 1862 (p. 77), tells us that Dr. Porter "records a case which *he regards* as one of hydrophobia, the patient dying in asthenia, after having shown some *very suspicious* symptoms. He had been bitten four days previously by a dog, which, however, had *shown no sign of rabies!*" As regards the diagnosis of rabies, we are told by an American physician:—"The voice of the rabid dog is peculiarly altered; and this may be *the sole* and earliest symptom of the disease!"† Death occurred—from hydrophobia—in a soldier some time "after he was bitten by a dog which had appeared sickly, and had foamed at the mouth."‡ In the "Lancet" (Oct. 31, 1868, p. 590), a case is given of fatal hydrophobia following the bite of a *healthy* dog, in which it was suggested "that *anger* may give a deadly property to the saliva of the dog!" The same journal (July 27, 1867, p. 103) notices a French case, in

* "Dr. Lindley Kemp appears of opinion that the symptoms, which occasionally come on some time after the bite of a rabid animal, are in some way analogous to traumatic tetanus; yet that there is a difference, the disease being modified by the impression made on the patient's *mind* by the nature of the accident, and by his having in the interval anxiously read books about hydrophobia, consulted with his friends about it, and brooded over his reflections until his *mental powers have become decidedly affected*. Dr. Kemp would rather classify hydrophobia with *hysteria*, *catalepsy*, and diseases of that class which occur in those only who possess *mobility* of the nervous centres. In proof of the alliance of hydrophobia with these diseases in which *moral* causes act, Dr. Kemp relates the case of a gentleman who was cured of hydrophobic symptoms by being persuaded that the dog which had bitten him was certainly not rabid." ("Assoc. Med. Jour.," 1855, p. 515.)

† "Year Book of the New Sydenham Society," for 1861, p. 232.

‡ "Year Book of the New Sydenham Society," for 1859. p. 185.

which "it is remarkable that the patient *had not been bitten.* A dog, *subsequently* found in a rabid state and destroyed, had *scratched* him on the cheek." M. Selle, at the Turin Academy of Medicine, in 1866, "gave an account of an old woman, who was attacked and severely bitten by a female badger, *infuriated by the loss of its young.* She . . . . . died at the end of a month, having manifested during several days, the symptoms of well marked hydrophobia."* Here again there is no evidence of *rabies* in the badger, which was either simply in a state of *passion* or of *mania.*

In the "Medical Times" (vol. ii., for 1866, p. 499), is reported a rapidly fatal, well-marked case of hydrophobia, "judging from the clinical symptoms;" but in which there was—as so frequently happens in such cases—"no good evidence—indeed, we believe no evidence at all—as to the *dog's condition*, and unfortunately the animal was killed soon after it had bitten the man. It is a popular prejudice that to kill a mad dog" (or one reputedly so, or indeed any other dog), "which *has bitten any one*, renders the person bitten less liable to become rabid," a prejudice that leads to the wholesale unnecessary slaughter of numerous healthy dogs, and a practice which renders it impossible, in many cases, to *prove the existence of rabies* in the suspected animal! In another case, reported in the same journal (vol. ii., for 1865, p. 333), we are told, the patient, "about six weeks previously, had burnt his face and both arms slightly with hot iron. Afterwards a little pet dog, *with which he was in the habit of playing*, had often licked his face and hands, *as he had been used to do before. Later* this dog had begun to snap at people generally, and had on that account been drowned." A dog may be snappish without being rabietic; and, indeed, there is no proper evidence in this case of the existence of true *rabies.* In America, "Dr. Massey commenced early in 1853 to treat wounds made by rabid animals with tincture of iodine . . . . He has employed this treatment with success in a number of cases. *Some* of the animals, *he has reason to believe*, were *rabid;* and *others perhaps not so!*"†

Dr. Henrich, of Mayence, relates a "case of *spontaneous* hydrophobia"—occurring, that is, *without the bite of an animal at all.* The only facts that he could gather of the previous history merely showed that the man had been somewhat given

* "Gazette Médicale," April 7, 1866; quoted in "Medical Times," vol. i., for 1866, p. 403.

† "Medical Times," vol. i., for 1858, p. 434.

to venereal excesses, and that of late he had felt his strength enfeebled and his *mind* somewhat tormented by compunction.* Regarding a remarkable fatal case of so-called hydrophobia, that occurred in London in 1861, which, however, was really a case of "*delirium tremens*, brought on by fright in a patient of highly nervous temperament," a medical journalist thus comments:—"The fate of the landlord of the Red Cow Tavern, Park-place, Mile-end-road, tragic as it is, has its *ludicrous* aspects when considered as an evidence of *popular misapprehension*. A gentleman entered his house on the 17th ult., with a large mastiff, which the landlord was admiring and patting on the head, when it suddenly snapped at him and bit him on the inner side of the left arm. Not long after, the poor man is said to have become very violent, and shown a dislike of water. He barked like a dog several times, and imitated the crowing of a cock. He spoke in a very incoherent manner: said . . . . . that his room was wet, and infested with various kinds of fish. He seemed to be much better when informed that the dog had been killed! Nevertheless excitement soon came back with greater violence, insomuch that it was necessary to have three or four persons to hold him down. Therefore a keeper and straight-waistcoat were sent for, but the man died before it could be put on. Dr. Edmunds, . . . one of the witnesses, commented upon the foolish notion that when any one had been bitten, he would become more secure by destroying the dog; and showed that, if the dog could have been preserved alive and in health, all fear might have been dissipated! The popular notion is, however, firmly rooted—that if an animal who bites a man ever becomes mad *afterwards*, the man bitten will do so too! This proposition may agree with some old discarded doctrines about *Sympathy*, but not with modern *Physiology*!"† In various respects, this case with its commentary is one of the most suggestive and important that I have met with in the course of my reading on the subject of spurious hydrophobia, illustrating, as it does *inter alia*, the following facts:—

1. The non-rabidity of many biting dogs.
2. The sacrifice of many non-rabid dogs in deference to a false public opinion.
3. The effect of a *purely mental cause*—of fear and imagina-

* "Henke's Zeitschrift," Band. lvii., pp. 361-382. Quoted in "Med. Times," vol. i., for 1859, p. 584.

† "Med. Times," vol. ii., for 1861, p. 10.

tion—in the production of a rapidly fatal pseudo-specific disease.

4. The resemblances and differences between spurious and real hydrophobia.

5. The frequent occurrence of indisputable *mental aberration*, marked by the occurrence of *delusions* and of the most violent *mania*, both in the spurious and real disease.

6. The mischievous results of popular delusions, and the necessity that exists for popular education in the general laws of health and disease.

7. The occurrence of *supposed typical symptoms** of hydrophobia—(aversion to water, and imitation of a dog's bark)—in the *spurious* disease, and their frequent absence in that which is real or specific.

One of the results of a discussion that took place on the subject of Hydrophobia at the French Academy of Sciences in January, 1863, is the assertion that, "there are instances in which there could be no apparent cause—no tracing of communication from a diseased animal. That *Hysteria*, in an aggravated form, has *assumed the appearance* of the disease, medical records fully establish."† Later in the same year, animal rabies became the theme at the French Academy of Medicine, of a much more prolonged debate, in which the principal parts were taken by M. Bouley, the well-known Inspector-General of Veterinary Schools in France, Professor Tardieu, and M. Gosselin.‡ At a meeting of the Medical Society of Liverpool, in Feb. 1864, Dr. Whittle gave the following particulars, *inter alia*, of a fatal case of hydrophobia :—"At first (the patient) could not remember that he had ever been bitten; but during the day it came to his remembrance that, about two months previously, he was working at a gentleman's house, and had occasion to go to the water-closet, and that before he had re-adjusted his clothes, a little lap-dog, which had been lying on a heap of shavings in the corner, flew at him. The animal did not actually *bite* him, but, with one of his fangs, inflicted a slight *scratch* on the end of the penis. The injury was so trifling that he took no notice of it. The scratch

* In an admirable summary of the chief features of *Rabies canina*, given in a Memoir presented by M. Boudin to the French Academy of Medicine, in 1861, he asserts that "*No* true pathognomonic sign of *rabies* exists in the dog." [Union Médicale: quoted in abstract in "Medical Times," vol. ii., for 1861, p. 563.]

† "Med. Times," vol. i., for 1863, p. 225.

‡ Ibid., vol. ii., for 1863, pp. 465, 493, and 542.

healed at once, and the whole matter had passed from his memory. One of his fellow-workmen took upon himself to drown the dog, *so that no information could be procured as to its condition!* The *remembrance* of this circumstance appeared to have a most injurious effect upon the patient. He felt himself doomed; went to bed; took leave of his children . . . . He was tormented with the *fear* that he might bite some one, but he never made the slightest attempt to do so."* M. Decraix, a Veterinary Surgeon, at the French Academy of Medicine, in Feby., 1864, mentioned an experiment made by himself, "as an example of how the *imagination* and pre-occupations may exert an influence in developing symptoms *resembling* hydrophobia." In order to show the impunity with which the flesh of rabid dogs might be eaten either by man or other animals, he himself swallowed morsels both of the raw and roasted flesh of dogs that had just died of rabies. Convinced himself of its innocuousness, he felt no bad results, "until, some days after, he read an account of some cases, in which the disease had been transmitted by eating the flesh of animals who had suffered from it. He *then* became somewhat *alarmed*, and *immediately* perceived a feeling of constriction of the throat, and a notable change in the voice. Under the influence of distractions and constant occupations, these sensations disappeared, but they showed themselves again whenever he was inactive, or when his *thoughts* reverted to his experiments."†

It must be obvious, then, that the development of *hydrophobia in man is no proof whatever of the existence of rabies in a dog*, or other animal,‡ that may have bitten the patient. And yet, practically, every dog that viciously bites a man is regarded as *rabietic*, and is at once ruthlessly sacrificed to man's ignorance and inhumanity. Very literally and truly it may be said in the present connexion, "Give a dog a bad name, and you may as well hang him;" for the bad name referred to is the evil reputation of being rabid, while hanging is no less summary a disposal of the unfortunate animal than is the more common practice of shooting! But in probably nine cases out of ten, the evil name is as undeserved as the

* "Med. Times," vol. i. for 1864, p 349.

† "Med. Times," vol. i. for 1864, p. 179.

‡ Rabies is not confined to the dog: it occurs also in the fox, wolf, jackal, and cat, and is communicable to probably all warm-blooded animals, certainly to all domesticated animals, such as the horse, elephant, sheep, ox, and even the common fowl [Aitken: "Science and Practice of Medicine," p. 679.]

treatment is cruel, unbecoming, and unnecessary. It is an utterly vicious assumption that every furious dog that bites is *rabid*, and that the morbid mental, motor, or sensory phenomena developed in the person bitten are necessarily *hydrophobic!* The late well-known veterinarian, Prof. Dick, of Edinburgh, went so far as to declare that hydrophobia had no real existence at all,* an assertion infinitely nearer the truth—more merciful, and at the same time, more scientific—than the current popular belief.

Dr. Blandford† tells us that, "in many animals the . . . . . period of 'the rut' (which is analogous to human menstruation) produces mental phenomena, which approach *insanity* as nearly as anything evinced by these lower animals can. The madness of 'March hares' has passed into a proverb. The stag and buck in October render unsafe the parks in which they dwell." This is probably merely a sexual furor—a sort of acute, temporary, periodic *mania*, comparable with the erotomania (nymphomania and satyriasis) of man, rather than simply an *approach* to insanity. There is a similar destructive furor—marked sometimes by what Prof. Laycock calls the *killing instinct*—in the puerperal state of many animals. Thus an instance of a "child killed by a sow" in Glen Urquhart, Inverness-shire, was recently reported in a local newspaper.‡ "The sow *had lately littered*," we are told; having access to a child of 18 months old, it furiously attacked the infant, "inflicting such injuries on the head and face as to cause its death in a few hours." Obviously, the furor of this sow was the exact equivalent of what in the human subject would be designated *puerperal homicidal mania.*

The fishermen on the Volga, according to the testimony of Lord Royston, regard some fish, resembling chad, as *insane*, because they swim impetuously round and round in a circle, and they have the further belief that men eating the said fish at such times, also become insane! There may be much more truth in this tradition or belief

* "The salivary secretion also, both in dogs and man, is by most *now* regarded as *innocuous.* Prof. Dick, of Edinburgh, has come to the conclusion that the saliva of a rabid dog has *no* power of inducing disease when introduced into the system of another *dog*" . . . . "If . . . . . the saliva be unchanged, and innocuous, there is an end" [says Dr. Lindley Kemp] "to the belief that the bite of a rabid dog *can* produce hydrophobia or *any specific disease.*"—[Assoc. Med. Journ., 1855, p. 514.]

† "Insanity and its treatment," 1871, p. 54.

‡ "Inverness Advertiser," April, 1871.

than at first sight appears, for various poisons produce on various animals a kind of delirium, accompanied by eccentric or rotatory movements of a similar kind,* and the flesh of various animals in certain conditions [*e.g.*, after feeding on shrubs noxious to man, though not to themselves] becomes poisonous to man, producing mental, motor, and sensory derangement.† Quite recently a roast *goose* was the subject of criminal indictment for having nearly poisoned a whole family. Lieut. Meade, in his work on New Zealand and the South Sea Islands (1870, p. 185), mentions a very poisonous *fish*,‡ in Tutuila, one of the Samoan Islands.

Conolly, in his "Treatment of the Insane without Mechanical Restraint" (1856, p. 33), says that in man "exhibitions of madness *were* witnessed, which are no longer to be found, because they were *not the simple product of malady*, but of malady aggravated by mismanagement." The same may be even more emphatically said of *animal* madness. The typical, or common form of its expression—the frequency of furiosity—of violent, destructive, dangerous mania, are in all probability, due to *man's cruelty;* and if this be true, the type of animal insanity will change, as that of man has done, in proportion as *humane* becomes substituted for an inhumane treatment. At present animals are persecuted, ill-used—often literally *goaded into fury:* and *mania* is, therefore, the commonest form of insanity in animals, the next most frequent variety being *suicidal melancholia.* But, when the *law of kindness* dictates man's treatment of other animals—as it now regulates the management of his insane fellow man—destructive violence at least, and perhaps also desponding suicidal propensity, will doubtless become much less frequent.

If, as I have elsewhere shown, or will show, animals *feel* as keenly as we do, both in a mental and bodily sense: if they

* *Vide* my Papers on "The Toot plant and poison of New Zealand:" "Brit. and Foreign Medico-Chir. Review," July, 1865, pp. 154, 166, and October, 1868, p. 471.

† Ibid., pp. 171 and 471.

‡ An article on *Poisonous Fish* in "All the Year Round," (No. 120, March, 1871,) gives a number of illustrative instances. Dr. Baird, in his "Cyclopædia of the Natural Sciences" (1861), states that *Tetragonurus Cuvierii*, a Mediterranean fish, "often produces violent poisonous effects" when cooked and eaten, "and it is asserted that this peculiar property is given to it by its food, which consists of *Acalephæ*, known to be acrid and caustic.' The same author also mentions that the West Indian *Barracuda* [belonging to the genus *Sphyræna*, which forms the type of the family *Sphyrænidæ*] has a flesh that in general is good, but at certain seasons it becomes highly poisonous." Dr. Burt, in the "Edinr. Medical Journal," for 1856 (p. 1014), gives a case of poisoning from eating American partridge [*Bonasia Umbellus*, properly the Ruffed grouse of America].

think and act in the same way under similar circumstances: if they are subject to the same *diseases* that affect man, and to the same influences that in him give rise to insanity: if medication in other diseases in other animals is conducted on the same general principles as in man, the same drugs frequently producing, under similar circumstances, similar effects: and if the lower animals are equally subject with man to the operation not only of purely physical, but also of purely *mental or moral*, as well as of mixed, influences, there can be no reason why the *treatment* of insanity in other animals is not conducted on the principles which regulate that of human insanity, adapting the details, of course, to the peculiarities of their organisation and habits. If this be the case, the present mode of disposing *(e.g.)* of mad dogs must appear singularly unjust, unnecessary, tyrannical, and cruel. I believe that the first and most important practical lesson, which veterinarians may and should teach themselves by a study of the mental phenomena of disease in the lower animals, is to treat them on the same humane principles as those which now characterise the management of the human insane. The veterinarian's views of treatment cannot fail to become revolutionised whenever he clearly perceives and admits that only a few cases of animal madness are really referable to *rabies*, while the majority are of the same nature as the *insanity* of man, producible by similar causes—removeable, in recent cases, by similar means.

For many weighty reasons, it seems to me most desirable that veterinarians should give their attention to the study of the *mental* phenomena of animals in a state of disease, and more especially of those forms of animal madness, which are not associated with rabies, or other diseases originating in—and sometimes regarded as specific to—the lower animals. We want a series of well-observed and well-recorded cases, illustrating the various forms of *insanity in animals*—"madness" of a kind, that is, strictly comparable with the insanity of man. The veterinarian will have no difficulty in detecting *insanity of action* in the lower animals *(e.g.*, in the dog, horse, ox, and elephant). Insane *acts* in animals may be confined in their effects, as in man, to the individual, *e.g.*, self-starvation or suicide; or they may be extended to other individuals, genera or species, *e.g.*, the furious, dangerous, or murderous assaults so common in animal mania. These acts include a whole series of peculiarities of conduct—peculiarities in so far as they are marked and sudden changes from the behaviour

or habits natural to the individual in health; which changes are, by veterinarians, admitted to rank as *eccentricities*, but which in man would be held as either amounting (in the aggregate, taken in connexion with each other, and with certain other phenomena) to insanity, or as constituting its prodromata. The veterinarian will have much more difficulty in detecting *insanity of thought* or idea—what is called in man monomania, *delusional or intellectual insanity*. He has not that assistance in his investigation, which is furnished by *speech and writing* in man. Insane *ideas* may have to be inferred from insane *acts*; but there may be really no greater difficulty in establishing or inferring the presence of delusion, of intellectual or ideational aberration, than there is in proving the existence in animals of such faculties as thought, imagination, abstraction, reflection. I must not, however, in the present paper permit myself to enter further on the puzzling, but most interesting, subject of mind in animals, whether in health or disease; but must content myself and the reader by referring him to the papers which I have already published, or am about to publish thereanent. I meanwhile take leave of the subject with the expression of an opinion that it has hitherto been only too common an error—albeit a most serious one in its bearing equally on man and other animals—to draw a broad line of demarcation between them in all respects. Only a few years ago—as I have elsewhere pointed out—it was generally supposed, even by the highest medical and scientific authorities in this country, that the diseases of man and other animals were essentially or quite different.* Now, thanks more especially to the general attention that was directed to the diseases of the lower animals by the Cattle Plague of 1865-6, it is established not only that man and other animals are subject to many at least of the same diseases,† but that various contagious diseases of

* (1) "On the Transmission of Disease between Man and the Lower Animals:" Edinr. Veterinary Review, July, 1858.
(2) "On Choleraization in Animals:" Lancet, Decem. 1, 1866.
(3) "How to deal with the Cattle Plague." Perthshire Advertiser, Jany. 25, 1866.

† Claude Bernard asserts (in his "Lectures on Experimental Pathology:" Medical Times, Jany. 21, 1860, p. 56) that "each particular *species* of animal has its own peculiar diseases, which cannot be transmitted to a neighbouring species, however closely allied." This assertion requires confirmation or explanation, and as such is worthy the attention of veterinarians. Its correctness is directly challenged by certain facts or assertions, about to be narrated, concerning the transmission of the same disease between *many* different genera and species of animals, including man!

both are inter-communicable—in other words, are transmissible from other animals to man, and *vice versa.* Thus, in addition to the diseases which I have already described* as transmissible between man and other animals, or *vice versa,* I may mention the following :—

(1.) *Monkeys* are liable, like man, to catarrh, phthisis, apoplexy, enteritis, and fever ;† while they can also contract syphilis, according to M. Turenne, of Paris.‡ At the meeting of the British Association in Dublin, in 1857, I heard Professor Faye, of Christiania, state that man's syphilis can be communicated to the lower animals. On them, when syphilised, can also be practised the curative chancre-inoculation, generally known as syphilisation,§ which, however, he holds, cannot give perfect immunity from syphilis.

(2.) "*Tubercle, cancer,* and many other morbid products, are found equally in animals and man."‖

(3.) At the meeting of the Pathological Society of London, on May 1st, 1860, Dr. Crisp showed several specimens of *pericarditis* in *birds,* stating that the disease is very common in these animals.¶

(4.) Dr. Draper Mc Kinder, of Gainsborough, noticed the coincidence in 1857-8 of throat disease affecting *horses,* while *diphtheria* prevailed among mankind. In horses this throat disease, though generally amenable to treatment, in some cases proved fatal by supervenient pleurisy. The successful treatment in horses, as in man, was stimulant.**

(5.) At a discussion following the reading of a paper by Professor Burdon Sanderson, on *diphtheria,* in 1859, Dr. Camps said that the lower animals had suffered from a similar affection. "At Boulogne, it was alleged that the disease was first caused by eating the flesh of a pig, which had had the throat disorder ; and it had also been stated that the pig had fed upon the flesh of a glandered horse."††

(6.) M. Delafond stated at the Academy of Medicine of

* In the Papers quoted in Foot Note *, p. 197.

† According to Darwin's "Descent of Man," 1871.

‡ *Vide* his "Experiments on Syphilisation."

§ *Vide* author's paper on "Syphilisation in Norway.' "Edinburgh Medical Journal," November, 1857.

‖ Claude Bernard's "Lectures on Experimental Pathology." "Medical Times," Jan. 21 1860, p. 56.

¶ "Lancet," May 19, 1860, p. 496.

** "On Epidemic Throat Affection, or Diphtheria, as it appeared at Gainsborough in 1857-8," read before the Epidemiological Society, on Dec. 6, 1858. "Medical Times," Jan. 8, 1859, p. 44.

†† "Lancet," May 28, 1859.

Paris, in 1859, that the brute creation do not seem less liable to *croup* and *diphtheria* than the human species. Some years before, M. Trousseau had lost 200 fowls from diphtheria, besides a number of oxen and horses. In all these animals tracheotomy was performed with this result, that, where it was had early recourse to, the proportion of the recoveries was 75-80 per cent., while when resorted to *in extremis* the percentage was only 67-68.*

(7) A letter from the French correspondent of the "Glasgow Herald" of March 10, 1860, referring to the cold and changeable spring weather of that year, says, "A curious epidemic has also sprung up among the gallinaceous tribe in some quarters. In the Var, for instance, nearly all the cocks and hens are dying of *croup*, and even ducks and other feathered bipeds are suffering horribly."

(8.) Major C. O. Creagh, of the 86th Regiment, writing from the Army and Navy Club to "Notes and Queries" [quoted in the "North British Daily Mail" of January 12, 1861], says, in reference to an unusually severe epidemic of *cholera* at Kurrachee, Scinde, in 1846, in which the 86th Regiment lost in ten days 240 men, "It was particularly remarked that vultures, kites, and other *birds* of prey, which are very numerous in that part of the world, entirely disappeared almost simultaneously with the outbreak of cholera, returning gradually after the first few days, when the virulence of the disease began to abate. . . . . It would seem that the inhabitants of the sea are by no means exempt from the visitation of this mysterious disease. On the second and third day after the appearance of the cholera, the bay to the south of Kurrachee was strewed with countless myriads of dead *fish*, which were left on the beach by the receding tide. At high water the shores of the bay presented a most singular appearance; the waves for several yards from the shore seeming to be composed of an almost solid mass of dead fish, chiefly of the sardine species, amongst which, however, there were not wanting others of a considerably larger size."

(9.) The Rev. Dr. Lang, of Sydney, in his Account of New South Wales,† speaking of the County of Cumberland, which contains Sydney as its capital city, remarks—"Within the last few years" [prior, that is, to 1852] . . . "it has been found that both cattle and sheep depasturing in certain localities in the county of Cumberland have been subject to a disease some-

* Chaillon's "Journal of Practical Medicine and Surgery," Feb. 1859, p. 85.
† Vol. ii., p. 325, 1852, 3rd Edition.

what resembling the *cholera* in man, equally mysterious in its origin, equally rapid in its progress, and equally fatal in its termination. And there have been even several instances of unfortunate individuals, who have died from having either *inhaled the noxious gases* disengaged from the carcases of animals that have died of this disease, or wounded themselves with the flaying knife when skinning them. Attempts have been made by authority to ascertain the cause and origin of this disease, but they have not as yet been successful. Stringent municipal regulations have been passed, however, for the immediate destruction of the carcases of all animals dying of the disease."

(10.) In the Quarterly Return for June, 1862, of the Registrar of Deaths, &c., for Scotland, he speaks of the "suspicion that sore throat and diphtheria in the human subject is but a variety of that epidemic disease known in cattle by the name of murrain, or *epizootic aphtha*, characterised in them by the aphthous and ulcerated mouth and sore hoofs. A few cases have been brought under our notice by an intelligent veterinary surgeon, in which it was clearly established that the milk of cows affected with murrain caused aphthous mouths and *diphtheria* in children, and fatal *aphthæ*, terminating in ulcerous affections of the mouth, throat, and windpipe in the case of pigs."

(11.) The well-known epidemiologist, J. N. Radcliffe, now one of Her Majesty's Inspectors of Public Health under the Privy Council, in his "Report on Epidemic, Epizootic, and Epiphytic Disease in Great Britain in 1861-2,"* remarks—"There are some grounds for the belief that the milk of cows suffering from *vesicular murrain*, which has of late been so prevalent among cattle, may communicate the disease to human beings. The Registrar-General of Scotland believes that an aphthous affection, which has been recently prevalent widely among certain districts . . . . is entirely due to this cause."

(12.) Principal McCall, of the Glasgow Veterinary College, in 1862,† described *Eczema epizootica* (=murrain) as common in almost every byre, rendering the consumption of the milk of affected animals dangerous to human life, and the probable

* Presented to the meeting of the Epidemiological Society on December 1, 1862.

† "The diseases transmissible from the ox, sheep, and pig, to man, and which render the consumption of their flesh and milk injurious, if not poisonous."—Inaugural Address for 1862-3, delivered on November 5, 1862.

cause of a considerable proportion of infantile mortality. The milk of murrainous cattle had produced *malignant sore throat*, and death in calves and pigs to which it had been given experimentally.

(13.) Principal Gamgee, of the Edinburgh Veterinary College, also in 1862,* published a case of "*epizootic aphthæ* and disease communicated by the milk of affected cows," occurring on a farm near Kelso. "The litter from the milk-cows was thrown out amongst the . . . . cattle and pigs, and the latter received also large quantities of the diseased milk." Both classes of animals were attacked. "While the disease was at its height, several of the farm servants' children, who had partaken of the milk, suffered from derangement of the alimentary canal, with sickness, pain in the bowels, diarrhœa, &c. . . . . On discontinuing the milk, the disorder ceased." Deaths in calves and pigs fed on such milk, and eruptions on the hands of human beings, Gamgee apparently considers "conclusive as to the danger to man from contamination by the specific virus of epizootic aphthæ." He suggests that the eruptions so common about the mouth, face, and body of infants reared on cows' milk may be due to epizootic aphthæ. There is evidence that the warm, newly-drawn milk can communicate the specific disease to the human subject who drinks it.

(14.) Two cases of "Murrain [*aphtha epizootica*] in Man" are given by Drs. Hislop and Geo. W. Balfour in the "Edinburgh Medical Journal" for February, 1863.

(15.) *Small-pox* occurs in camels, sheep, and cows, in India and Persia, according to Dr. Winchester.† In the province of Lus, along the sea coast, south-west of Karachi (=Kurrachee ?), the milkers of camels have a disease called "photo-shootur" [that is "photo"=small-pox, and "shootur"=of the camel]. The original disease occurs on the animal's udder, as in the cow. The disease communicated to the milkers is similar to the cow-pox in man; it occurs on the hands and arms, not extending above the elbows. It is never fatal. Those who have had this transmitted disease are exempt from small-pox. In regard to the neighbourhood of Bushire, Persia, a Mr. Bruce wrote, of date March 26, 1813,‡ "communicating the discovery of a disease in Persia con-

* "Edinburgh Veterinary Review," August, 1862.

† Transactions of the Medical and Physical Society of Bombay: Appendix: quoted in "Scotsman," October 4, 1862.

‡ Appendix D. Vol. i., "Transactions of the Literary Society of Bombay," 1819.

tracted by such as milk the cattle and sheep, and which is a preventive of the small-pox." Both the original disease and the fact of the transmitted disease exempting from small-pox were well known to the Eliaats, or wandering tribes of Persia. The original disease was prevalent among cows—on the teats. It was, however, more so among sheep, from which animal the disease was oftener contracted by man, because most of the butter, ghee, and cheese in use were made from sheep's milk, the black cattle yielding little, and being used chiefly for draught.

(16.) In 1862, small-pox broke out in *sheep* in different parts of England, beginning with the flock of Joseph Parry, at Allington, in Wiltshire—the subject giving rise at the time to prominent public controversy.* It was "eminently contagious," and very fatal. The treatment was inoculation, just as in the human subject; the "matter" used, however, being that of the *variola ovina*, the process of inoculation with this matter being long known to, or called by, French and Italian writers *ovination or clavelisation.* The disease had previously appeared in this country in 1847, "when some merinos from Spain brought it to Smithfield." Some medical writers hold that *variola ovina* is "not identical with *variola humana*, or with *vaccinia;* or it is markedly modified by the "constitution of the species it affects." Some regard it as essentially different from human *variola*, and more nearly allied to *vaccinia.* It is the "clavelée" of the French—frequently epizootic in the flocks of France and Italy, but unknown in England till 1847.

(17.) Cases have been cited of apparent *variola in monkeys* as proof that *human variola* is communicable to other animals most nearly approaching man in structure and habits. A gentleman travelling in the province of Veragua, New Grenada, in 1841, writing to Dr. Anderson of Glasgow,† narrates that near the town of David, in Chiriqui, about 60 or 70 miles to the north-east of St. Jago, great numbers of dead and dying monkeys were encountered in the forest. "After careful examination, no doubt remained on my mind" (says he) "that they were suffering, and had died, from *small-pox.* They presented every evidence of the disease. The pustules were perfectly formed, and in one instance . . . . the animal was nearly quite blind from the effects."

* (1) "Daily Telegraph," August 11, 1862; leading article and paragraph.
(2) "Medical Times," August 16, 1862, p. 158: leading article.

† An extract from which letter was published in Dr. Anderson's "Lectures introductory to the Study of Fever," in 1862, p. 70.

(18.) In 1862, Dr. William Budd, of Bristol,* recorded a series of nine cases in man, of *malignant pustule*—all of them fatal from the fourth to the eighth day. The disease is common in France and Germany, but is comparatively rare in England. It is identical with the fatal and very contagious disease called in *oxen* "charbon," and in *sheep* "sang," on the continent; which is equally common and fatal in England, in both oxen and sheep, as "joint murrain," "black quarter," or "quarter evil." It is communicable to man, (1) by direct inoculation; (2) by eating the flesh of animals killed while diseased; (3) by the bites of insects conveying the poison. It is also *re*-communicable from man to animals.

(19.) In 1852 a series of cases of *malignant pustule* was admitted into St. Bartholomew's Hospital, London,† most of which were rapidly fatal. In these cases there was seldom any history of inoculation or contagion from the lower animals; though it is possible that the poison may have been conveyed by flies or other insects passing between diseased animals and man.

(20.) There is a review of a work or paper "On *Malignant Pustule*, as communicated to Man from the Lower Animals," by Dr. Bourgeois, of Paris, in the "British and Foreign Medico-Chirurgical Review," Jan., 1863, p. 176.

(21.) Principal M'Call ‡ speaks of the disease in cattle, the *materies morbi* of which gives rise to *malignant pustule* in man, as "black leg," which he describes as a malignant form of *anthrax*—equivalent to the "charbon" of the French and "milzbrand" of the Germans. If any of the diseased fluids of the affected animals comes in contact with an abraded portion of the skin in man; or, if flies alight on the face or hands of man after having rested on the carcase of diseased animals, malignant pustule in the man is the result—the transmitted disease (in man) being, like the original one (in cattle), invariably fatal.

(22.) M. Renault, Professor in and Director of the celebrated Veterinary School at Alfort, France, died by contagion from *Peripneumonia* among cattle in the Pontine Marshes, near Rome, whither he had been sent by his Government to investigate the disease.§

* "Medical Times," August 16, 1862, p. 163.

† A report was made upon them by the late Harry Ludlow, the then house surgeon, in the "Medical Times" for September 18, 1852. They are quoted in the "Medical Times" for August 23, 1862, p. 195.

‡ Inaugural Address, 1862 (*op. cit.*)

§ "Medical Times," June 6, 1863.

(23.) It was proved, in 1857, by the experiments of Drs. Maunoury and Pichot, that the *grease* of farriers is identical with *vaccinia* in the cow.* This doctrine was always maintained by Jenner, and received confirmation from the observations of Loy, Godine, and others,

(24.) Dr. Baillarger, of the Bicêtre, Paris, in 1862 drew attention to the occurrence of "*Bronchocele* in Domesticated Animals" † in France. In different localities in the Departments of the Isère and Savoie, he found that most of the *mules* had an immense hypertrophy of the thyroid body, larger proportionately than the bronchoceles of man. In one stable in Modane, of 20 animals, 19 were diseased. It was not so common among horses; yet, out of seven in one place four were diseased. It occurs also, in a diminished ratio, in dogs, cows, sheep, goats and pigs. The disease is probably due in them to the same endemic *causes* as in man, whatever these may be. It is asserted that the drinking water of La Maurienne rapidly produces hypertrophy of the thyroid in man. Unfortunately M. Baillarger does not, apparently, say to what extent *man* is affected with bronchocele in the districts in which mules are so remarkably diseased.

(25.) Dr. Blair, in his Report on the Fourth Epidemic, in 1851-2, of Yellow Fever in British Guiana ("British and Foreign Medico-Chirurgical Review," Jan., 1856), states that in the middle of 1850, *mumps* was epizootic and very fatal—thus considerably preceding in date the fever epidemic in man.

(26.) That *favus* is communicable, not only between different genera and species of animals, but between the lower animals and man, is shown by the following quotation from Bazin's "Leçons Théoretiques et Cliniques sur les Affections Cutanées Parasitoires." ‡ "In 1854 several members of an American family, including a young physician, were surprised at the curious appearance of two caught mice, which were covered with yellow and depressed crusts of the true favus stamp. The victims were handed over to the cat, whose discussion of the delicacy was speedily followed by the appearance of the characteristic eruption below the eye. Nor did this chain of contagion end here, for two children, on intimate terms with the cat, were

* "Archives Générales de Médecine," April, 1857, pp. 365-398; quoted in "British and Foreign Medico-Chirurgical Review," Oct. 1857, p. 530.

† "Medical Times," Oct. 4, 1862, p. 366.

‡ Translated by a correspondent of the "Medical Times," in that journal for Jan. 14, 1860, p. 46.

shortly after seized with undoubted favus, affecting various regions of the body in succession. The identity of the disease was, in this instance, confirmed by M. Bazin himself, to whose interne a portion of the suspected crust was transmitted by an American friend."

(27.) The occurrence of *favus* in the lower animals is also noticed by Jonathan Hutchinson, in his Report on Favus,* wherein he hints at the possibility of its transmission from mice to man.

(28.) "*Ringworm*, communicated from Animals to Man," is the heading of an article or paragraph in the "North British Agriculturist," of April 12, 1871.

(29.) In 1859 M. Raynal informed the French Academy † that there then existed in certain parts of France among *fowls* a cutaneous affection, caused by a minute parasitic animal—the *Sarciceps nutans*—resembling the itch insect; that the disease resembled the *itch* also in its symptoms; and that it was communicable, not only from fowl to fowl, but to the horse, and other domestic animals, as well as to man.

(30.) M. Bourguignon, has published, in the "Annales des Sciences Naturelles," (Ser. IV., tom. iii., no. 2,) a series of "Observations sur la Contagion de la *Gale* des Animaux à l'Homme." In my French Dictionary (Surenne's, 1866,) the word "gale" is variously translated *itch; scab; ringworm; farcy; mange;* so that I am utterly at a loss to determine in what sense it is used by M. Bourguignon.

(31.) During the *Black Death* of the Middle Ages, not only men, but animals, at once perished, it is said, if they so much as touched anything belonging to the dead. Boccaccio, himself a medical man, relates that he saw two hogs upon the rags of a person who had died of this plague. After staggering for a short time, they fell down dead, as if they had taken poison.‡

(32.) The *Rinderpest* of 1865-6 caused the deaths of different genera and species of animals in the Jardin des Plantes, Paris.§ In Britain this form of cattle plague preceded a *cholera* epidemic of several months—an illustration of the intimate apparent association or inter-relation of epidemics and epizootics.

* "Medical Times," vol. xl. [for 1859], p. 654.

† Ibid., August 6, 1859.

‡ Review of Professor Hecker's "Epidemics of the Middle Ages," in "Chambers' Journal," Dec. 10, 1859, p. 375.

§ "Medical Times," Jan., 1866.

(33.) M. Tardieu, in an Essay on "Maladies accidentally and involuntarily produced by Imprudence, Negligence, or Transmission by Contagion," has a section on "Contagious Maladies transmitted from Animals to Man."*

(34.) The Irish Census of 1851 (vol. v., pp. 358-9) tells us that an "Epidemic constitution [of atmosphere] hung over Great Britain and Ireland for a number of years [from 1837 to 1851], favouring, if not determining the development of several deadly epizootics, affecting *all* classes of animals."

These illustrations of (*a*) diseases common to man and other animals; and of (*b*) diseases propagable to and from man and other animals, may easily be multiplied by any one who will give himself the trouble of following up the subject in the pages of the numerous veterinary and medical journals, especially of the Continent. But the illustrations already or above quoted suffice, I hope, to show (*a*) how many diseases of man—long supposed to be *peculiarly human*—are common also to other animals; (*b*) how much yet remains to be added to our knowledge of diseases that affect all or many classes of animals; (*c*) how likely it is that many diseases, still regarded as exclusively human, will yet be found to be more extensively distributed in the animal kingdom; and (*d*) why it is that we must look for diseases most nearly approaching, in their symptomatology and etiology, those of man, in animals which most closely resemble him in their structure and habits.

General Paralysis of the Insane—its Nosological Position. By G. Mackenzie Bacon, M.D., Medical Superintendent of the Cambridge County Asylum.

The term "general paralysis" is not, it must be admitted, a satisfactory one, but, though many attempts have been made to improve upon it, nothing better has yet been agreed on. However faulty the term may be, it is best to have a clear understanding as to what the words may be supposed to imply.

In the last volume of the Guy's Hospital Reports, a writer, in some remarks on this subject, argues that the phrase

* "Annales d'Hygiène Publique" Jan., 1861; quoted in "British and Foreign Medico-Chirurgical Review," April 1861, p. 535.