

The rinderpest of the present time, and the contagious cattle distempers of former ages, in these islands and on the continent : considered especially with reference to the connection between those distempers and cholera, plague, and other epidemic diseases / by Thomas More Madden.

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THE
RINDERPEST OF THE PRESENT TIME,
AND THE
CONTAGIOUS CATTLE DISTEMPERS OF FORMER AGES.

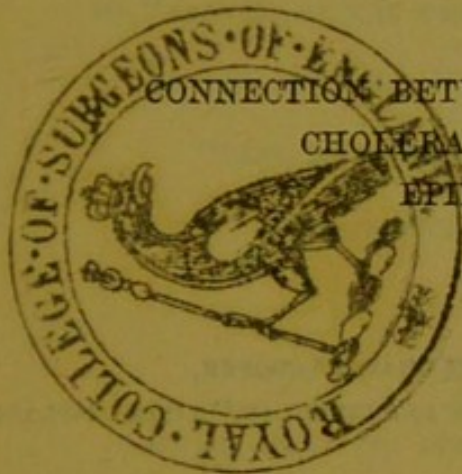
RECAPITULATION OF THE PRESENT YEAR

CONTAINING THE DISTRICTS OF FORMER YEARS

THE
RINDERPEST

OF THE
PRESENT TIME, AND THE CONTAGIOUS CATTLE DISTEMPERS OF
FORMER AGES, IN THESE ISLANDS AND ON THE CONTINENT;
CONSIDERED ESPECIALLY WITH REFERENCE

TO THE
CONNECTION BETWEEN THOSE DISTEMPERS AND
CHOLERA, PLAGUE, AND OTHER
EPIDEMIC DISEASES.



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"OBSERVATIONS ON INSANITY AND CRIMINAL RESPONSIBILITY,"
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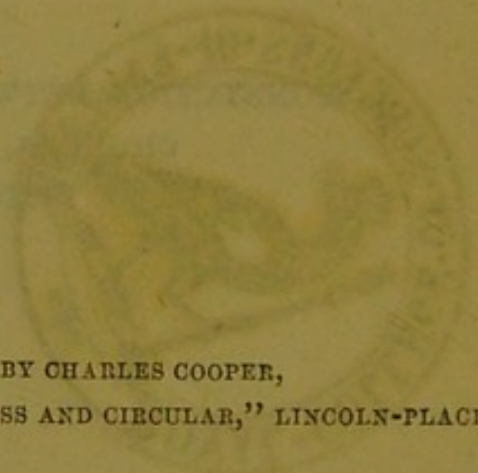
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TO

Richard Robert Madden, Esq., M.B.S.A.,

FELLOW OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND; AUTHOR

OF "TRAVELS IN THE EAST;" "THE LIVES AND TIMES OF THE

UNITED IRISHMEN;" "THE INFIRMITIES OF GENIUS;"

"THE LIFE AND MARTYRDOM OF SAVONDROLA;"

"BIOGRAPHY OF LADY BLESSINGTON,"

ETC. ETC.

THIS ESSAY,

WHICH OWES ITS APPEARANCE TO HIS SUGGESTION, IS

DEDICATED AS A VERY SMALL MARK OF RESPECT

AND AFFECTION BY HIS SON,

T. M. M.

9, Great Denmark-street, Dublin,
November, 1866.

THE HISTORY OF THE UNITED STATES

OF THE UNITED STATES OF AMERICA

FROM THE FOUNDATION OF THE COLONIES

TO THE PRESENT TIME

BY

W. W. HUNT

ESQ.

OF THE

BAR AT NEW-YORK

AND

OF THE

UNIVERSITY OF CALIFORNIA

NEW-YORK

1854

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THE
RINDERPEST OF THE PRESENT TIME,
AND THE
CATTLE PLAGUES OF PAST AGES,
IN THESE ISLANDS,
AND ON
THE CONTINENT.

CHAPTER I.

ITS SYMPTOMS — NATURE — CAUSES — DIAGNOSIS, PRE-
VENTION AND TREATMENT.

MY principal motive for undertaking this inquiry into the epizootics of the past and present time has been a hope to aid in the study of those laws which govern epidemics, and to illustrate the connection between the epizootics which attack the lower animals and the epidemic pestilences which attack mankind.

The plan adopted in the following essay is, in the first place, to give an account of the existing cattle plague, its nature and treatment; then a historical notice of cattle plague in Ireland, down to the present day, succeeded by a sketch of the general history of the diseases analogous to the rinderpest, and the views as to their nature and treatment held in former times; concluding with some observations on the relation between epizootic and epidemic disease.

In no country in Europe is the value of stock so great, in proportion to the value of all agricultural produce, as in Ireland, and to none, therefore, is a question, as the

cattle plague, which so deeply affects the existence of this description of property, of more vital importance. In Ireland the estimated average annual value of the crops, as given by Mr. Thom in his "Statistics of Great Britain and Ireland" (p. 70), is but £28,369,176, while the value of live stock amounts to £47,160,507.

The character of the disease now epidemic among cattle in England, has excited much, and sometimes even angry controversy. It has been stated to be identical with typhus and typhoid fever, with small-pox, scarlatina, and other eruptive diseases. Its similarity with typhus fever has been long believed in France, where it is known as *Typhus des Bêtes à cornes*. Last autumn, the French Government sent a commissioner over to England to investigate the cattle plague, and that gentleman's report, which was published in *L'Union Médicale* of August 31st, 1865, states that "the cattle plague is a contagious typhus, brought over from southern Russia and the Steppes of Asia, which are regarded as the birth-places of the disease." And in *THE MEDICAL PRESS*, December 27th, 1865, I published a translation from the French on this subject, in which the identity of the cattle plague with typhus fever is insisted on. The idea that rinderpest is analogous to typhoid fever is, I think, untenable.

At a meeting of the Pathological Society of London, in October, 1865, Dr. Murchison exhibited several specimens and drawings from healthy and plague-stricken oxen, from which he drew the conclusion founded on the result of twenty-seven dissections of the latter, that the characteristic lesion of the intestinal glands, pathognomonic of typhoid or enteric fever in man, is entirely absent in cattle that die of the cattle plague, and that, therefore, this epizootic is not a similar disease.

The theory that the cattle plague is small-pox—that was put forward last autumn by Drs. Murchison, Watson, &c., which, although the plan of prevention by inoculation to which it gave rise, not proving as successful as was anticipated, was abandoned, yet offered the most

rational method of prophylaxis suggested—is but the revival of a theory as old as the sixth century, when the Burgundian Bishop Marius wrote of the cattle plague in the year 570, “Hoc anno morbus validus cum profluvio et variola, Italiam, Galliamque valide afflixit, et animalia bubula per loca superscripta maxime interierunt.” And in his admirable description of the cattle plague in Italy in 1711, Ramazzini recognised its resemblance to small-pox; he says, “pustulæ quinta vel sexta die per totum corpus erumpentes, ac tubercula variolarum speciem referentia” (*Opera omnia*, p. 788, Geneva, 1716).

In 1786 (as we read in the *Medico-Chirurgical Review*, for 1802), Dr. Heirze published an account of the treatment of the cattle murrain, then epidemic in Denmark, by inoculation, which is asserted to have been productive of great benefit in that kingdom.

Many other theories as to the character of the cattle plague have been put forward, but the foregoing are the most important. The only point with respect to which all the authorities on the subject agree is, that the cattle murrain is a low febrile affection of some kind; beyond this they differ, as we have seen, very widely. It has, however, been proved, I think, beyond doubt, that the cattle disease differs from all the maladies with which it has been confounded, and the probability is that it is a separate disease, *sui generis*, and is the same as that prevailing from time immemorial in the Russian Steppes, and there known as the *Rinderpest*, the disease to which it presents most analogy being Irish typhus fever.

From the theories which have been promulgated as to the character of the cattle plague, we now come to examine the facts which have been ascertained on the subject. In the first place, there can be no doubt that the rinderpest is a highly contagious febrile disease, of a low type, chiefly attacking the bovine species. It is eruptive, the eruption consisting of resolar patches, of a scaly character (some writers have observed pustules, but this fact is denied by others) on the skin of the loins and back. This

eruption is peculiarly observable on the udder, and may also be clearly seen on the inside of the thighs, as well as the mammary glands. Like other diseases of the same class, it only occurs once during life, and the period of incubation is about ten days.

The symptoms which usher in the rinderpest are a dull and dispirited condition of the infected beast, and if this attract attention, on examination there will be found to be a rise of from two to three degrees in the natural temperature of the animal. This fact, the discovery of which is mainly due to Professor Gamgee and Dr. Saunderson, is one of the most important which have been ascertained in connection with the disease. For practical purposes it affords a simple method of recognizing the earliest stage of the disease by the thermometer, for if the temperature of the suspected beast suddenly rise from the natural standard, 102° , to 104° or 105° Fah., it may generally be pronounced, while the rinderpest prevails, to be infected, even in the absence of any other symptom, and while the animal is apparently in ordinary health, this rise of temperature generally occurring from thirty to forty hours after the animal is infected. About two days later, on the second or third day of the disease, an eruption very similar to that of thrush, may be observed on the gums and inside of the lips. This extends along the mucous membrane of the mouth, and by the sixth day this is covered with a white aphthous exudation, interspersed with raw denuded patches of a vivid red colour. Simultaneously with the first appearance of these symptoms, on the second or third day, the mucous membrane of the vagina in cows presents a peculiar pathognomonic congested appearance, and the secretion of milk diminishes rapidly and soon ceases.

It is not till the fourth day of the illness that the plague-stricken beast shows unmistakeable signs of the disease. The head now droops, the ears are drawn back, the coat is rough and staring, the eyes are dull and congested, and there is a discharge from them as well as from the mouth

and nostrils. There is shivering alternately with a hot skin ; the breathing is short and frequent ; the animal moans as if in pain ; it refuses food ; the circulation fails ; the breath is fœtid. Generally there is constipation at first, followed as the disease progresses by diarrhœa and tenesmus. A marked loss of muscular power is now the most remarkable symptom. Should the case, as it will probably, end fatally, these symptoms continue to increase ; the temperature falls much more rapidly, and more than it first rose, and the animal dies about the seventh day from the accession of the disease.

The pathological lesions most commonly observed after death from rinderpest are, a generally congested appearance of the mucous membranes, which is especially observable in the mouth, pharynx, and œsophagus. The mucous membrane of the mouth is generally a dull red colour, and is frequently covered with aphthous ulcerations. In the first and second stomachs the chief thing to be noticed is a quantity of undigested food ; the third stomach, or omasum, is also full of exceedingly dry, hard, and undigested food, and the papillæ are red and enlarged ; in the fourth stomach, the reed or abomasum, there is much evidence of inflammation ; there occasionally large black patches of ecchymosis, the mucous membrane is extensively denuded of epithelium, and is sometimes even ulcerated. In the small intestines the villi are still more injected ; the jejunum and ileum are often a bright red colour ; the mucous membrane is softened, and in part stripped of epithelium. The solitary glands and Peyer's patches present a great variety of appearances ; Dr. Murchison says they are smaller and less vascular in the diseased than the healthy animal ; generally, however, they are congested, and are covered with an opaque sloughy exudation. The lungs are frequently emphysematous. Entozoa are unusually numerous in the heart and voluntary muscles. The blood is black and fluid after death, containing, according to Dr. Beale, "a peculiar granular matter;" of which Dr. Beale remarks, "possibly this

granular matter may be the poison." There is ecchymosis and effusion of the blood after death under many parts of the skin and mucous membranes.

The diagnosis of the disease from other affections is a matter of the greatest practical importance, for we have seen that the whole question of the existence or non-existence of cattle plague in Ireland turned on this mooted point—Whether the epizootic which appeared last month in the county Down was rinderpest or not?

The diseases with which rinderpest may be most easily confounded are pleuro-pneumonia, the "mouth" and "foot diseases," and puerperal fever. Of these the most commonly met with in Ireland is pneumonia, which, as I have shown, has prevailed extensively in the country ever since 1842, and which is asserted by many to have been the disease which appeared at Drennan in May last. In favour of this assertion we have the fact that pneumonia is generally most prevalent among cattle at this time of year, and that it is always increased by the long continuance of easterly winds, such as preceded the cattle disease at Drennan. The symptoms of pneumonia and the other diseases are, however, I think, sufficiently distinct from those of the rinderpest:—

PNEUMONIA.	MOUTH AND FOOT DISEASE.	RINDERPEST.
Attack gradual; a dry short husky cough; tenderness on pressure over the diseased lung; appetite impaired, but not lost; eyes bright and clear; fœcal discharge natural till near death, when diarrhœa sets in; no discharge from eyes or nostrils; animal may live thus for weeks.	Attack sudden; animal smacks the lips, from which a quantity of ropy saliva flows; the tongue and lips covered with large white blisters; sometimes affects the feet; blisters between the toes, causing a peculiar walk; circulation and fœcal discharge natural; is seldom fatal, and lasts only for a short time.	Attack gradual; a peculiar weak and languid appearance; head and ears drooped; temperature high; eyes congested and dull; frequent moaning; loss of appetite; mouth and vagina intensely red; great loss of power; milk stopped; diarrhœa towards end; death about seventh day.

Whether the rinderpest be communicable to non-ruminant animals or not, is a point on which there is yet much doubt. It is certain that sheep and goats have suffered largely from this murrain; but although the disease was introduced in October, 1865, by cattle brought in for slaughter to feed the animals in the Zoological Gardens, London, where shortly afterwards the rinderpest broke out and destroyed a pair of bisons and three Italian cattle, it seems not to have spread beyond ruminant animals.

The cause of the disease is the next point to be considered. For my own part I believe that, like every other epidemic or epizootic disease, the cattle plague is caused by, or at least is connected with, some peculiar contamination, or "epidemic constitution of the atmosphere," the existence of which is established by its effects, though its nature is utterly unknown.

The Royal Commissioners appointed to inquire into the nature and origin of the cattle-plague, in their last, *the Third Report*, deny the dependence of the disease on an "epidemic constitution of the atmosphere." And their opinion is followed by almost every writer I have consulted on the subject. But the Commissioners appear to me to bring forward no satisfactory proof that it is not connected with this cause. They say, "The way in which the disease broke out and was destroyed in the Jardin d'Acclimatisation in Paris, and over and over again in Aberdeenshire, its absence from Ireland, the manner in which it has spread in England and Scotland during the summer, autumn, and winter—all these facts are conclusive evidence against the assumption of an occult atmospheric condition, and in favour of its spread by multiplication in the bodies of living animals" (p. 7). The weight of evidence appears to me, however, directly otherwise, and proves that, although most contagious, the disease is not propagated in this way only. If it were merely contagious it should spread with most rapidity where sanitary regulations are most neglected, and yet the Commissioners in their *Report* of May, 1866, admit that—"In some of the worst cowsheds in

London the plague has not yet penetrated ; in some of the best it has swept the stock entirely away" (p. 8). At the Albert Veterinary College, where every precaution was used to ensure separation and prevent any contact, three animals kept twenty-five yards from some sick beasts, took the disease. The pestilential miasm, like all malaria, seems to love the earth, and seldom rises over elevated districts. Thus Mr. Williams has proved in the *Report of the Veterinary Department to the Privy Council* that the plague in Yorkshire adheres to the lowlands and valleys alone, and not a single case is recorded at the height of 1000 feet above the level of the sea (p. 35).

All epidemics have their season of rise, of progress, and of decline. After a certain period they tend naturally to become less fatal in their attack and less contagious in their character, and as if the virulence of the poison had expended itself, they gradually wear away and disappear. Now, this law, although an obvious truism, is, I think overlooked by many of those who, because the cattle plague declines in any locality, ascribe this result wholly to the measures which have been adopted, and talk of the epizootic having been "stamped out" in such a place by the slaughter of all cattle supposed to have been infected with the rinderpest.

We hear a great deal said about "stamping out the cattle plague" by killing the infected cattle. In some districts we are told that the idea has been thus "stamped out," and great praise is given to the activity of the local executive. Heretical as the idea may seem, I have great doubts as to the possibility of eradicating any epidemic disease by killing those affected by it. The only reason which could justify the slaughter of all beasts attacked by rinderpest is, that the diseased animal is a centre of contagion, dispersing around a subtle and highly contagious animal poison. Therefore, if placed under treatment, which in successful cases averages three weeks, the plague-infected animal propagates the disease, and thus occasions a loss infinitely greater than any compen-

sating advantage which the most successful treatment could confer. Those who reason in this way appear to me, however, to overlook the very important consideration that cattle plague, although highly contagious, does not depend on contagion alone, or even mainly for its diffusion, but is also spread by the "epidemic constitution of the air," to which no human barrier can oppose an obstacle. Therefore I think it would be more seemly to abandon the dogmatic phrase I have alluded to, which supposes we have the power of averting the visitations of epidemic disease. But I fully admit that each plague-stricken beast becomes for the time a moving centre of contagion, and that consequently, in the absence of any successful plan of treatment, it may be wise, as well as justifiable, to destroy the infected animal to limit the amount of contagion as far as possible.

From the earliest times the relation between the weather and the sanitary condition of those exposed to its vicissitudes has been regarded as a subject of great interest. I have myself devoted considerable attention to this branch of medical inquiry, and have, in a work published two years ago, endeavoured to elucidate the nature of this connection in relation to its influence to human health and disease. In this place, however, I have merely to examine its connection with epizootic disease in Ireland. But I may premise that almost every human epidemic, the history of which is recorded, was preceded or accompanied by some unusual atmospheric condition or intemperature of the seasons. The same observation holds good with regard to epidemic disease occurring in the lower animals. This intemperature is generally an unusual severity of the weather in winter. Thus in the ancient Irish annals so often quoted in the following pages we find in nearly every instance that the record of mortality among cattle, or *bo-ar*, is preceded by some mention of the great severity of the foregoing winter. Thus the Four Masters record that the year 684, in which commenced "a great mortality on all animals in general, which lasted for the space of three years,"

was so intensely cold that "the sea between Ireland and Scotland was frozen over, so that there was a communication between on the ice." In the history of the English epizootics the same connection between wet and cold and cattle disease may be observed; thus, in the winter of 1709 the weather was extremely severe, and it was followed by an epidemic in cattle in 1710. So also was the murrain of 1741 preceded by a hard winter, and the inclement winter of 1767 seems to be similarly connected with the outbreak of the disease in the following spring. In the second *Report of the Royal Commissioners* on the cattle plague we find that the rinderpest increased notably during the winter. Thus, up to the 9th of October, 1865, 11,300 cases had been reported, and on the 27th of January, 1866, the number had risen to 120,740.

With respect to treatment, my remarks shall be extremely brief, for now that it has been authoritatively decided that the only remedy is the poleaxe, any lengthened dissertation would be useless. In the recent epizootic nearly every method of cure recommended in former visitations, together with a few novel systems, were again resorted to and again failed. In truth, the disease seems little amenable to medicine, but yet there is reason to think that, had a more extended trial been given to it before resorting to the slaughter of all cattle affected with rinderpest, some more successful plan of treatment might have been discovered. In the *Report on the Origin, Propagation, and Treatment of the Cattle Plague, from June, 1865, to March 20, 1866*, we find the following table, showing the results of various plans adopted:—

Treatment.	Number treated.	Recovered.	per cent.
Antiphlogistic	1389	27·5	„
Tonic and stimulant	3842	25·9	„
Antiseptic	2970	25·4	„
Special	1507	25·8	„
	<hr/>	<hr/>	
Total	9708	26·3	

If I were to recommend any plan of treatment I should do so on principles derived from the analogy which in my

mind the rinderpest presents to the features of Irish typhus fever. I should advise the withholding of all solid food whatever throughout the entire course of the disease, the administration of a mild purgative in the early stage, and that the animal should be kept separated in a clean whitewashed, warm but well ventilated shed, and should be given as little medicine of any kind as possible, unless it should be advisable to give stimulants in the latter stage. The chief reliance should be on the *vis medicatrix naturæ*, and this might be supported by fluid nourishment, such as hot gruel or even hay water. With respect to disinfectants, numerous agents of this class have been suggested, as will be seen in the sequel, both in the present and in all past epidemics. The most valuable appears to be carbolic acid; but as this is seldom at hand in this country, the most practical measures of this kind are the use of vessels of tar placed in each shed, and above all, cleanliness and white-washing.

CHAPTER II.

HISTORICAL NOTICE OF CATTLE PLAGUES IN IRELAND, FROM THE EARLIEST AGES TO THE PRESENT TIME.

HAVING now placed before the reader as succinct a view of the nature and symptoms of the present rinderpest as the space at my disposal would allow of, I would invite attention to a branch of the inquiry which has attracted very little notice, notwithstanding its practical, as well as historic, importance—namely, the ancient cattle plagues of this country. The following account of these has occupied a considerable amount of time and involved some labour in searching through the ancient Irish annals and manuscripts, of which there are translated copies, in the library of the Royal Irish Academy. I have to return my best thanks to Mr. J. Long and Professor Connellan for some references, and to Mr. William Hennessy for kindly furnishing me with several valuable notices on the subject from his forthcoming version of the “Chronicon Scotorum.” In the Irish Census Report of 1851, volume v., there is a great deal of most valuable matter on this subject, by Dr. (now Sir Wm.) Wilde, of which I should have availed myself more fully had I not had access to the sources of information I have just mentioned.

Concerning the earliest of the ancient Irish epizootics, we know comparatively little, excepting the period of their occurrence and the mortality they occasioned, these being generally the only points alluded to by our early annalists. Sometimes, however, the information goes beyond this, and we find the names of certain cattle plagues and the causes to which they were ascribed recorded. And in a

few instances, as will be seen in the following pages, our ancient historians have left some account of the symptoms of these murrains, but generally in such vague and indistinct terms as to afford no clue to the character of the disease.

The names used by the Irish annalists do not help much to clear up our doubts as to the character of these cattle plagues. The expression most commonly used in speaking of the earliest epidemics, in the "Annals of the Four Masters," and of Ulster, is "*Bo-ar*," and I am informed by two erudite Irish scholars—namely, Professor Connellan and Mr. Hennessy—that the exact meaning of this phrase is "cow-slaughter," which seems to me to convey a more graphic idea of the deadly character of the pestilence so designated, than the word "mortality," by which the word *Ar* is translated in the Census of 1851. The point is, however, of little importance.

The first epizootic in Ireland which I find mentioned in "The Annals of the Kingdom of Ireland," by the Four Masters, occurred in the year 5001 A.M., in which it is simply recorded, "There was a great mortality of kine in Breasall's reign." Dr. O'Donovan's note on this passage is, "From this mortality he (Breasall) received his cognomen of Bodhiobhadh." "Breasall Bodivo was king ten years. In his time there was such a morren of coves in this land as there were no more then left alive but one bull and one heiffer in the whole kingdom, which bull and heiffer lived in a place called Gleann-Sawasge"—*Annals of Clonmacnoise*. Dr. O'Donovan resumes, "Gleann-Samhaisg, or Glen of the Heiffer, is the name of a remarkable valley in the county of Kerry, where this tradition is still vividly remembered."—*Notes to Annals of the Four Masters*, vol. i., p. 86.

The probable date of the next epizootic alluded to by the early Irish writers may be fixed between the years 240 and 280. In a remarkable MS., in the collection of the Royal Irish Academy, is a translation by an eminent Irish scribe, Mr. Long, of a portion of the "Book of Lismore," entitled "The Forbuis Dromdamhgaire," in which I have

discovered a curious illustration of the importance attached by the ancient Irish chieftains to the loss of their cattle from murrain. Concerning this manuscript, I may premise, on the authority of Mr. Long, that the scene is laid in the reign of King Cormac MacArt, circa, A.D. 281. It is an historical romance, apparently composed in vindication of the claim of the Irish Druids to supernatural powers, written by an unknown author. One of the first events recorded in this MS. is the announcement of Aongus, who figures in nearly all our ancient documents as the most powerful of the Irish Druids, to King Cormac, that misfortune will befall him, offering him, however, his choice as to what part of his reign it shall happen in. "Give it to me good in the beginning and the end," said Cormac; "and when my reign is best in the middle of my age, bring a reverse on my prosperity; and what shall it be?" said Cormac. "*Nin*," said Aongus; "a loss of cows that will occur in your time, until it be to the asking of one cow on the hills and rich pastures, and the seven Columhna of Tara, and in your own fortresses." Further on we read that the "cow-destruction" has come, and that King Cormac is obliged to distribute his tribute of cattle to his chieftains, "for they had lost their cows, and he kept back none without sharing." This romance, which we need not follow farther here, goes on to narrate the results of this "cow-destruction," which gave rise to all the wonderful prodigies related in this most interesting manuscript.

Passing from these early traditions, we find that nearly three centuries elapse without any record of cattle plague in Ireland, till the year 561, when a murrain, which is said by Colgan to have occurred in Meath, is noted. Colgan says that it originated from a poisonous pool which made its appearance there that year—"Cisterna venenata per hiatus terræ apparuit in illa regione, et summus de ea egrediebatur, qui mortiferam pestem hominibus et iumentis faciebat."—Colgan, *In Vita St. Aedi—Acta Sanctorum*, tome i., p. 422.

In the year 580 we read in Dr. O'Donovan's translation

of the "Four Masters," that there occurred "a mortality upon all animals in general throughout the whole world for the space of three years, so that there escaped not one of the thousand of any kind of animals." "The year was so cold," the annalist goes on to say, "that the sea between Ireland and Scotland was frozen, so that there was a communication between them on the ice." Sir William Wilde quotes an account of a cattle plague imported from England into this country from the "Annals of Clonmacnoise" in 695, which occasioned "such famine and scarcity in Ireland for three years together that men and women did eat one another for want." In the "Chronicon Scotorum" this "bovine mortality" is stated to have occurred in the year 696.

In 699 a similar disease broke out in Longford, and caused equal destruction and want. The only account of this epizootic is that given in the "Annales Ultonienses," which forms the fourth volume of O'Connor's "Rerum Hibernicarum Scriptorum," in which under this year the entry is—"Accensa est bovina mortalitas in Hibernia in Kalendis Februarii in Campo Trego, i. Tethbai." In the same annals in the year 700 we find a similar entry, and in 707, "Bovina strages iterum incendit." The next notice of a cattle plague in Ireland is in the following year, when we read (Ann. Ulton., p. 71, vol. iv.), "Pestis quæ dicitur Baccach, cum ventris profluvio. in Hibernia." This entry deserves special notice, as being the first account on record of the symptoms of these early cattle plagues in Ireland; the word *Baccach* signifying lameness in Irish, with diarrhœa (*ventris profluvio*). In 770 the Book of Clonmacnoise, already alluded to by Sir William Wilde, records "a great murrain of cattle called the *Matylegran* ran over the whole kingdom."

772. There is a similar entry.

775. Dysentery, or perhaps cholera, attacked human beings, and cattle plague the cows and oxen. ("Fluxus sanguinis morbi plurimi similiter. Pene mortalites in Bo-ar-mar. Boum strages magna."—*Annales Ultonienses*.)

The next mention of cattle plague contained in these early Irish annals is to be found in the "Chronicon Scottorum" in the years 916, 959, and 985, in which last year we find the first mention of the "Maelgarbh."

986. Pestilentia magna unde clades hominum et armentorum inter Saxones, Britones et Hibernos (Annales Ultonienses). The same year, we read in the Four Masters, "Preternatural (*i.e.*, magical) sickness was brought on by demons in the West of Ireland, which caused great mortality of men plainly before men's eyes. The commencement of the great murrain of cows—*i.e.*, the strange Maelgarbh, which had never come before."

The same event is thus noticed in another contemporaneous chronicle:—"A.D. 981 (*recti* 986). This year began the murren of cowes called in Ireland the Moylegarve."

In that year (we read in Short's "History of the Air") there was a deadly murrain in England.

1044. "Cluain-mic-Nois was plundered by the Con-mhaicni, and God and Ciaran wreaked great vengeance upon them for it—*i.e.*, an unknown plague (was sent among them), so that the Booleys were left waste with all their cattle, after the death of all the shepherd people."—*Annals of the Four Masters*, O'Donovan, vol. ii., p. 846.

1047. "A great snow this year, the like of which was never seen, from the festival of Mary until the festival of Patrick, so that it caused the destruction of cattle and wild animals, and the birds of the air, and the animals of the sea in general."—*Annals of the Four Masters*. In the succeeding year we read in contemporary chronicles that a great murrain had prevailed among the cattle in England.

1085. "There was destruction of men and cattle in this year to such an extent that certain rich people were made husbandmen in it."—*Annals of the Four Masters*.

1087. "Great abundance of nuts and fruit, murrain of cattle and dearth in this year, and a great wind which destroyed houses and churches."—*Four Masters*.

1115. "Boisterous weather; frost and snow from the

fifteenth of the calends of January to the fifteenth of the calends of March, or longer, which caused great destruction of cattle, birds, and men; whence grew a great dearth throughout Ireland, and in Leinster particularly."—*Four Masters*.

1133. "A great murrain of cows in Ireland, which was called Maelgarbh, the likeness of which was not seen since the great mortality which happened in the time of the Faithbheartach, son of Loingseach, and it left but a small remnant of the cattle of Ireland."—*Four Masters*. This epidemic, as we learn from contemporary authorities, appears to have lasted for three years, and was preceded by murrain in England.

1154. "There was a great destruction of the cattle of Ireland this year."—*Four Masters*.

1224. "A strange and awful shower fell in Connaught, extending over Hy Maine, Sodain, Hy Diarmada, and other parts, followed by terrible diseases and distempers among the cattle that grazed on the lands where this shower fell; and their milk produced in the persons who drank it extraordinary internal diseases."—*Annals of the Four Masters*, by Connellan.

From the thirteenth to the seventeenth century we find numerous brief allusions to cattle plagues in Ireland in the "Four Masters," the "Monasticon Hibernicum," "Chronicon Scotorum," "Ware's Annals," and other similar works—as, for instance, in the years 1285, 1302, 1321 to 1324, 1407, 1450, 1473, 1500, 1572, 1683; but most of these epizootics are described so vaguely that I need not repeat entries of which I have already given sufficient example. In the last century murrain and cattle plague seem to have been common in Ireland. I have had a good opportunity of observing the frequency of these diseases as recorded in the collection of early Irish newspapers in the possession of my father, Dr. R. R. Madden, which is, I believe, unrivalled. Among the Dublin newspapers of the eighteenth century which I have consulted for this purpose are *Reilly's Dublin News-Letter*, 1739; *Faulkner's*

Dublin Journal, 1737; *Dublin Courant*, 1741; *Dublin Chronicle*, 1788; *Pue's Occurrences*, *Freeman's Journal*, *Evening Post*, and *Hibernian Journal*, all previously to 1775.

In 1747-46 there was a murrain in Ireland, the symptoms of which are thus described:—"A dry, husky cough, fœtid breath, shivering, diarrhœa; or, in some cases, obstinate constipation."

In December, 1748, the cattle plague seems to have been imported from England into Ireland. We read in the journals for that month, under the head of "Ireland":—"A distemper is got among the horned cattle in some parts of this kingdom, which seizes them with a sudden swelling in their heads and necks, and often proves fatal; it is ascribed to the very warm season."

In September, 1749, a similar epizootic was observed in Ireland.

I shall not here copy every record of disease amongst cattle in Ireland during the latter half of the eighteenth century, contained in the Dublin newspapers and periodicals of that period, most of which appear to have been the ordinary maladies of horned cattle. In 1802 influenza, which then prevailed among cattle in Central Germany, invaded this country, and early next year it began to attack mankind, and soon became a wide-spread, though seldom dangerous, epidemic in Ireland. In 1803 dysentery was epidemic in Ireland, and a similar epizootic, known as the "bloody murrain," prevailed among cattle. The next important epizootic is recorded in 1839, when, as we read in the early volumes of *THE DUBLIN MEDICAL PRESS*, which commenced in that year, and in the fifth part of the *Census Report for 1851*, vol. i., that after a hard wet winter the "epidemic atmospheric constitution," which from this year prevailed more or less in Ireland for some years, and which finally culminated in "the fever and famine years" of 1846-47, began to manifest itself in July, when the potato blight appeared, and in the same month an epizootic, not confined to horned cattle, prevailed in the North of Ireland. The following year was

also extremely wet, and was two degrees under the average annual temperature. During these two years, the potato and grain crops having failed extensively, famine and fever went, as usual in all similar epidemics, hand in hand together. Nor did the "epidemic constitution of the atmosphere" limit its influence to these, but the lower animals shared its ill effects. So that another proof was thus afforded of the extraordinary sympathy and connection which subsists between the vital conditions of all orders of organic life. In these years pleuro-pneumonia, which previously had been epidemic among cattle in England and on the Continent, was imported into Ireland.

It would be needless for me to pursue the history of the various outbreaks of pleuro-pneumonia in Ireland, from 1839 to 1865, some of which presented symptoms very like those of the present cattle plague. The history of that disease, unfortunately, is but too familiar to the owners of stock in this country.

For more than ten months after the rinderpest broke out in England, in June, 1865, Ireland remained unaffected by the disease, which had begun to decline in England; and a hope was generally entertained that the precautions taken to exclude the importation of the contagion having apparently succeeded so long, this country, notwithstanding its continual communication with the sister island, would escape the visitation. But on the 14th of May, 1866, Prof. Ferguson reported to the Irish Government that the rinderpest had broken out at Drennan, in the county Down, within six miles of Belfast. The infected cattle were at once killed, a cordon was drawn round the district, and other precautionary measures were adopted. I shall not here allude to the controversy which took place between the veterinary surgeons and the owners of stock, as to the disease observed in the country being rinderpest or pneumonia, as there can hardly be a doubt that the disease which carried off eight head of cattle at Drennan, before it was reported, and caused the destruction of seven afterwards, was the cattle plague or rinder-

pest which prevailed in England. It is not my purpose here to chronicle the various steps taken in consequence of the appearance of the rinderpest in Ireland, and the consternation it excited.

Numerous cases of alleged rinderpest were reported during the months of May and the early part of June, in various parts of the country, but on examination they were generally found to be cases of ordinary cattle diseases, aggravated by the long continuance of east winds this spring. Cattle plague committees were formed in Dublin, and throughout the country every precaution was taken to localize and prevent the extension of the cattle plague as far as possible. The disease, however, did not increase, notwithstanding the occurrence of a few isolated cases of rinderpest at Enfield, in the county of Meath, and some other parts of the country; and early in August the Veterinary Department reported Ireland to be free from rinderpest, the Cattle Plague Committee adjourned *sine die*, and the cattle trade of the country was freed from the restrictions which had been imposed in consequence of the appearance of the disease in Ireland.

CHAPTER III.

SKETCH OF THE HISTORY OF CATTLE PLAGUE ON THE CONTINENT AND IN ENGLAND TO THE PRESENT TIME.

THE early history of cattle plague on the Continent and in England is quite as obscure as in Ireland, and it is some satisfaction to find the accounts of the disease given by our ancient Irish annalists are not inferior to those left by contemporary writers who observed the same epizootic in other countries. In the reference to the murrains mentioned by Plutarch (*Romulus*, B.C. 753), by Livy (Lib. iii. et xv. B.C. 404 and 212) or by Tacitus (*Annales* Lib. xvii. in the years 60 and 190. A.D.), we find no description of the symptoms by which the disease could be compared or identified with any now existing cattle disease.

The first account of a murrain apparently identical with the rinderpest is that of the cattle plague of the year 307, cited in Ozanam's *Histoire des Maladies Epidemique, &c.*, vol. v., from Cardinal Baronious, who terms it the "Hungarian Fever." It was also described by Gregory of Tours, in the 11th book of his History. In the sixth century, and in the three following ages, it repeatedly overran the Continent, but does not seem to have invaded England before the year 986, and even then there is considerable doubt whether the murrain that prevailed resembled the modern cattle plague or not. For according to Dr. Short, the distemper of the year 986 was dysentery. He says:—"Two great plagues afflicted England, a mortal fever among men and a great deadly flux among cattle. (*History of the Air, &c.*, 1749, vol. ii., p. 91.) In 1041 we read that "This whole year was frightful in England for both distemperature of the

air and great death of cattle, whence arose a famine which lasted seven years." In 1115 there was another murrain in England, and from 1130 to 1132 there was so great a mortality among the lower animals that we are told, "of ten yoke of oxen, not one was left alive, and out of two or three hundred swine scarce one was left alive; fowls also died." (*Anglo-Saxon Chronicle*.) In 1223 murrain raged in Germany and France, and soon afterwards a similar epizootic appeared in Ireland.

In 1252, there was a great drought from Easter to Michaelmas, followed by murrain in England. (*Stowe's Chronicle*). This murrain is said by other early writers to have been caused by the growth of rank coarse grass late in the year, when the rain at last came after the long drought, and they add that this coarse grass filled the cattle with worms and thus gave rise to murrain, especially in the fens of Norfolk and the South of England." From 1314 to 1319 (according to *Stowe's Chronicle*) murrain again prevailed in England. This commenced after a very wet season, and at the same time fever and dysentery were epidemic among mankind.

In 1347-48, well known as "the year of the black death," cattle plague followed the fatal epidemic and occasioned a vast destruction of cattle. In 1441, epizootics prevailed among the herds in Germany and Italy.

In 1517, another "great murrain of kine" occurred in England. This, it may be observed, was shortly before the appearance of the "sweating sickness" in England. In 1581 "a sore plague of strange mice," says Dr. Short, "was observed in Kent and the marshes of Essex, suddenly covering the earth, and gnawing the grass roots; this poisoned all field herbage, for it raised the plague of murrain among the cattle feeding on it."

The great epidemic pestilences of the seventeenth century were also generally preceded or accompanied by cattle plague; and very often the disease among men was ascribed to the use of the flesh of plague-stricken cattle.

In 1709 the rinderpest was brought from the Russian

Steppes into Dalmatia, and thence was carried in the train of the Austrian army into Italy in 1711. Commencing near Padua it invaded the Roman states and extended itself to every part of Italy, remaining in the Peninsula for seven years, during which time it destroyed upwards of 180,000 head of cattle. From Italy the murrain spread into France on the one side, and, through Switzerland, into Germany and Holland on the other. These countries alone are stated to have lost about a million and a half of cattle by this distemper.

In 1714 the cattle plague appeared near London, having, it was said, been imported from Holland. Prompt measures of precaution, differing little from those enforced by Pope Clement XI. in the Roman states, were adopted by the government, and the disease did not spread extensively, the total loss occasioned by it being estimated at less than £24,000.

Returning now from England to the Continent, we find that the cattle plague did not cease in Holland until the year 1723, having destroyed about 200,000 head of cattle in that country. It still lingered in Germany, and was widely diffused throughout central Europe, during the war of succession, by the cattle driven after the contending armies. Between the years 1740 and 1748 the cattle plague is stated to have swept away close on three millions of cattle on the Continent.

In the commencement of the year 1745 the rinderpest was again brought from Holland into England, where at first it diffused itself so slowly as to attract no attention on the part of the government. But in a few months it assumed its characteristic severity; and in November, 1745, a cattle plague commission was nominated, and cattle inspectors were appointed to examine all suspected cattle, to kill the sick beasts and destroy their carcasses and hides. The progress of the disease was not at all arrested by these measures, for it lasted between eleven and twelve years, and did not decline till it had infected almost every part of England. The loss of cattle during the epizootic

is calculated at between six and seven hundred thousand ; and in the "Gentleman's Magazine" for April, 1748, I find it stated that the government had already paid £100,000 as compensation for the stock destroyed by the official inspectors.

In 1775 the cattle plague raged in the south of France, and was described by the celebrated Vicq. d'Azir, and twenty years later it again invaded Lombardy. From 1806 to 1818 a less virulent form of rinderpest prevailed in central Italy. In 1812-14 the cattle plague was imported into France by the commissariats of the allied armies, and was written upon by M. Ozanam (in his *Histoire Maladies Epidemiques*, vol. v.), and by M. Gohier (in his *Memoire sur l'Epizootie des Bêtes à Cornes*). The treatment proposed by these writers consisted in blood letting and the antiphlogistic regimen in the first stage, and in the second stage setons in the neck were employed, and stimulants were freely administered.—So far my researches into the history of the cattle plagues of former ages.

The history of the rinderpest of late years has been elaborately traced in the various official reports on the disease in England, as well as in the medical journals of the time, and I have had recourse to these sources to enable me to complete this sketch of the history of cattle plague. In 1827 the rinderpest was carried into Germany from Russia. In 1841 it broke out in Egypt, and in three years it destroyed 350,000 head of cattle there. From 1844 to 1851 it prevailed in Austria, and in 1853 it was again brought into Lower Austria from Poland.

During the Crimean war, rinderpest was introduced by some Steppe cattle among the stock of the commissariats of the French and English armies. In 1857 it was reported to prevail in northern Europe, and the importation of cattle into England from the infected countries was prohibited. In 1863 the disease showed itself in southern Russia and Poland, where it raged during the civil war of that year.

In June, 1865, the rinderpest was observed in England. The Cattle Plague Commissioners in their first report state that the disease was first noticed at Lambeth on the 24th of June, 1865, in two Dutch cows, which had been recently purchased at the Metropolitan Cattle Market. Early in July it appeared in Norfolk, and thence rapidly diffused itself throughout Great Britain, with the exception of twenty-two counties, which have escaped up to the present time. In February, 1866, the rinderpest reached its maximum; and in the week ending February 17th, no less than 15,706 animals were attacked, and of these only 2,710 recovered. From this period the disease commenced to decline; thus in the week ending November 10th, the number of cases of rinderpest amounted only to five, being an increase of three on the preceding return; and a week later the number of cases again fell to two.

This would not be the place to speak of the various measures taken by the authorities to arrest, if possible, the progress of the cattle plague, nor to enter on the effects of the Orders in Council. Royal Commissioners were appointed in September, 1865, and an Act of Parliament framed on their recommendations was passed in February, 1866, by which the measures resorted to in the epizootic of 1745 were, in substance, re-enacted.

The weekly return issued by the Cattle Plague Department of the Privy Council Office, on the 17th of August, shows that from the outbreak of the disease in June, 1865, to the middle of August, 1866, the total number of animals attacked by rinderpest in Great Britain was 252,927; of these 124,268 died, 84,372 were killed, 33,292 recovered, and 10,995 are unaccounted for. That is, one in every nineteen head of cattle in England, Scotland, and Wales, has been attacked by rinderpest; and 862 of every 1000 animals infected have thus been destroyed. Besides this, the disease attacked 6,393 sheep, of which only 913 appeared to have recovered, or at least are unaccounted for.

CHAPTER IV.

THE CATTLE PLAGUE OF THE EIGHTEENTH CENTURY : ITS CHARACTER AND TREATMENT, FROM CONTEMPORARY WRITERS.

FROM the history of the cattle plague to the consideration of the opinions of those who observed it in former times, as to its prevention and treatment, is a natural transition. The latter branch of this inquiry is, however, completely ignored by many recent writers on the subject. Yet it must be of importance to know something of the medical opinions of the past concerning any disease, whether it be epizootic or epidemic ; for some knowledge of the measures which were formerly adopted in the treatment of an epidemic malady, and of the results of those measures, might often aid us materially, under similar circumstances, in combating the same forms of disease when they recur.

There is, however, a great tendency now-a-days to overlook and neglect the medical experience and observations of our predecessors in the healing art, and sometimes their opinions are spoken of with positive contempt by those who are, perhaps, least acquainted with their works, or who entertain what I fear is a somewhat exaggerated idea of the superiority of modern science over the knowledge of the past. But if we consult the older writers on the subject of this essay and compare them with those of the present day, we will, I think, find less evidence than might be supposed of improvement, either in the descriptions of the cattle plague or in its treatment, which may still be spoken of in the words employed by Lancisi in 1714 :—“In our experience in Rome,” he says, “many remedies we found useless, many hurtful, and some few *seemed* useful.” Had the accounts of past epizootics been

more generally known, it might have saved the loss of time occasioned by the trial of the so-called *infallible specifics*, and *new* plans of treatment proposed daily in the public journals in England last autumn, and during that time more rational and effective remedial measures might have been devised ; for with hardly an exception the treatment suggested as novel during the early months of the rinderpest in 1865 had been recommended in similar terms in the English periodicals of the middle of last century, and had been then tried with similar failure.

With these views I have endeavoured to present here a short account of the various plans of treatment suggested in the periodical press of England during the long and severe visitation of cattle plague from 1744 to 1755. The journals I consulted chiefly were the "Gentleman's," "London," and "Exshaw's" Magazines, which, and especially the "Gentleman's Magazine," then supplied to some extent the want of any separate medical journal. I have also referred to the pamphlets of the time on this subject, and I have sought to preserve, as far as possible, the words of the writers in the following analysis of their opinions.

A short time before the cattle plague broke out in England in 1744, an excellent essay from the French was published in the "Gentleman's Magazine." This article was entitled—"Observations on the Contagious Malady among the Oxen and Cows in Franche-comte." After some preliminary remarks, the disease is described thus—"It is always preceded by a shivering and trembling of the limbs, after which follow bad febrile symptoms, such as difficulty of breathing, a dryness on the tongue, loss of appetite, and unusual indolence, heaviness and weakness, so that they are scarcely able to support themselves on their legs. Their eyes are either dull or inflamed and sparkling, and are usually watery, and their moanings are expressive of great uneasiness. In their stomachs is observed a crudeness in their food even four or five days after it has been taken. In the affected parts we observed after death purulent

matter and black or livid gangrenous spots in various parts of the intestines. In the plague among cattle in Venice in 1711, there were pustules over the whole body, according to Ramazzini's account. But instead of these pustules an eruption of vesicles on the tongue and throat accompanied the cattle plague of 1713, in the ecclesiastical state, according to Lancisi. "Effectual remedies are not yet found out. On the principle of bleeding being a remedy for all inflammations, it is very proper to take away blood from the affected animals. The next day purge the animals with Epsom or Glauber's salts, if the distemper is in its first stage, but if otherwise purging must not be used. A seton in the neck of affected beasts is next advised. Lancisi would not give the infected animals any solid food, but only cooling and nourishing drinks, such as white water, that is a water in which a handful of meal or hay has been steeped. Ramazzini further enjoins that nothing should be given to them cold.

"The most essential precaution is to keep the healthy cattle from those that are infected. Those who look after them should take care not to carry the contagious air in their clothes, and that such as wait on the infected animals should put on a kind of surtout of cerecloth when they go into the stalls, and put them off when they come out again. The beasts which die of the plague should be buried deep in the ground and no use be made of their flesh. Pope Clement XI. went farther, and ordered that the dead bodies should be cut into quarters, and buried with lime in holes made ten feet deep, or twelve, when there was no lime used, that the ground should be stamped hard, and that the holes should be dug at a distance from the public roads. Lastly, guards were appointed to cut off any communication with the infected countries, these precautions stopped the progress of the infection; and what farther contributed to it the Pope prohibited the usual fairs of such cattle.

"As to the precautions with regard to men, they ought to abstain from the flesh of beasts that have died or have

been infected. . . . For Ramazzini observes that using the beef even of such animals as appear sound, may in times of cattle plague be dangerous.

“Great care must be taken not to give any strong purgatives when once the inflammation is formed. And in this case, hot remedies are no less dangerous. Ramazzini would have two ounces of quinquina, infused in ten or twelve pounds of some simple water, or cordial tincture, and this quantity divided into five or six doses, two of which to be given every day at the beginning of the infection.”—“Gentleman’s Magazine,” November, 1744, pp. 544-550.

In 1745-46, the English magazines were filled with communications on the nature and treatment of the prevailing cattle plague. In November and December 1745, Dr. Mortimer, Secretary to the Royal Society, read papers before that body giving an excellent description of the symptoms and pathology of the disease. In the “Gentleman’s Magazine,” November, 1745, a correspondent describes the epizootic then raging as “a violent inflammatory fever, occasioned by feeding principally on grass, which this year from the wetness of the season has been more juicy than common.” The idea that cattle plague is connected with the state of the herbage on which the cattle feed, is, as I have shown in the last chapter, a favourite theory with the ancient chroniclers. And in the eighteenth century this opinion was commonly held. Thus, in the “Gentleman’s Magazine” for February, 1747, another writer also attributes the cattle plague to the severity of the preceding year, by which “the finer and sweeter species of grass were destroyed, and the growth of coarse rank vegetation was favoured.”

In the January number of the “Gentleman’s Magazine” for 1746, the use of tar as a prophylactic and of the tops of fir trees as food is advised. The use of tar seems to have been general throughout England. In September, 1747, was published “A receipt for the distemper of cows, from the treatise of tar water, by J. Prior, Esq., of Dublin.”

And in the December number of the "Gentleman's Magazine," there is a letter testifying to the properties of tar in cases of cattle plague.

In the "Gentleman's Magazine" for 1747-48, we find constant allusion to the cattle distemper. In April, 1748, one correspondent advises that the tips of the ears of the infected cattle should be cut off and cauterized, and that tar should be administered internally as well as applied externally to their noses, hearts, and sides. In June, 1748, a Mr. Montgomery of Yorkshire, writes to say that he saved six out of seven infected cattle by the administration of a piece of venice treacle the size of a walnut, dissolved in a wineglassful of brandy, and given in two quarts of hot small beer.

Several very disgusting remedies were suggested from time to time, an account of which may be found in "Exshaw's" and the "Gentleman's Magazine" during the time of the murrain, and especially in the 19th vol. of the latter.

In the October number of the "Gentleman's Magazine" for 1748, it was stated that the treatment by bark and port wine had been tried and had failed, and it was recommended to give instead an ounce of powdered bark with dock leaves in hot water at night. The treatment adopted by Layard in the last years of the distemper consisted in separating the diseased beast from all others, in a clean stall, ablutions with warm vinegar and water were employed, followed with dry rubbing with straw, together with blood letting, aperients, and setons in the early stages, and bark and stimulants in the latter stage of the disease.

One of the pamphlets published on the cattle plague in 1748, is more curious than most of these ephemeral essays on the subject, as it throws some doubt on the identity of the epizootic to which it refers with the recent rinderpest, and approaches more closely to the description of the pathological signs of pleuro-pneumonia. The writer says:—"The blood vessels of the lungs are stuffed up and distended with grumous or coagulated blood. The lungs

were in some of a livid or blackish colour, and putrified to such a degree soon after the cattle were dead, as scarcely to bear touching. Abscesses were found in the lungs of others. . . . and the tonsils were inflamed or imposthumated." (*Pestilent Contagion occasioned by the disease now raging in Cattle by Iater, 1748.*)

In 1750 the cattle plague seems to have assumed a more virulent form, and the Magazines for that year were occupied with discussions on the propriety of the slaughter of infected cattle, and comparatively few remedies were suggested. In November, 1750, one writer says, that he "cured two beasts which were very ill of the distemper by boring a hole in the horns, whence issued a great quantity of matter." But in April, 1751, a correspondent of the "Gentleman's Magazine," stated that this plan of treatment had been tried, and did more harm than good. From 1751 the communications to the magazines on the subject of cattle plague, gradually diminish in number, as the disease declined year by year, until 1755, in which year it is only mentioned once in the "Gentleman's Magazine;" and is not subsequently referred to in any of the periodicals of the time which I have searched.

CHAPTER V.

THE CONNECTION BETWEEN EPIZOOTIC AND EPIDEMIC DISEASES.

THOSE who have had occasion to study the history of the great epidemics which at various epochs have desolated almost every country, must have observed that it is generally recorded that these outbreaks of pestilence amongst the human race have been preceded or accompanied by epizootics among the lower animals. Thus, in his account of the epidemic which ravaged the Grecian army during the siege of Troy, Homer points out that the contagion was first developed in the lower animals—

“On mules and dogs the infection first began,
And last the vengeful arrows fixed in man.”
(*Pope's Iliad*, i. 50.)

Livy, too, speaking of the epidemic fever which raged in Rome, in the Roman year 576, stated that the disease was first observed in cattle before it attacked mankind,—
“Pestilentia, quæ priore anno in boves ingruerat, eo verteret in hominum morbos.” (Livy, Lib. xli. 21.)

In the foregoing citations from the early Irish and Anglo-Saxon Chronicles, I have already shown how constantly the connection between cattle plague and some succeeding epidemic pestilence was observed, and consequently I need not here again refer to these annals. I shall, therefore, pass at once to the fourteenth century, so memorable in the history of epidemic plagues, when the “Black death” repeatedly swept through Christendom, and in its irresistible progress reduced the thickest centres of population to

all but uninhabited solitudes. And at this time we find that the relationship of epidemic to epizootic disease was well illustrated, every outbreak of the "Black Death" being preceded or immediately succeeded by the appearance of a murrain or plague of a similar type among cattle. This was the case in England, in the year 1348-49, when, as Dr. Hecker has observed—"The plague, which then seemed to be the sole disease, was soon accompanied by a fatal murrain among cattle. Wandering about without herdsmen, they fell by thousands; and, as has likewise been observed in Africa, the birds and beasts of prey are said not to have touched them." ("Hecker's Epidemics of the Middle Ages," p. 28.) A century later the "sweating sickness" was also accompanied by murrain in England.

In his "Account of the Plague in London" in 1665, Dr. Hodges states that "On the year before the late pestilential sickness, there was a very great mortality among the cattle from a very wet autumn, whereby their carcasses were sold among the ordinary people at a very mean price; and a great deal of putrid humours in all likelihood produced from thence. And this, in the opinion of many, was the source of our last calamities; and many knowing persons ascribe the pestilence to this origin, as the morbid disposition to which such a feeding must needs subject the people could not but facilitate both the infection and progress of that fatal destroyer." (P. 59.)

In another part of the same work, Dr. Hodges says:—"Moreover, in this regard we may consider the frequent mortalities amongst cattle which forego an infection amongst mankind; for these creatures, living for the most part in the open air, not only are more influenced by it when tainted, but are also hurt by the infectious venom which gathers upon the herbage; as, likewise, they are more liable on other accounts to feel its first approaches, because its freest progress is in open places." (*Loimologia*, p. 142.)

In one of the pamphlets on the cattle plagues of the last

century, entitled, "An Essay concerning the Pestilential Contagion occasioned by the Distemper now raging among the Cattle," by Iater, London, 1748, there is a very curious reference to a supposed connection between that epizootic and what was then called "pestilential sore throat," which seems to have resembled what we now term diphtheria so closely as to leave little doubt they are the same disease. Another writer of that time, Dr. Short, describing some cases of this disease, in 1743, just before the outbreak of cattle plague, says:—"On looking into their mouths, the tonsils, velum pendulum, and uvula were seen covered with a thick white slough which reached but a very little beyond these parts towards the roof. They had a long, rattling, deep inspiration, with a sound as from a metal tube, a livid countenance, and . . . a difficult motion of the thorax. But what was most remarkable, they spit large pieces of the lining of their trachea an inch and a half or two inches long and as thick as a shilling." ("Short's History of the Air." Lond. 1749, vol. ii., p. 307.) No one that reads this passage can admit that diphtheria is a new form of disease. It is significant that diphtheria was prevalent during the time of the cattle plague in this year, and the attention of the Medical Society was directed to it by Dr. Belcher, who, in a paper on "Diphtheria," alluded to "Iater's" pamphlet.

Observations made in Germany, in India, and in this country during the great epidemics of cholera since 1832, show that, coincident with the epidemic cholera in man, the lower animals were affected by an epizootic disease of a similar character. This was extended to animals of every kind, but was more especially observed in the domesticated animals, such as dogs, cats, horses, and cattle; in a word, was of most frequent occurrence in the animals most exposed to the same contagion which produced the epidemic in man.

From these histories of the evident connection between epidemics and epizootics in former times it was not very difficult to foresee the probability of this being again

shown by the occurrence of some epidemic on the cessation of the prevailing epizootic. Accordingly, in this essay, which was written early in May, and placed in the printer's hands in June last, although its publication has been since unavoidably delayed till now, I ventured to predict that the "epidemic constitution," in which the cattle plague had originated and had developed itself, would now, as on former occasions, extend its influence from the lower animals to mankind, and signs of what was termed by the older physicians the "epidemic constitution, or morbid tendency of the season" (words which, I may remark, do not appear to me superseded by any of the more euphonious modern phrases by which a similar idea is still conveyed), were not wanting, even in Ireland, where the visitation of cattle plague was very slight. Some months before any case of cholera was observed in Dublin diphtheria had been unusually prevalent; cases of fever assumed a peculiarly asthenic or low type, the prevalence of puerperal fever led to the closing, for a time, of the Lying-in Hospital. Such were the precursory symptoms of an "epidemic constitution," or "contamination of the atmosphere," before epidemic cholera made its appearance in Dublin on the 27th of July, 1866, having been imported from England. The outbreak of epidemic cholera in London in the commencement of July, and the fearful mortality it occasioned for a time in East London, was, I think, but another illustration of the law that there is some connection, however occult it may be, between pestilences which attack the lower animals and those that invade the human race, and that whenever an epizootic rages we may anticipate that it will probably be followed by an epidemic. Not that it can be imagined that cholera was in any way occasioned by the preceding rinderpest, but simply that both were developed and spread by the "epidemic constitution of the atmosphere" which remained after the cattle plague, having exhausted its virulence, was declining; and in which state of the air any zymotic poison would have developed and diffused itself. In this case the

zymotic agent was cholera, then slowly advancing on its irresistible progress westwards, but which was probably brought into England by the "epidemic constitution" already spoken of sooner than it would otherwise have been.

In conclusion, the chief point I have endeavoured to prove in this essay is, that there is a very close connection between epizootic and epidemic diseases, and that when either form of pestilence appears in any place, we may ere long expect the other to follow. Had this law been more generally acknowledged and acted upon by the adoption of suitable sanitary precautions and some efficient system of quarantine immediately after the first appearance of cattle plague in England, in June, 1865, it is, I think, possible that the mortality occasioned by epidemic cholera during the present autumn, both here and in England, might have been at least largely diminished.

