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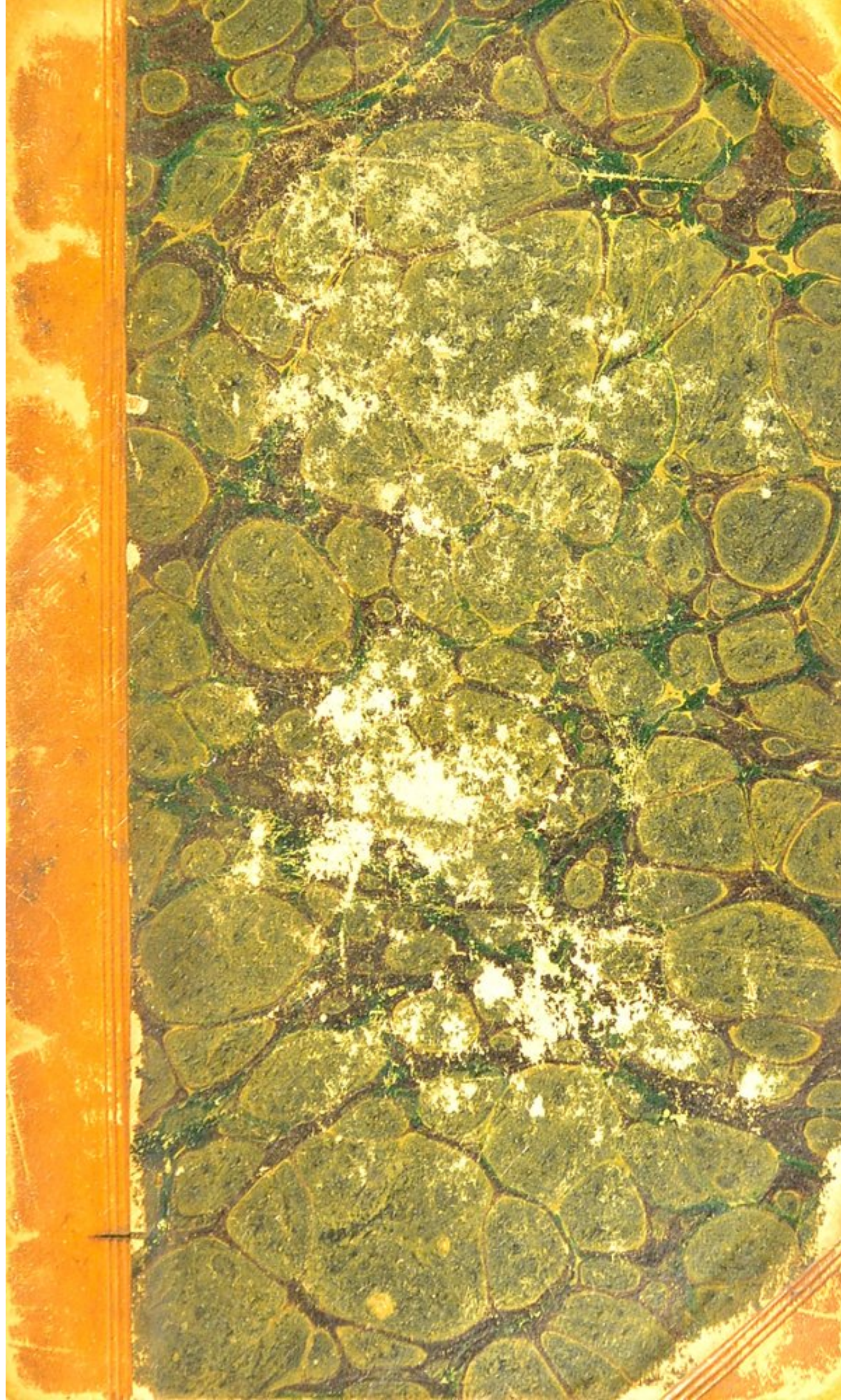
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ON INSTINCT.

A LECTURE

DELIVERED BEFORE THE DUBLIN NATURAL HISTORY SOCIETY,

11TH NOVEMBER, 1842.

BY

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ARCHBISHOP OF DUBLIN.

DUBLIN:

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W. S. ORR AND CO., 147, STRAND, LONDON.

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ON INSTINCT.

THERE is no particular branch of Natural History upon which I should be as well qualified to give instruction, or with which I am as well acquainted, as many who are here present. If I were to attempt to instruct either those who had paid much attention to such a study, or again those who were mere beginners, in the one case, I should be undertaking to teach those who were greater proficient than myself; in the other, I should probably be a less skilful instructor than they might find in persons more conversant with each particular branch of the subject. But having been called upon to deliver a lecture upon some point connected with Natural History, I consider it would be more suitable in respect to my slender attainments in each particular branch of Natural History, and to the circumstances of the Society, to select a point in which Natural History comes in contact with the Philosophy of the Human Mind, and those metaphysical pursuits to which I have mostly devoted myself.

Besides the intrinsic advantage of directing the attention of my audience to this particular branch of study, another benefit resulting from such a course of inquiry is, to relieve the study of Natural History from some part of the discredit under which, with many, it has laboured, in being considered as a frivolous occupation

of the time and faculties of man, leading him to reflect upon, examine, search into, and ascertain the *facts* connected with this science, and all for no purpose beyond the mere innocent amusement arising from the study—a study thus represented as conducive in no way to the development of the higher faculties of the mind, or to the attainment of any other benefit to mankind.

The charge does fairly lie against Natural History thus, and only thus studied. And the same might be said with regard even to the cultivation of literature. If a man went no farther in literary pursuits than to be a good judge of different editions of books, or the different modes of binding or printing those books, he might make a very useful librarian; but it could not be said that he had turned literary knowledge to any of the more dignified purposes for which it might be employed. There, no doubt, are such persons; but it would not therefore be true to regard Literature altogether as merely a Bibliomania—a mere curiosity about rare books, because some have no other than such literature. And equally unfair would it be to pronounce a similar contemptuous censure on Naturalists, because there are some among them who correspond to those librarian-students just alluded to—men who are content to arrange and label, as it were, the volumes of the great Book of Nature, and then forget to peruse them, or peruse them without intelligence, and without profit.

The point which I have chosen as forming a contact between Zoology and the branch of Philosophy which has relation to the human mind, is the subject of INSTINCT. If I or my audience were to estimate the propriety of my taking up the examination of such a subject, from the degree of information from existing books which I could bring to bear upon it, my claim to their attention would be very low indeed. I have found so little of a systematic ac-

count of the matter in all the authors I have ever read, that it struck me it might be desirable to call the attention of the audience to the subject. I shall be occupied rather in proposing questions for consideration, than in answering questions myself. In many subjects it might be objectionable to take this course ; but in this case something may be gained by pointing out to you what to ask, and to what you should direct your inquiries ; though I could not undertake to answer the questions which I may propose, satisfactorily to myself. At any rate, if I cannot give you satisfaction, I hope I can give you *unsatisfaction*—that is, I hope I may be able to render you dissatisfied with the extent of your knowledge, by pointing out how much there is to be known, to be studied, and to be inquired into.

A Treatise upon the subject of Animal Instincts is a desideratum. I have seen in many books interesting descriptions of different instincts, curiously illustrated by well authenticated facts. I have seen minute details of important and interesting characteristics of Instinct. But I never saw anything like a philosophic or systematic view of the subject ; nor have I ever heard a distinct and satisfactory answer to the question, “What do you mean by Instinct?” It seems, therefore, that however far advanced we may be in a *Dictionary* on the subject of Instinct, a *Grammar* is a thing very much wanted. It is in general rather implied and supposed, than distinctly laid down, that a Being is acting instinctively when impelled blindly towards some end which the agent does not aim at or perceive ; and on the other hand, that it is acting rationally, when acting with a view to, and for the sake of, some end which it does perceive. But in the ordinary language even of Naturalists, and even when they are describing and recounting instances of remarkable Instincts, we often meet with much that is inconsistent with this view. And when any one

says, as many are accustomed to do, that Brutes are actuated by Instinct, and Man by Reason, this language has the appearance, at least, of being much at variance with such a view.

When I speak of Animal-instinct, it should be remembered that I include Man. I presume that you have all learned that Man is an Animal, although it is a fact frequently forgotten by many. Man possesses Instinct, though in a lower degree than most other animals; his inferiority in these being compensated by his superiority in other respects. And again: as Man possesses Instinct in a lower degree than the brutes, so, in a lower degree than Man, brutes—at least the higher brutes—possess Reason. As some things felt and done by Man are allowed to be instinctive—as hunger and thirst for instance, are evidently instincts—so many things done by brutes, at least by the higher description of brutes, would be, if done by man, regarded as resulting from the exercise of Reason—I mean where the actions of the brute spring, to all appearance, from the same impulse as the rational acts of man.

In many instances we know this is not the case. A man builds a house from Reason—a bird builds a nest from Instinct; and no one would say that the bird, in this, acted from Reason. But in other instances, Man not only does the same things as the brutes, but does them from the same kind of impulse, which should be called instinctive, whether in man or brute. And again, several things are done by brutes, which are evidently not instinctive, but, to all appearance, no less rational than human acts: being not only the same actions, but done from the same impulse. I shall not at present inquire what is called Reason, any more than what is denominated Instinct. I would only say that several things which are allowed by every one to be acts of Reason, when done by a man, are done by brutes manifestly under a similar impulse—I mean

such things as brutes *learn* to do, either by their own unaided experience, or, as taught by Man. *Docility* is evidently characteristic of Reason. To talk of an elephant, a horse, or a dog doing by Instinct such things as it has been *taught*, would be as absurd as to talk of a child's learning to read and write by Instinct.

But, moreover, Brutes are, in many instances, capable of learning even what they have not been taught by Man. They have been found able to combine, more or less, the means of accomplishing a certain end, from having learned by experience that such and such means so applied, would conduce to it. The higher animals of course show more of Reason, than the lower. There are many instances of its existence in domestic animals.

The Dog is regarded as the animal most completely man's companion; and I will mention one, out of many specimens of the kind of Reason to which I refer, as exhibited in a dog. The incident is upon record, and there seems no ground for doubting it, although it did not come under my own personal observation. This dog being left on the bank of a river by his master, who had gone up the river in a boat, attempted to join him. He plunged into the water, but not making allowance for the strength of the stream, which carried him considerably below the boat, he could not beat up against it. He landed and made allowance for the current of the river, by leaping in at a place higher up. The combined action of the stream, and his swimming, carried him in an oblique direction, and he thus reached the boat. Having made the trial, and failed, he apparently judged from the failure of the first attempt, that his course was to go up the stream, make allowance for its strength, and thus gain the boat. I do not vouch for the accuracy of this anecdote; but I see no grounds for disbeliev-

ing it, as it is of a piece with many other recorded instances.

There is another instance of this nature, which did come under my own observation, and is more worthy of being recorded, because the actor was a Cat—a species of animal which is considered generally very inferior in sagacity to a dog. This cat lived many years in my mother's family, and its feats of sagacity were witnessed by her, my sisters, and myself. It was known, not merely once or twice, but habitually, to ring the parlour bell whenever it wished the door to be opened. Some alarm was excited on the first occasion that it turned bell-ringer. The family had retired to rest, and in the middle of the night the parlour bell was rung violently: the sleepers were startled from their repose, and proceeded down stairs, with pokers and tongs, to interrupt, as they thought, the predatory movement of some burglar; but they were agreeably surprised to discover that the bell had been rung by pussy; who frequently repeated the act whenever she wanted to get out of the parlour.

Here are two clear cases of acts done by a cat and dog, which, if done by a man, would be called reason. Every one would admit that the actions were rational—not, to be sure, proceeding from a very high exertion of intellect; but the dog, at least, rationally jumped into the stream at a distance higher up from the boat, into which he wished to get, because he found that the stream would thus carry him to it, instead of from it; and the cat pulled the parlour bell, because she had observed that when it was rung by the family, the servant opened the door. It is quite clear that if such acts were done by Man, they would be regarded as an exercise of Reason; and I do not know why, when performed by brutes, evidently by a similar mental process, as far as can be judged, they should not bear the same name. To speak of a

cat's having an *instinct* to pull a bell when desirous of going out at the door, or of an elephant's lifting up a cannon, or beating down a wall, at his driver's command, by instinct, would be to use words at random.

On the other hand, hunger and thirst are as instinctive in man as in brutes. An invalid, indeed, when taking food without appetite, does not act upon Instinct; he acts upon Reason, which tells him that unless he eat, his strength would not support the disease under which he labours; but the man who eats when he is hungry, and drinks when he is thirsty, acts as truly from instinct as the new-born babe when it sucks.

It appears, then, that we can neither deny Reason universally and altogether to brutes, nor Instinct to Man; but that each possesses a share of both, though in very different proportions. Then the question naturally arises—which is one I propose, but do not presume positively to decide—"What is the difference between Man and the higher brutes?" We have already decided, in reference to one point, what the difference does *not* consist in. It is not that brutes are wholly destitute of everything that, in Man, we call Reason. Instances to the contrary, similar to what have been above mentioned, might be produced to a great extent. But this would be superfluous; because, as has been said, the *docility* of many brutes is familiar to all: and if any one could seriously speak of teaching anything to a Being wholly devoid of *reason*, he would evidently be using the word in some sense quite different from that in which it is ordinarily employed.

And yet the difference between Man and brute, in respect of intelligence, appears plainly to be not a difference in mere *degree*, but in *kind*. An intelligent brute is not like a stupid man. The intelligence and sagacity shown by the elephant, monkey, and

dog, are something very different from the lowest and most stupid of human Beings. It is a difference in kind, not merely in degree.

It strikes me that in all the most striking instances in which brutes display reason, all the intellectual operation seems to consist in the *combination of means to an end*. The dog who swam from a higher part of the river to reach the boat; the cat who rang the bell to call the servant; the elephant of whom we have read that was instructed by his keeper off hand to raise himself from a tank into which he had fallen, by means of faggots, thrown into him by the keeper, on which the elephant raised himself from the pit, and from which all the windlasses and cranes in the Indian empire could not have extricated him; the monkey in the Zoological Gardens, who used to possess himself of a nut placed beyond the reach of his paw, by doubling a straw, and casting this round it, by which means he was enabled to draw it towards him: these, and many other similar instances of sagacity, appear to consist in the adaptation of means to an end.

But the great difference between Man and the higher brutes appears to me to consist in the power of using SIGNS—arbitrary signs—and employing *language as an instrument of thought*. We are accustomed to speak of language as useful to man, to *communicate* his thoughts. I consider this as only *one* of the uses of language. That use of language which, though commonly overlooked, is the most characteristic of Man, is as an instrument of thought. Man is not the only animal that can make use of language to express what is passing within his mind, and that can understand, more or less, what is so expressed by another. Some brutes can be taught to utter, and many others, to understand, more or less imperfectly, sounds expressive of certain emotions. Every one knows that the dog understands the gene-

ral drift of expressions used; and parrots can be taught not only to pronounce words, but to pronounce them with some consciousness of the general meaning of what they utter. We commonly speak, indeed, of "saying so-and-so by rote as a parrot;" but it is by no means true that they are quite unconscious of the meaning of the sounds. Parrots do not utter words at random; for they call for food; when displeased, scold; and use expressions in reference to particular persons which they have heard applied to them. They evidently have some notion of the general drift of many expressions which they use. Almost every animal which is capable of being tamed can, in some degree, use language as an indication of what passes within. But no animal has the use of language as an "instrument of thought."—Man makes use of GENERAL SIGNS in the application of his power of Abstraction by which he is enabled to reason; and the use of arbitrary general signs, what logicians call "*common terms*," with a facility of thus using Abstraction at pleasure, is a characteristic of Man.

By the expression "making use of abstraction," I do not mean our merely recognizing the general character of some individual, not seen before, of a class we are acquainted with; as when, for instance, any one sees for the first time some particular man or horse, and knows that the one is a man, and the other a horse. For this is evidently done by brutes. A bird, for instance, which has been used to fly from men, and not from oxen, will fly from an individual man whom it has never seen before, and will have no fear of an ox. But this is not having what I call the power of using abstraction at pleasure. It is merely that similar qualities affect animals in a similar way. With certain description of forms are associated ideas of fear or gratification. Thus a young calf readily comes up to a woman whom it sees for the

first time, because a woman has been used to feed it with milk ; while the young of wild animals fly from any human Being. But I speak of Man being able so to use the power of abstraction as to employ SIGNS to denote any or every individual of a certain class.

Perhaps you may think that I am giving a remarkable instance of instinctive love of an author for the offspring of his own mind, by quoting from a work written by myself. But it is necessary to refer to the passages which treat of language as an instrument of thought in the "Elements of Logic:"—"In inward solitary reasoning, many, and perhaps most persons, but especially those not much accustomed to read or speak concerning the subjects that occupy their thoughts, make use, partly, of Signs that are *not arbitrary* and *conventional*, but which consist of *mental-conceptions* of individual objects ; taken, each, as a representative of a Class. *E.g.* a person practically conversant with mechanical operations, but not with discussions of them in words, may form a conception of—in colloquial phrase, 'figure to himself'—a certain field or room, with whose shape he is familiar, and may employ this, in his inward trains of thought, as a Sign, to represent, for instance, 'parallelogram' or 'trapezium,' &c. ; or he may 'figure to himself' a man raising a weight by means of a pole, and may use this conception as a general Sign, in place of the term 'lever ;' and the terms themselves he may be unacquainted with ; in which case he will be at a loss to impart distinctly to others his own reasonings ; and in the attempt, will often express himself (as one may frequently observe in practical men unused to reading and speaking) not only indistinctly, but even erroneously. Hence, partly, may have arisen the belief in those supposed 'abstract ideas' which will be hereafter alluded to, and in the possibility of reasoning without the use of any Signs at all.

“Supposing there really exist in the mind—or in some minds—certain ‘abstract ideas,’ by means of which *a train of reasoning may be carried on independently of Common-terms* [or *Signs* of any kind]—for this is the real point at issue—and that a system of Logic may be devised, having reference to such reasoning—supposing this—still, as I profess not to know anything of these ‘abstract ideas,’ or of any ‘Universals’ except *Signs*, or to be conscious of any such reasoning process, I at least must confine myself to the attempt to teach the only Logic I do pretend to understand. Many, again, who speak slightingly of Logic altogether, on the ground of its being ‘conversant only about *words*,’ entertain fundamentally the same views as the above; that is, they take for granted that Reasoning may be carried on *altogether independently of Language*; which they regard (as was above remarked) merely as a means of *communicating* it to others. And a Science or Art which they suppose to be confined to *this* office, they accordingly rank very low.

“Such a view I believe to be very prevalent. The majority of men would probably say, if asked, that the use of Language is peculiar to *Man*; and that its office is to express to one another our thoughts and feelings. But neither of these is strictly true. Brutes do possess in some degree the power of being taught to understand what is said to them, and some of them even to utter sounds expressive of what is passing within them. But they all seem to be incapable of another very important use of Language, which does characterize Man—viz., the employment of ‘Common-terms’ (‘general-terms’) formed by Abstraction, as *instruments of thought*; by which alone *a train of Reasoning* may be carried on.

“And accordingly, a *Deaf-mute*, before he has been taught a Language—either the Finger-language or Reading—cannot carry on a train of Reasoning, any

more than a Brute. He differs indeed from a Brute in possessing the mental *capability* of employing Language ; but he can no more *make use* of that capability, till he is in possession of some *System of arbitrary general-signs*, than a person born blind from Cataract can make use of his capacity of Seeing, till the Cataract is removed.

“ Hence it will be found by any one who will question a Deaf-mute who has been taught Language after having grown up, that no such thing as a train of Reasoning had ever passed through his mind before he was taught.

“ If indeed we did reason by means of those ‘ Abstract ideas’ which some persons talk of, and if the Language we use served *merely to communicate* with other men, then a person would be able to reason who had no knowledge of any *arbitrary Signs*. But there are no grounds for believing that this is possible ; nor consequently, that ‘ Abstract-ideas’ (in that sense of the word) have any existence at all.

“ There have been some very interesting accounts published, by travellers in America, and by persons residing there, of a girl named Laura Bridgeman, who has been, from birth, not only Deaf and Dumb, but also Blind. She has, however, been taught the finger-language, and even to read what is printed in raised characters, and also to write.

“ The remarkable circumstance in reference to the present subject, is, that when she is alone, her *fingers are generally observed to be moving*, though the signs are so slight and imperfect that others cannot make out what she is thinking of. But if they inquire of her, she will tell them.

“ It seems that, having once learnt the use of *Signs*, she finds the necessity of them as an *Instrument of thought*, when thinking of anything beyond mere individual objects of sense.

“ And doubtless every one else does the same ;

though in *our* case, no one can (as in the case of Laura Bridgeman) *see* the operation: nor, in general, can it be *heard*; though some few persons have a habit of occasionally audibly talking to themselves; or as it is called, 'thinking aloud.' But the Signs we commonly use in silent reflection are merely mental *conceptions*, usually of uttered words: and these doubtless are such as could be hardly at all understood by another, even if uttered audibly. For we usually think in a kind of *short-hand* (if one may use the expression), like the notes one sometimes takes down on paper to help the memory, which consist of a word or two—or even a letter—to suggest a whole sentence; so that such notes would be unintelligible to any one else.

"It has been observed also that this girl, when asleep, and doubtless dreaming, has her fingers frequently in motion: being in fact talking in her sleep.

"Universally, it is to be steadily kept in mind, that no 'common-terms' have, as the names of Individuals ['singular terms'] have, any *real thing existing in nature* corresponding to each of them, but that each of them is merely a Sign denoting a certain *inadequate notion* which our minds have formed of an Individual, and which, consequently, not including the notion of 'individuality' [*numerical-unity*], nor anything wherein that individual differs from certain others, is applicable equally well to all, or any of them. Thus 'man' denotes no real thing (as the sect of the Realists maintained) distinct from each individual, but merely *any* man, viewed *inadequately*, *i.e.*, so as to omit, and abstract from, all that is peculiar to each individual; by which means the term becomes applicable alike to any one of several individuals, or [in the plural] to several together.

"The *unity* [*singleness* or *sameness*] of what is denoted by a *common-term*, does not, as in the case of a

singular-term, consist in the *object itself* being (in the *primary* sense) *one* and the same, but in the oneness of the *Sign* itself: which is like a Stamp (for marking bales of goods or cattle), that impresses on each a *similar* mark; called thence, in the *secondary* sense, *one and the same* mark. And just such a *stamp*, to the mind, is a Common-term; which being itself one, conveys to each of an indefinite number of minds an impression precisely *similar*, and thence called, in the transferred sense, one and the *same* Idea.

“And we arbitrarily fix on the circumstance which we in each instance chuse to abstract and consider separately, disregarding all the rest; so that the same individual may thus be referred to any of several different Species, and the same Species, to several Genera, as suits our purpose. Thus it suits the Farmer’s purpose to class his cattle with his ploughs, carts, and other possessions, under the name of ‘*stock* :’ the Naturalist, suitably to *his* purpose, classes them as ‘*quadrupeds*,’ which term would include wolves, deer, &c., which, to the farmer, would be a most improper classification: the Commissary, again, would class them with corn, cheese, fish, &c., as ‘*provision* ;’ that which is most essential in one view, being subordinate in another.

“Nothing so much conduces to the error of Realism as the transferred and secondary use of the words ‘same,’ ‘one and the same,’ ‘identical,’ &c., when it is not clearly perceived and carefully borne in mind, that they *are* employed in a secondary sense, and *that* more frequently even than in the primary.

“Suppose *e.g.* a thousand persons are thinking of the Sun: it is evident it is one and the same individual object on which all these minds are employed. So far all is clear. But suppose all these persons are thinking of a Triangle—not any individual triangle, but Triangle in general—and considering, perhaps,

the equality of its angles to two right angles: it would seem as if, in this case also, their minds were all employed on 'one and the same' object: and this object of their thoughts, it may be said, cannot be the *mere word* Triangle, but that which is *meant* by it: nor again, can it be everything that the word will apply to: for they are not thinking of *triangles*, but of *one* thing. Those who do not maintain that this 'one thing' has an existence independent of the human mind, are in general content to tell us, by way of explanation, that the object of their thoughts is the abstract 'idea' of a triangle; an explanation which satisfies, or at least silences many; though it may be doubted whether they very clearly understand what sort of thing an 'idea' is; which may thus exist in a thousand different minds at once, and yet be 'one and the same.'

"The fact is, that 'unity' and 'sameness' are in such cases employed, not in the primary sense, but to denote perfect *similarity*. When we say that ten thousand different persons have all 'one and the same' Idea in their minds, or are all of 'one and the same' Opinion, we mean no more than that they are all *thinking exactly alike*. When we say that they are all in the 'same' posture, we mean that they are all *placed alike*; and so also they are said all to have the 'same' disease, when they are all diseased alike."

It is hardly necessary to add, that I am a decided NOMINALIST. The abstract Ideas of which persons speak, and the mere names of which language is represented as furnishing, are things to which I am a stranger. The using of Signs of some kind, such as have been above described, the combining and recombining of these in various ways, and the analyzing and constructing of passages wherein they occur, this is what I mean by the employment of language as an instrument of thought; and this is what no brute has arrived at. Brutes have (as has been said

above), more or less, the use of language to convey to others what is passing within them. But the power of employing Abstraction at pleasure, so as to form "general Signs" and make use of these Signs as an instrument of thought, in carrying on the process which is strictly called *Reasoning*, is probably the chief difference of Man and the brute ; but Reason, in a sense in which the term is often employed, is, to a certain extent, common to Man and brute. And Instinct, again, although possessed by Man in an inferior degree to that of the brutes, is, in some points, common to both.

Brutes, as has been said, have not command over Abstraction, so as to make use of it to form general Signs ; and it may be added, that different men are, as to this point, elevated in various degrees—some more and some less—above the brutes. A great degree of a certain kind of intelligence, similar to what is found in the higher descriptions of brutes, is found in some men who have a great inaptitude for abstract Reasoning. Persons may often be met with who have much of a certain practical sagacity, and are accounted knowing, clever, and ingenious, who yet are even below the average in respect of any scientific studies ; and others again, who rank high in that particular kind of intelligence, which is altogether peculiar to Man, are often greatly inferior to others in those mental powers which are, to a certain degree, common to Man with the higher brutes.

To sum up, then, what has been hitherto said : it appears that there are certain kinds of intellectual power—of what, in Man, at least, is always called Reason—common, to a certain extent, to Man with the higher brutes. And again : that there are certain powers wholly confined to Man—especially all those concerned in what is properly called Reason-

ing—all employment of language as an instrument of thought; and it appears that Instinct, again, is, to a certain extent, common to Man with brutes, though far less in amount, and less perfect in Man; and more and more developed in other animals, the lower we descend in the scale.

An Instinct is, as has been said above, a *blind* tendency to some mode of action, independent of any consideration on the part of the agent, of the end to which the action leads. Hunger and thirst are no less an instinct in the adult, than the desire of the new-born babe to suck, although it has no idea that milk is in the breast, or that it is nutritious. When, on the other hand, a man builds a house, in order to have shelter from the weather, and a comfortable place to pursue his trade, or reside in, the act is not called Instinct; while that term does apply to a bird's building a nest: because Man has not any blind desire to build the house. The rudest savage always contemplates, in forming his hut, the very object of providing a safeguard against the weather, and perhaps against wild beasts and other enemies. But, supposing Man had the Instinct of the bird—supposing a man who had never seen a house, or thought of protecting himself, had a tendency to construct something analogous to a nest; or again, supposing a bird was so endowed with reason as to build a nest *with a view* to lay eggs therein, and sit on them, with a design, and in order, to perpetuate its species: in the former case Man would be a builder from Instinct, and in the latter, the bird would be a builder from Reason.

But it is worth observing that there are many cases in which, though the agent is clearly acting from rational design with a view to a certain end, yet the act may, in reference to *another* and quite different end, which he did *not* contemplate, be considered as in some sort instinctive. When, for instance, any

one deliberately takes means to provide food for the gratification of his hunger, and has no other object in view, his acts are, evidently, with a view to that *immediate* end, rational and not instinctive. But he is, probably, at the same time, and by the same act, promoting another object, the preservation of his life, health, and strength; which object, by supposition, he was not thinking about. His acts, therefore, are in reference to the preservation of life—analogous, at least, to those of Instinct; though, in reference to the object he was contemplating—the gratification of hunger—they are the result of deliberate calculation.

There are many portions of men's conduct to which this kind of description will apply—particularly all that men do with a view solely to their own individual advantage, but which does produce most important, though undesigned, advantages to the public. "And this procedure" (as I have observed in the Fourth Lecture on Political Economy) "is, as far as regards the object which the agent did *not* contemplate, precisely analogous, at least, to that of instinct.

"The workman, for instance, who is employed in casting printing-types, is usually thinking only of producing a commodity by the sale of which he may support himself; *with reference to this object*, he is acting, not from any impulse that is at all of the character of instinct, but from a rational and deliberate choice: but he is also, in the very same act, contributing most powerfully to the diffusion of knowledge, about which perhaps he has no anxiety or thought: *in reference to this latter object*, therefore, his procedure corresponds to those operations of various animals which we attribute to instinct; since *they* doubtless derive some immediate gratification from what they are doing. So Man is, in the same act, doing one thing, by choice, for his own benefit, and another, undesignedly, under the guidance of Providence, for the service of the community."

And again, “various parts of man’s conduct as a member of society are often attributed to human forethought and design, which might with greater truth be referred to a kind of instinct, or something analogous to it; which leads him, while pursuing some immediate personal gratification, to further an object not contemplated by him. In many cases we are liable to mistake for the wisdom of Man what is in truth the wisdom of God.

“In nothing, perhaps, will an attentive and candid inquirer perceive more of this Divine wisdom than in the provisions made for the *progress of society*. But in nothing is it more liable to be overlooked. In the bodily structure of Man we plainly perceive innumerable marks of wise contrivance, in which it is plain that Man himself can have had no share. And again, in the results of instinct in brutes, although the animals themselves are, in some sort, agents, we are sure that they not only could not originally have designed the effects they produce, but even afterwards have no notion of the contrivance by which these were brought about. But when *human* conduct tends to some desirable end, and the agents are competent to perceive that the end is desirable, and the means well adapted to it, they are apt to forget that, in the great majority of instances, those means were not devised, nor those ends proposed, by the persons themselves who are thus employed. Those who build and who navigate a ship, have usually, I conceive, no more thought about the national wealth and power, the national refinements and comforts, dependent on the interchange of commodities, and the other results of commerce, than they have of the purification of the blood in the lungs by the act of respiration, or than the bee has of the process of constructing a honeycomb.

“Most useful indeed to Society, and much to be honoured, are those who possess the rare moral and

intellectual endowment of an enlightened public spirit ; but if none did service to the Public except in proportion as they possessed this, Society I fear would fare but ill. Public spirit, either in the form of Patriotism which looks to the good of a community, or in that of Philanthropy which seeks the good of the whole human race, implies, not merely *benevolent feelings* stronger than, in fact, we commonly meet with, but also powers of *abstraction* beyond what the mass of mankind *can* possess. As it is, many of the most important objects are accomplished by the joint agency of persons who never think of them, nor have any idea of acting in concert ; and that with a certainty, completeness, and regularity, which probably the most diligent benevolence under the guidance of the greatest human wisdom, could never have attained.

“ For instance, let any one propose to himself the problem of supplying with daily provisions of all kinds such a city as our metropolis, containing above a million of inhabitants. Let him imagine himself a head commissary, entrusted with the office of furnishing to this enormous host their daily rations. Any considerable failure in the supply, even for a single day, might produce the most frightful distress, since the spot on which they are cantoned produces absolutely nothing. Some, indeed, of the articles consumed admit of being reserved in public or private stores, for a considerable time ; but many, including most articles of animal food, and many of vegetable, are of the most perishable nature. As a deficient supply of these, even for a few days, would occasion great inconvenience, so a redundancy of them would produce a corresponding waste. Moreover, in a district of such vast extent, as this ‘ province ’ (as it has been aptly called) ‘ covered with houses,’ it is essential that the supplies should be so distributed among the different quarters, as to be brought almost to the doors of the inhabitants ; at least within such a distance that they

may, without an inconvenient waste of time and labour, procure their daily shares.

“Moreover, whereas the supply of provisions for an army or garrison is comparatively *uniform in kind* : here the greatest possible *variety* is required, suitable to the wants of various classes of consumers.

“Again, this immense population is extremely fluctuating in numbers ; and the increase or diminution depends on causes, of which, though some may, others can not, be distinctly foreseen. The difference of several weeks in the arrival, for instance, of one of the great commercial fleets, or in the assembly or dissolution of a parliament, which cause a great variation in the population, it is often impossible to foresee.

“Lastly, and above all, the daily supplies of each article must be so nicely adjusted to the stock from which it is drawn—to the scanty, or more or less abundant, harvest—importation—or other source of supply—to the interval which is to elapse before a fresh stock can be furnished, and to the probable abundance of the new supply, that as little distress as possible may be undergone ; that on the one hand the population may not unnecessarily be put upon short allowance of any article, and that on the other hand they may be preserved from the more dreadful risk of famine, which would ensue from their continuing a free consumption when the store was insufficient to hold out.

“Now let any one consider this problem in all its bearings, reflecting on the enormous and fluctuating number of persons to be fed—the immense quantity, and the variety, of the provisions to be furnished, the importance of a convenient distribution of them, and the necessity of husbanding them discreetly ; and then let him reflect on the anxious toil which such a task would impose on a Board of the most experienced and intelligent commissaries ; who after all

would be able to discharge their office but very inadequately.

“Yet this object is accomplished far better than it could be by any effort of human wisdom, through the agency of men, who think each of nothing beyond his own immediate interest—who, with that object in view, perform their respective parts with cheerful zeal—and combine unconsciously to employ the wisest means for effecting an object, the vastness of which it would bewilder them even to contemplate.

“It is really wonderful to consider with what ease and regularity this important end is accomplished, day after day, and year after year, through the sagacity and vigilance of private interest operating on the numerous class of wholesale, and more especially retail, dealers. Each of these watches attentively the demands of his neighbourhood, or of the market he frequents, for such commodities as he deals in. The apprehension, on the one hand, of not realizing all the profit he might, and, on the other hand, of having his goods left on his hands, either by his laying in too large a stock, or by his rivals underselling him—these, acting like antagonist muscles, regulate the extent of his dealings, and the prices at which he buys and sells. An abundant supply causes him to lower his prices, and thus enables the public to enjoy that abundance; while *he* is guided only by the apprehension of being undersold; and, on the other hand, an actual or apprehended scarcity causes him to demand a higher price, or to keep back his goods in expectation of a rise.

“For doing this, corn-dealers in particular are often exposed to odium, as if they were the cause of the scarcity; while in reality they are performing the important service of husbanding the supply in proportion to its deficiency, and thus warding off the calamity of famine; in the same manner as the com-

mander of a garrison or a ship regulates the allowances according to the stock, and the time it is to last. But the dealers deserve neither censure for the scarcity which they are ignorantly supposed to produce, nor credit for the important public service which they in reality perform. They are merely occupied in gaining a fair livelihood. And in the pursuit of this object, without any comprehensive wisdom, or any need of it, they co-operate, unknowingly, in conducting a system which, we may safely say, no human wisdom directed to that end could have conducted so well—the system by which this enormous population is fed from day to day.

“I have said, ‘no *human* wisdom;’ for *wisdom* there surely is in this adaptation of the means to the result actually produced. In this instance, as well as in a multitude of others, from which I selected it for illustration’s sake, there are the same marks of contrivance and design, with a view to a beneficial end, as we are accustomed to admire (when our attention is drawn to them by the study of Natural Theology) in the anatomical structure of the body, and in the instincts of the brute creation. The pulsations of the heart, the ramifications of vessels in the lungs—the direction of the arteries and of the veins—the valves which prevent the retrograde motion of the blood—all these exhibit a wonderful *combination* of mechanical means towards the end manifestly designed, the circulating system. But I know not whether it does not even still more excite our admiration of the beneficent wisdom of Providence, to contemplate, not corporeal particles, but rational free agents, co-operating in systems no less manifestly indicating design, yet no design of their’s; and though acted on, not by gravitation and impulse, like inert matter, but by motives addressed to the will, yet advancing as regularly and as effectually the accomplishment of an object they never contemplated, as if they were merely the passive wheels of a machine.”

As for Instincts strictly so-called—those wholly unconnected with anything rational in the agent—these are, as has been said, more and more curiously developed the lower we go in the animal creation. Insects far surpass in this respect the more intelligent brutes. The architecture of many of these is far more complicated and curious, than that of the bird or the beaver; and they not only construct receptacles for their young, but, in many instances—that of the bee among others—store up in these a supply of food of a totally different kind from what they subsist on themselves.

The gratification which, doubtless, is in all cases afforded by the performance of any instinctive act, is what we can give no explanation of. Birds take a delight in picking up straws and feathers, and weaving them into a nest; and bees, in constructing a cell, and storing it with pollen, which they do not eat themselves, but which is the food of the larvæ. All we can say is, that the bird has a kind of appetite at a certain season for picking up straws; and so for the rest. But the mysteriousness of the process is greater in some cases than in others; because, in some cases we cannot, while in others we can, perceive through what medium the instinct acts. We can understand, for instance, through the means of what organs the instinct of sucking and suckling operate. We can understand that the young calf is incited to suck by the smell of its mother's milk, and that the mother is anxious to be sucked by its young, because it is thus relieved from a painful and distressing distention of the udder; but I cannot understand the analogous instinct of birds. We do not know through the medium of what organs birds are induced to put food into the mouths of their young. We see a pair of birds searching all day long for food; and in many instances the food they seek is such as they do not feed on themselves—for example, granivorous birds hunt after caterpillars for

their young : in other cases they seek for food which their own appetite incites them to eat ; but they treasure it for their young, and are impelled by an instinctive appetite to put it into its mouth when opened. I might also add, that this instinct is not peculiar to birds. The mammalia partake of it ; for we find wolves, dogs, and other carnivorous animals, bringing home meat, and leaving it before their young ones. If a bitch or wolf has pups, and cannot bring food to them otherwise than by first swallowing it, she swallows it, and then disgorges it ; for the animal has the power of evacuating its stomach at pleasure. Pigeons invariably swallow the food before they give it to their young.

There are many other cases in which it cannot be ascertained towards what the immediate impulses of animals tend. Take the case of migratory birds—even those which have been caged : when a particular season arrives, they desire to fly in a certain direction. Now, towards what the impulse is we cannot comprehend. They have a disposition to fly ; but it is not a mere desire to use their wings. They have a disposition to fly in a certain direction ; but what leads them in that direction cannot be understood.

In some instances, in short, we know through what organs the impulse acts, although we cannot understand why it is that the organs should have that particular sort of impelling power. In other instances we do not know the organs, or the impulse on which the animal acts, but only the object designed by Providence. As for instance, we can only say of migratory birds, that they are impelled not by a mere desire to use their wings, but to fly in a certain direction pointed out to them by God ; but how pointed out, is only known to Him.

It is not my design to give a lecture on natural theology—a subject which has been ably treated of by

Paley and others ; but I will take occasion to remark that one of the most interesting and important points dwelt on by these authors is, the *combination* of physical laws with *instincts adapted* to them. When we see a combination of causes all apparently directed from various quarters to a certain end, which is accomplished not by one impulse alone, but by an adaptation of several impulses to certain physical laws, one of which would not be effectual without the other, we can not hesitate for a moment to recognize this great principle in nature. One instance out of many, of this principle, may be taken as a sample—that of the instinct of suction, as connected with the whole process of rearing young animals. The calf sucks, and its mother equally desires to be disburthened of its milk. Thus there are two instincts tending the same way. Moreover, the calf has an appetite for grass also ; it takes hold of the grass, chews and swallows it ; but it does not bite but sucks the teat. But it is also necessary that there should be a physical adaptation of the atmosphere to the instinct of the animal. It is the pressure of the atmosphere upon the part, and the withdrawal of that pressure within the young animal's mouth, which forces out the milk. Here is an adaptation of instinct to the physical constitution of the atmosphere. Yet, again, all this would be insufficient without the addition of that Storge, or instinctive parental affection, which leads the dam carefully to watch and defend its young. The most timid animals are ready to risk their lives, and undergo any hardships, to protect their young, which is a feeling quite distinct from the gratification felt by the dam from her offspring drawing her milk. Here, then, are several instincts, and the adaptation of the atmosphere to one of those instincts, all combining towards the preservation of the species ; which form, in conjunction, as clear an indication of design as can be con-

ceived. It is hardly possible to conceive any plainer mark of design, unless a person were beforehand to say that he intended to do a certain thing. Yet this is not all; for the secretion of milk is not common to both sexes, and all ages and all times. Here is the secretion of milk at a particular time, just corresponding with the need for it. If we found sickles produced at harvest, fires lighted when the weather is cold, and sails spread when favourable winds blow, we should see clearly that these things were designed to effect a certain end or object. Now, in the case of the mother and the young, there is a secretion of milk at a particular period, and in an animal of a distinct sex—the one which has given birth to the young. Yet the perpetuation of the species might take place if the milk had been so provided as to be constant and uniform in all ages and sexes. But what we do see is, means provided for an end, and just commensurate to that end.

I will conclude with proposing one more question, which I consider well worthy of inquiry—that relating to the *implanting* and *modification* of Instinct in animals. The most widely diffused of all implanted and modified Instincts is that of Wildness or Tameness. Whether the original Instinct of brutes was to be afraid of man, or familiar with him, I will not undertake to say. My own belief is, that it is the *fear* of man that is the implanted instinct. But at any rate, it is plain that *either* the one or the other—wildness *or* tameness—must be an implanted and not an original Instinct. All voyagers agree, that when they have gone into a country which had not apparently been visited by man, neither bird nor beast exhibited fear. The birds perched familiarly upon their guns, or stood still to be knocked on the head. After the country had been for some time frequented, not only individual animals become afraid of man, but their offspring inherit that fear by Instinct. The

domesticated young of the cow, and the young of the wild cattle of the same species furnish illustrations of this fact. I have seen an account of an experiment tried with respect to these latter. In this instance, a very young calf of one of the breed of wild cattle still remaining in some of the forests in England, on seeing a man approach, lay crouching close, and preserving the most perfect stillness, apparently endeavoured to escape notice. On being discovered, it immediately put itself in an attitude of defence, commenced bellowing and butting at the intruder with such violence that it fell forward upon its knees, its limbs, from its tender age, being yet scarcely able to support it. It rose and repeated the attack again and again, till by its bellowing, the whole herd came galloping up to its rescue. We all know how different this is from the action of a young calf of the domestic breed.

To what extent Instinct is implanted in animals in consequence of the education received by many generations of their predecessors, is a point to which the attention of the curious might be profitably directed. I have pointed out the road, and hope that the question may lead to important inquiries upon the subject.

THE END.

THE INTELLECTUALITY
OF
DOMESTIC ANIMALS.

2
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A LECTURE

DELIVERED BEFORE THE ROYAL ZOOLOGICAL SOCIETY
OF IRELAND.

BY THE LATE

REV. CÆSAR OTWAY, A.B.

DUBLIN :

JAMES M^cGLASHAN, 21, D'OLIER-STREET.

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MDCCCXLVII.

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I AM about to say what I am able on the habits and intellectuality of animals. I allude to two qualities—habits, or in other words, instinct—intellectuality, or in other words, understanding. I confine myself, in order to keep within bounds, to domestic animals. We all must allow that animals have instincts that distinguish one species from another—those of a sheep, for instance, as differing from those of a dog. Well, supposing I identify habits with instinct, should I not define what instinct is? Perhaps I am not able—I stand not here as a philosopher—but this I know, that one who has given the subject more consideration than I can, has said that no one can define properly what instinct is, until he has spent some time in the head of a brute, *without being a brute himself*. But the same author ventures to give what may *stand for a definition*, and it is this—“those faculties that God has implanted in animals, whereby, independent of instruction, observation, or experience, and without knowing the end in view, they are impelled to the performance of certain actions conducive to their own well being, and the preservation of their

species." But will those at all acquainted with animals be content with ascribing to them *such a limited quality as this*? Do not we find an adaptation of plans to circumstances, and an exercise of individual judgment, reflection, induction, and memory? I must insist, then, that the creature has personal and independent mental powers; and if you will not call it reason, confess that it is akin to it, and call it intellectuality.

It is *this* opinion of individual capability, *beyond that of mere instinct*, that induces us to educate in the limited way we do, our domestic animals; this induces us to caress them when they do well, and punish if disobedient; as, for instance, is there any lady here who has a pet dog? Now you fondle him, and by-and-bye you scold him; don't you find the animal reflecting and reasoning upon your conduct; and supposing Pompey has a few minutes before done wrong, and you call him to you, and you have the leg of a chicken, which you hold out to him with your *left* hand, and you have your riding-whip in the *right*, which you hold behind your back, see how Pompey hesitates between instinct and intellectuality. Instinct tells him that a chicken's leg is a savoury bit, but intellectuality says, I have done wrong; my mistress is angry; why is the hand that used to feed me held back and hid;—and reflection infers, I am certainly deserving of correction. I won't, then, decide the dog, go near the chicken's leg, because at the same time I will come within the range of the armed hand.

Here the dog is certainly a better reasoner than many a puppy on two legs, who gratifies every appetite, follows every tempting evil, without memory, reflection, or foresight, and rushes upon disease, ruin, and damnation.

Animals, then, have instinctive habits belonging to their species; they also have faculties of a higher

order, in which families and individuals may excel others of the same order. I think I may show you an instance of instinct in the case of a dog, who, in spite of education, and of his own intellectuality, yet follows the habit of his race, by attempting in your parlour, and on a boarded floor (which it is impossible to penetrate) to hide a portion of his food that he has not appetite to finish; and you may observe him in this case using all the acts of secreting, as if he were penetrating soft ground, and could therein hide what he intended should be kept in future for his own use. An instance of that adaptation to circumstances, the work of reflection and judgment, which I would call intellectuality, came lately within my knowledge, in Erris. A considerable landed proprietor has a large tract of sandhills within the Mullet, which tract (open as it is to all the Atlantic storms) has been greatly injured by the introduction of rabbits, who, by burrowing and disturbing the bent grass, gave facilities to the wind to operate: and so the sandhills were year, after year, changing their position, and encroaching on the cultivated ground. To remedy this, he determined to destroy the rabbits, and in their place introduce hares, that he knew, or thought he knew, would not burrow; but *here* he was mistaken, for the animal soon found that it must either leave the district, or change its habits, for if in a winter's night it attempted to sit in its accustomed open form, it would find itself buried perhaps twenty feet in the morning under the blowing sand, as under a snow-wreath. Accordingly the hares have here burrowed; they chose out a thin and high sand-hill, which stands something like a solidified wave of the sea; through this puss perforates an horizontal hole from east to west, with a double opening, and seating herself at the mouth of the windward orifice, she there awaits the storm, and as fast as her hill wastes away, she draws back, ready at all times to make a

start, in case the storm rages so as to carry off her hill altogether.

I assume, then, that animals, as well as men, have both intellectuality and instinct;* for who will deny

* My friend, Mr. Clibborn, of the Royal Irish Academy, has furnished me with the following anecdote, illustrative of a sagacity in swallows that also, in my opinion, goes beyond instinct. When resident in the city of Cincinnati, on the river Ohio, a small species of swallow, very numerous in that state, set about, in the proper season, to build their nests against the wall of a barrack near the town. Their mud edifices not proving very sightly additions to the building, the officer in command, being, of course, inimical to what was not bright and tight, ordered the poor swallows to be ejected, and so all their work was promptly demolished. They then, after much chattering, fixed on a wooded barn as the new site for their nests, and against the upright planks of this building they began to plaster their mud; but here their science was at fault; for when their nests were finished, and began to dry in the sun, there was not sufficient cohesion between the mud and the timber, and so one hot day, their whole structure came down with a crash; and now, what was to be done—we shall see—It chanced that Mrs. Bullock, the wife of the famous museum collector, was then resident in an adjacent villa, that had, as is common in that warm climate, a long verandah in front, supported by wooden pillars; hither the swallows, after holding another sub-committee of building, all came in a body, for they had no time to lose, and they set about the nidification; and here, having, one would think, the fear of the *martinet* officer before their eyes, they actually contrived to make their nests *ornamental*, by forming circular capitals to the pillar, like the volutes of the Ionic order; and Mrs. Bullock was not a little proud of her colony. But, alas! selfishness is not confined to the human race—and combination can be got up and brought to bear against interlopers in the feathered race, as well as amongst the most determined Billy Welters in the city of Dublin. A tribe of martins, seeing that the new colony of swallows would be likely to diminish their supply of flies, determined to slate the swallows, and drive away the intruders that interfered with their monopoly. Now, the American martin is five times as large as a swallow, and is almost as big as a thrush. So they not only hunted the poor swallows, but also, with all their force of flight, would make a dash at their nests, and so knock them down, while yet unfinished. But here Mrs. Bullock proved a friend in need; and taking the side of the weaker, she stationed men, during the day, who, with long poles, struck at the martins whenever they made a

that man has instinct—or what makes the child at once seek for sustenance from his mother's bosom? The difference to a certain extent here is, that man has more intellect than instinct, and it is the reverse with brutes. But it may be said, why then deny that they have souls? and if souls, why deny immortality? This truly is a puzzling subject, and a great deal of discussion has taken place about it. Some, seeing the difficulties, determined to oppose it at the threshold, by asserting that animals were mere machines. I believe Descartes, the French philosopher, was of that opinion.* He might maintain such a paradox for ar-

charge at the nests; and the swallows, soon observing what the meaning of the friendly interference was, without at all minding the men or their poles, went on with the construction of their nests, and soon had them finished, and so hard built, that the martins found it useless any more to batter at them. And now they begin to incubate, and the eggs are laid: but their troubles are not over, for the cruel martins then come, and taking a dirty advantage of the poor little swallows, fasten themselves on the sides of their nests, *they* drive the swallows off, and then put in their beaks and break the eggs. Poor things, what was now to be done?—we shall see—for a day or so, nothing could equal the chattering and *colloquing*, as an Irishman would say, in the air, and then they fell to work, and constructed long necks to their respective nests, which, under Mrs. Bullock's protection, they were allowed to do in peace. By this means they effectually avoided the intrusion of the martins, and without further molestation brought out their young. I would ask, are not wondrously displayed here the resources of intellect, rather than fixed and unvarying characteristics of instinct.

* Dr. Arnaud d'Antilli, one day talking with the Duke de Lincourt upon the new philosophy of M. Descartes, maintained that beasts were mere machines; that they had no sort of reason to direct them; and that when they cried or made a noise, it was only one of the wheels of the clock or machine that made it. The duke, who was of a different opinion, replied, "I have now in my kitchen two turnspits which take their turns regularly every other day to get into the wheel; one of them, not liking his employment, hid himself on the day he should have wrought, so that his companion was forced to mount the wheel in his stead; when released, by crying and wagging his tail, he made a sign for those in attendance to

gument sake, but the man could not look in his dog's face and believe it. But besides this refutation, I think the Frenchman would be drawn into the vortex of an absurdity by his dogma, and in that case should make *machines* of the men who hunted the dogs, and rode after them; they discovering not half so much intellect, or so much honesty, as the horse they rode on, or the hound they kept in view. I think the opinion of the French Jesuit, Father Bougeant, *if not more satisfactory*, is at least more amusing, who maintained that the habits and faculties of brutes were entirely owing to the operation of evil spirits. This astounding truth was enough to alarm half the world. Only think of a French Seigneur, who most orthodoxly went to mass every Sunday, and every other day followed the hounds, and he now, under the authority of a clergyman, must believe that the pack of beagles he has heretofore hunted, are a pack of devils; or of Mademoiselle Julia, who has been lavishing caresses on her lap-dog, and now she finds she has been wantonly dallying with a demon. The Jesuit's argument is this:—"experience and reason convince us that brutes have a thinking faculty—if so, then a soul; for if not a soul, you must allow that matter can think, and if you allow a soul, the beasts only differ from man by degrees of *plus* and *minus*." Oh! but, concludes the Jesuit, "this position would demolish the very foundation of religion." Well, how does he save the rationality of his brutes, and keep himself from the censures of his church? Why, by asserting that the souls of animals are devils, who, for their first sin are doomed to hell, yet God, in order not to suffer so many legions of reprobates to be of no use, has, until the day of doom, distributed them over our lower world, there as animals to serve his designs and make his omnipotence appear; some, it is true, con-

follow him. He immediately conducted them to a garret, where he dislodged the idle dog, and bit him severely."

tinue in their original state, and busy themselves in tempting man, as is shown in the Book of Job ; others are made, however unwillingly, to serve the uses of man, and fill the visible universe. Thus, as the Jesuit states, "he can conceive how devils still tempt, and brutes think ; and this without at all offending the doctrines of the Catholic faith." And certainly this tenet of the reverend father places the devils in a very unpleasant predicament ; for it must be a great humiliation to them, to see themselves reduced to such a low condition. This degradation is the first effect of divine vengeance—it is their anticipated hell.

But I am disposed to think that the witty Jesuit*

* Pere Bougeant, whose singular views as to the origin of the intellectuality of animals I have above stated, was a Jesuit, placed in confinement by his superior, in the College of La Fleche, near Paris, for what he had written on the subject. His views, if not orthodox, were certainly curious and amusing, and there is a sprightliness in his mode of treating the subject, graceful at least in the Frenchman, if not conformable to the divine. I think the following observations I have extracted from that section of his work which treats of the language of beasts, may amuse the reader :—

"Our first observation upon the language of beasts is, that it does not extend beyond the necessaries of life. However, let us not impose upon ourselves with regard to this point. To take things right, the language of beasts appears so limited to us only with relation to our own ; however, it is sufficient to beasts, and more would be of no service to them. Were it not to be wished that ours, at least in some respects, were limited too ? If beasts should hear us converse, prate, lie, slander, and rave, would they have cause to envy us the use we make of speech ? They have not our privileges ; but in recompense, they have not our failings.

"Birds sing, they say ; but this is a mistake. Birds do not sing, but speak. What we take for singing, is no more than their natural language. Does the magpie, the jay, the raven, the owl, and the duck sing ? What makes us believe they sing is their beautiful voice. Thus, the Hottentots in Africa seem to cluck like turkey-cocks, though it be the natural accent of their language ; and thus several nations seem to us to sing, when they indeed speak. Birds, if you will, sing in the same sense ; but they sing not for singing's sake, as we fancy they do. Their singing is always an intended speech ; and it is comical enough that there should be thus in the

did not reflect upon the consequence of his theory, and he ought to have paused before he gave it to the public, even suppose he were convinced of the truth himself; it were better he had coincided with him who said, that had he his handful of truths, he would hold his fist tight, rather than scatter his unappreciated

world so numerous a nation which never speaks otherwise but tunably and musically. But, in short, what do these birds say? The question should be proposed to Apollonius Tyaneus, who boasted of understanding their language. As for me, who am no diviner, I can give you no more than probable conjectures.

“ Let us take for our example the magpie, which is so great a chatterer. It is easy to perceive that her discourses or songs are varied. She lowers or raises her voice, hastens or protracts the measure, lengthens or shortens her chit-chat; and these evidently are so many different sentences. Now, following the rule I have laid down, that the knowledge, desires, wants, and of course the expressions of beasts, are confined to what is useful or necessary for their preservation, methinks nothing is more easy than at first, and in general, to understand the meaning of these different phrases.

“ It may be objected, that birds always repeat the same thing, and consequently vary not their phrases, as I suppose. I answer, that besides the differences of quick and slow, loud and low, long or short, easy to be observed in the language of beasts, there are probably many others which *we* do not, but birds among themselves perceive very well. Can we distinguish their physiognomy? We hardly suspect that there is any difference among them. Nothing, however, is more certain: I have seen a swallow feeding six or seven young ones ranged upon the hand of a dial; they changed their places every moment, and yet their mother never mistook in giving twice together food to the same. Let a ewe, in a flock of a hundred lambs, hear her own bleat, she immediately knows it, and hastens to it. Two sparrows will know one another, by their voice, among a thousand. I might here allege a hundred like facts, to prove that all animals have, in their mutual correspondence, a delicacy of discernment which is not within our reach, and which makes them observe differences among themselves altogether imperceptible to us. If many birds seem to us always to sing the same note—as the sparrow, chaffinch, and canary bird—we must not conclude they are saying the same thing for ever; let us rather believe that it is occasioned by the grossness of *our* organs of hearing, with regard to a language which is quite unknown to us. When we say in French, *chassez ce matin*, and *je suis arrivé ce matin*, we distinguish these two *matins* by the pronounciation; a foreigner can hardly

commodities. For though there may be some plausibility in the theory, as accounting for the Almighty's giving a privilege to man to treat as he does the inferior creatures, and so torture, abuse, and destroy millions of animals, yet see the consequences of making man, as he would be, the scourger of demons.

perceive it. The Chinese language is full of differences of this kind, which foreigners are at the greatest loss to perceive or imitate. A man born deaf, who should for the first time hear people converse, would (not knowing any thing of vowels, words, and syllables,) believe that they repeat the same thing over and over. Such is the judgment we pass upon the language of birds.

“If the nightingale seems to use fewer repetitions, it is only because his phrase is longer, and the difference of his notes more perceptible. But it is nevertheless true, that birds have different phrases for the different sentiments they would express, though but one expression for each object. Is this a fault in their language?—I don't deny it. But again, compare, if you please, this pretended fault with the pretended advantage of our amplifications, metaphors, hyperboles, and intricate phrases, and you will ever find in birds simplicity and truth, and in the human language abundance of idle words and rank falsities; at least, you cannot refuse the simplicity of their language an advantage which ours has not; for it is uniform, and with regard to each species, at all times and in all countries the same; whereas, in the human kind, not only each nation has its peculiar language, but the dialect of every people varies perpetually. A Frenchman of Charlemagne's time would no more understand us than we now understand a Spaniard or an Englishman. The language of beasts and birds is not subject to these troublesome variations. The nightingales and canary birds that now are, speak exactly the same language as their species spoke before the Flood. Carry them to the Indus and China, and the very moment of their arrival they will be able to converse with their like without interpreters. Is it not to be wished that men, as once proposed, would upon this model establish a general language that might be understood all over the universe?

“There is, for instance, a kind of spiders which have a very singular method of signifying to each other their desire of being together. A spider who wants company strikes, with I know not what instrument, against the wall or wood where she has settled, nine or ten gentle blows nearly like the vibrations of a watch, but a little louder and quicker, after which she stays for an answer; if she hears none, she repeats the same by intervals for about an hour or two, resuming this exercise and resting alternately night

How would it aggravate existing cruelty—how would it load the lash already held in the hands of the hard-hearted, and make him strike home with the malignity of an enemy and an avenger. Suppose a Donnybrook jaunting-car man—the fellow is on fire with whiskey; see his poor horse's breast and back all

and day. After two or three days, if she hears nothing, she changes her habitation, till she finds one that answers her in the same manner, as it were by echo; if the latter likes the proposal, the conversation grows brisker, and the beating becomes more frequent; attend to it, and you will find they gradually approach each other, and that the beating comes at last so close that they are confounded; after which the noise ceases; very likely the rest of the conversation is whispered. I have sometimes amused myself in imitating the echo of a spider which I heard beating; she answered me punctually, sometimes attacked me, and began the conversation; and I have often given that discourse to several people whom I told it was a familiar spirit.

“How many like discoveries might we make upon insects, if our organs were delicate enough to perceive their ways and motions, and to hear the voices, or what serves them instead!—we should find in the ants, worms, beetles, caterpillars, palmer-worms, mites, and all insects, language designed for their preservation. And as there are certain species of insects in which we observe greater industry and knowledge than in large animals, it is probable that that these species have likewise a more perfect language in proportion.

“I have insensibly made here a little dictionary, which may, if you will, serve as a key to explain, as nearly as may be, the language of all beasts. Will you again have another very plain method? This is it—the whole language of beasts amounts to expressing the sentiment of their passions; and all their passions may be reduced to a very small number, viz. pleasure, pain, anger, fear, love, the desire of eating, the care of their young. If, then, you intend to have the dictionary of the language of beasts, observe them in the circumstances of these different passions, and as they commonly have but one expression for each, you will soon compose your dictionaries; and from thence a polyglot, which will contain all the different languages of beasts. For instance, this phrase, “I feel pain,” you will render at once in the language of the dog, the cat, the hog, the magpie, the blackbird, &c., the whole correctly pricked down in sharps and flats, and I give you my word, this will produce a very comical reading.”

The following are the very pertinent remarks of Father Bougeant, on the intellectuality of animals as distinct from instinct:—

lacerated; see him driven beyond his breath and speed; bleeding from both nostrils; see his knees torn bare to the bone, as he falls under the merciless blows of the avaricious and cruel man. Why give the fellow the Jesuit's conviction, that he is only a meritorious instrument of punishment, commissioned by his God, and he improves on the abominable complacency of the cook, when skinning her eels alive, for he holds that such treatment is not only natural to the animal, but that it deserves it.

An English parson* goes upon quite a different theory from that of the French Jesuit, and he takes ground which he assumes to be consistent, reasonable, worthy of God, and agreeable to Holy Scripture. He maintains that animals have reasoning powers, and if so, they have souls, and if souls, that they are im-

“Wolves hunt with great cunning, and concert warlike stratagems. A gentleman, walking in the fields, perceived a wolf who seemed to be watching a flock of sheep. He told the shepherd, and advised to set his dog on him. ‘Not so,’ answered the shepherd; ‘yonder wolf is there only to divert my attention, and another wolf, lurking on the other side, only watches the moment when I shall let loose my dog upon this, to carry off one of my sheep.’ The gentleman, willing to be satisfied of the fact, promised to pay for the sheep, and the thing happened just as the shepherd had foretold. Does not so well-concerted a stratagem evidently suppose that the two wolves agreed together, one to show, and the other to hide himself?—and how is it possible to agree in this manner without the help of speech? A sparrow possessed himself of a swallow's nest; the swallow called for help to expel him; a thousand swallows flew immediately to attack the sparrow, who being covered on every side, and presenting only his large beak at the straight entrance of his nest, was invulnerable, and made the boldest assailant repent his rashness. After a quarter of an hour's combat, the swallows disappeared; the sparrow thought himself a conqueror, and the spectators judged that the swallows had abandoned the undertaking. Not at all; they soon returned to the charge, and each being provided with a little of that tempered earth of which they make their nest, they fell all at once upon the sparrow, and enclosed him in the nest to perish there, since they could not drive him thence.”

* See “Free Thoughts on the Brute Creation,” by Rev. John Hildrop, D.D., Rector of Wath, Yorkshire. London. 1751.

mortal. He holds that they were all originally happy, and when heaven had pronounced *all* to be *very good*, they were endowed with every perfection that their nature and rank in the scale of being required; but that when man fell, the link was broken that connected the lower animals with the Deity; that the divine light and life no longer flowed downwards through the free channel of unfallen human nature, and therefore the whole system of visible creation sympathises and suffers with their rebellious lord; and that, therefore, it “now groans and travails in pain,” and “the creature is made subject to vanity, not willingly (that is, by no fault of its own) but by reason (on the account of—by the sin) of him who hath subjected the same in hope”—that is Adam. As thus in human sovereignty, when an attainder is passed on a subject, the sentence not only affects the *individual*, but his *children* and *domestics*—so man, by his transgression, devoted his dependants to degradation, misery, and death. But no violent execution was permitted to be made on them, except in the way of sacrifice; none were to be put to death but by God’s own appointment, as the types of the great propitiatory sacrifice of the Lamb of God, slain from the foundation of the world, for the salvation and redemption of a lost world. No power was given to man to abuse, or even to kill and eat, until the world, still more deteriorated after the Flood, left the vegetable products of the earth less capable of nourishing, and then the much abused liberty to hunt, to kill, and eat. “The fear of you, and the dread of you, shall now be upon every beast of the earth, and upon every fowl of the air, and upon all fishes of the sea: into your hand they are delivered: every moving thing that liveth, to you it shall be for meat; even as the green herb have I given you all things. Such has been the state of the brute creation since the fall, very different, indeed, from its former condition; but still

both reason and revelation represent them as guiltless sufferers for our transgressions, and therefore peculiar objects of our care and compassion ; and it is not only a sin against mercy, but against justice, to abuse or oppress them. How strong on this point is Holy Scripture. Thus the wise man in the 12th chapter of Proverbs, makes kindness to domestic animals an act of righteousness—the righteous man regardeth the life of his beast, “but the tender mercies of the wicked are cruel.” Thus, in the fourth commandment, the rest of God’s own day is declared to be for the care of *cattle* as well as their owners ; and not only does God’s law protect animals as *part of his property*, and connected *with his selfishness*, but it enjoins mercy to the cattle of our enemies. “If thou meet,” says the sacred lawgiver, in the fourth and fifth verses of the 23rd chapter of Exodus, “thine enemy’s ox or ass going astray, thou shalt surely bring it back to him again ; if thou see the ass of him that hateth thee lying under his burden, and wouldest forbear to help him, thou shalt *surely help him.*” The blessed Saviour himself enjoins us to look after the wants of animals—to lead them to water—if they fall into a pit, to draw them out, even supposing it were on the Sabbath day ; and how tenderly does the Almighty declare his mercy to the brute creation, when he announces to the querulous prophet, that he withholdeth the execution of his sentence against a wicked city, because of its animals and irresponsible human beings—“Shall I not spare Nineveh, that great city, in which are more than sixty thousand people that cannot discern betwixt their right hand and their left, and also much cattle.”

The author whose arguments I am using, supposes that our domestic animals are less poisoned with the general malignity diffused over the whole system than others ; and that, perhaps, they are not now

very different from what they were in their original state; and he further expatiates in fields of fancy, and supposes that as each species of animal might, before the fall, represent some specific virtue or power of humanity, and thus exhibit emblems and unisons in the universal harmony: so now, in their present degeneracy, they show forth, and that but faintly, some specific fault and corruption in ourselves, and are but shadows of what is silly, and vicious, or disgusting in mankind; as, for instance, you look at a monkey; it is a ridiculous, a mischievous creature; may he not be a type of some absurd and idle coxcomb, that struts, and frets, and chatters amongst fine people. And, I am sure, there is many a poor dog on four legs, acting agreeably to his nature, not half so despicable as the said dog, with all pretension to rationality, religion, and gentility, who is every day guilty of social crimes, that if his brother brute committed, he would be driven out of town with a kettle to his tail. The swine wallows in the mire—it is an ugly thing; so is it also swilling its food in a trough; but is it half so contemptible an animal as the gourmand who over-eats himself, and whose life's happiness depends upon his palate, and “whose god is his belly;” and lo, the ferocity of wolves, the cunning of foxes, the treachery of cats—but what are they to the cruelty, and unfaithfulness, and barbarity of mankind? And there are faults of which NO type can be found amongst the lower order of animals—ingratitude and insincerity are but of HUMAN growth. And oh, how many stories could I tell you of the dog, the elephant, or even the tiger, that would put to shame the unfaithful servant, the false friend, the cruel slanderer. Need we then be surprised if some, sick of their experience of human life, and smarting under wrongs committed, or fearful of treachery and evil to come, have fled from human to brute nature, and expended that love on the dog, or even the cat, they

feared to lavish on one of their own species. “Fie, madam,” says Captain O’Doherty to a lady caressing her lap-dog, and to whom he was paying his addresses, but whose wealth was greater than her beauty, “fie, to lavish *all your* fondness upon a dumb brute, when you can find a man whose happiness depends upon the condescension of your smile.” “Ah, sir,” says the fearful lady (and wealth enjoyed by the unmarried female often carries this forfeit), “I am quite sure that Fido, my dog, loves me for myself, and therefore I can return his affection; but I have yet to find that you, or any other of your sex, love me rather than my money; and therefore, with all the suspicion of the miller, while I fondle my dog—

‘I care for no man, no, not I,
Since no man cares for me.’”

The learned man whose arguments I have just been using, having stated as his premise that animals think, reason, and will, draws the conclusion that they have souls, and if souls, that these souls must be immortal; for God gave them the benediction of immortality when he pronounced them *all* very good: and though he allows that there are difficulties in the way of deciding on the immortality of their souls, he holds that there are greater connected with the utter extinction of their being after death. He allows, however, that in a future state each will retain its specific dignity and quality—the spirit of a man going upwards, the spirit of a beast going downwards, each assuming their proper rank; but with this difference, that beasts will not be liable to punishment, because they transgressed not any command, *they* were not disobedient to the will of their Creator. The apostle Paul declares they were made subject to vanity, *not willingly*, not by any fault of their own, but by reason of (that is, on account of him, that is man) who had subjected them to it in hope.

I am sorry I cannot follow out further the arguments of this ingenious and very pious divine, who has been joined in his belief of the immortality of animals by many able and religious men. Oh! but some may reply to the theorist whose arguments I adduce, there is such a *monstrous* difference between a man and a brute! Yes, and so there is between man and angel; and who can determine the lowest degree of human intelligence, and the highest pitch of brutal knowledge. I have a story before me of John Clod, the farmer, who went every night to the ale-house, his dog attending him. Clod generally came home drunk; the dog was a teetotaller. Clod made himself worse than a beast, and would roll into the ditch, were it not for the dog, who showed his unimpaired rationality by holding his master by the coat, and dragging him home safe from the ditches, ponds, and pits he otherwise would have tumbled into.

Understanding, then, according to my author, is but in degree; and therefore if slowness of apprehension, narrowness of understanding were an exclusion from the other world, what would become of a large portion of the human race? Why, our species should tremble for the consequence. So many honest fellows turned to grass, degraded to the measure of an ass, and left to browse on thistles. Take, for instance, out of Squire Brown's head, his dog, his horse, and his whiskey punch, and what would remain but a vacuum, that his own pointer would be ashamed of? Take from Lord Very Soft the aids of his tailor, his hair-dresser, and his perfumer—what would he be?—a butterfly would be his superior; and I have in my eye a group of solemn, sallow, lank-haired, saturnine half-thinkers, and therefore they *call* themselves *free-thinkers*, and they decide they are free from all prejudices, because they are full of their own sufficiency, and they know as much about logic as a horse does about logarithms. I wish I had power to

confine them to a room, with a sufficiency of pens, ink, and paper—still keeping from them Paine's Age of Reason, and Owen's Social Bible, and a certain string of stale jokes out of the Parson's Hornbook, about priestcraft and superstition—and what would they be? Why, the elephant I have read of, who saw a piece of bread so far beyond the bars of his enclosure that he could not reach it with his proboscis, and therefore blew against an opposite wall so as to cause it, by the force of his breath, to rebound and come within his reach—was a better arguer and a sounder philosopher than a whole band of such Socialists.

It is now time, after perhaps too tediously laying down the opinion of others, to state my own; and it is, that I see nothing in the structure, or instincts, or intellectual capacities of *any* animal but *man*, that has a tendency to the renewal of life in another world; observing as I do, various intellectual powers, capable of promoting their own well being, and of contributing to the welfare of man, still I find no power of accumulating knowledge. The elephant is now no wiser than he was in the days of Alexander; the dog has not learnt anything from his forefathers—he has not taken advantage of their mistakes or attainments; the ant advances not in the polity of her republic; the bee was as good a mathematician a thousand years ago. There is no progression—no power of combination; and this is as it should be; it is the means of upholding God's original grant of dominion to man. Give animals but a sense of power and a capability of combination, and the brute or the insect creation could and would drive man from the face of the earth. But what is of still more consequence, I find no development whatsoever of the religious principle—not a spark of the expectation of another life. With man we see in the lowest of his species an expansiveness in the intellectual and moral structure, that produces

longings for immortality, and within the most darkened of the human race you can light up the aspirations, the hopes and fears, connected with another world. Compare in this way the lowest of the human family. The Bushmen of South Africa, whom Captain Harris, in a recent work, describes as follows:—“They usually reside in holes and crannies in rocks; they possess neither flocks nor herds; they are unacquainted with agriculture; they live almost entirely on bulbous roots, locusts, reptiles, and the larvæ of ants; their only dress is a piece of leather round their waist, and their speech resembles rather the chattering of monkeys than the language of human beings.” Now there is little or nothing here better than what is found amongst many of the inferior animals. But let us take a young Bushman, and put his mind under a right educational process, and we shall soon excite in him what we must ever fail to do in the young monkey, or dog, or elephant. We can communicate to him the expansiveness that belongs to an heir of immortality; within him are the germs of faith, hope, and religious love, which do *not* exist in inferior animals.*

* For the following observations on the human soul, and its distinctiveness from animal life, both in men and brutes, I am indebted to my friend, the Rev. Joseph Baylee:—

The Scriptures teach us that man is a threefold being. “I pray God,” says the apostle, “your whole spirit, and soul, and body, be preserved blameless unto the coming of our Lord Jesus Christ.” “Your spirit”—*πνεῦμα*—*i. e.* your rational soul; “your soul”—*ψυχὴ*—*i. e.* your animal life; “your body”—*σῶμα*—your corporeal frame. Those two living, *thinking* principles are again distinguished by him in his epistle to the Hebrews. “The word of God is able to divide asunder soul and spirit”—*διεικνύμενος ἀχρι μερισμοῦ ψυχῆς τε καὶ πνεύματος*—penetrating as far as to the division of soul and spirit. We are here taught two important truths respecting our thinking principle—that it is twofold, the one part perfectly distinct from the other, and yet both so interwoven, that it requires divine skill to separate them.

The Hebrew language, which seems to have been divinely suited

Still I hold to my thesis that there are intellectual qualities belonging to animals, which call for our observation, demand our aid in their development, and which, in proportion as observed, and respected, and developed, will be conducive to the animal's happiness and to man's use and profit. Now, I beg to say that I do not think that even the best educated

to theological purposes, is carefully accurate in distinguishing these two lives in man. In the account of man's original formation, we are told that God *breathed* into his nostrils the *breath* of life, and man became a living soul. The word here rendered breath is נשמה (neshama), and is applied exclusively throughout the Scriptures to *rational* powers. In our translation it is frequently rendered *breath*, probably from its having been *breathed* into man by God. From a careful examination of all the passages where it occurs, it will be found—1. It is never applied to animals; 2.—It is applied to man to distinguish him from animals; 3. It is applied to man's rational soul, as distinguished from his animal life; 4. It is applied to God.

The word רוּחַ (ruach, spirit) is applied equally to animals and to men, and also to the wind, and to the Spirit of God. As far as it relates to our present inquiry, it seems to be the generic term for sentient life, of which נשמה (neshama) is a species exclusively applicable to rational life.

רוּחַ (ruach) spirit, is applied to the sentient powers of men and beasts in Eccl. iii. 21, "Who knoweth the spirit (רוּחַ) of man that goeth upward, and the spirit (רוּחַ) of a beast that goeth downward to the earth."

On the other hand, man is distinguished from animals by his having a (נשמה) rational soul. "All the spoil of these cities, and the cattle, the children of Israel took for a prey unto themselves; but every man they smote with the edge of the sword, until they had destroyed them, neither left they any to breathe"—לא חשאירן כל-נשמה—they did not allow to remain any rational soul.—Josh. xi. 14.

Here it is plain that the distinction between man and the inferior animals is the נשמה rational soul.

Again, we find man declared to be possessed of two living principles, the רוּחַ animal life, and נשמה rational life. Job, xxxiv. 14, 15—"If he set his heart upon man, if he gather unto himself his spirit (רוּחַ animal life) and his breath (נשמה rational life), all flesh shall perish together, and man shall turn again unto dust"—thus assigning a twofold deprivation as the cause of death. To the same purpose Isaiah says—"God the Lord giveth breath

amongst us consider as we *might* and *ought to do* the character and claims of even our domestic animals—observing them but in the light of things created for our use. We look upon the horse but as the means

(נשמה rational life] unto the people upon it, and spirit (רוח animal life) to them that walk therein”—c. xlii. 5—recognizing two living principles in man. We might cite other examples.

This breath (נשמה rational life) is declared to be the seat of understanding. “The spirit (נשמה) of man is the candle of the Lord, searching all the inward parts of the belly”—Prov. xx. 27.) “There is a spirit (or He, the Spirit) in man, and the inspiration (נשמה breath or rational powers) of the Almighty giveth them understanding.”—Job, xxxii. 8.) We here find the word applied to God, as also in Job, xxxiii. 4.—“The spirit of God hath made me, and the *breath* (נשמה) of the Almighty hath given me life.”

The word occurs only twenty-four times in the Old Testament, and is always (with two exceptions) rendered by some derivative of πνεω (πνευμα twice, εμπνευσις once, εμπνεον four times, αναπνον once, πνον fifteen times.) It is never rendered by ψυχη. Between the period of the Septuagint translation, and the writings of the New Testament, πνευμα seems to have taken the place of πνον, for the latter is not once employed in the New Testament to designate the rational soul. There is one ambiguous phrase (ζωη και πνον), life and breath, in Acts, xvii. 25. Indeed, πνον occurs but twice in the New Testament.

We have thus seen that man agrees with animals in having an organized material frame—a body, and a living principle animating that frame, and capable of thought and will. Superadded to this, man has a rational soul. It is most probable that all the powers of the rational soul have their corresponding powers in the animal life. As an animal, man is capable of love, joy, hatred, fear, hope, &c. Our actions are the result of the combined energy of these two principles, making the body the instrument of their will.

These two principles harmonize in man's natural state. But when the Holy Ghost renews the soul, the animal part is left unrenewed, and then commences the struggle referred to by the apostle—“I delight in the law of God, after the inward man, but I see another law in my members warring against the law of my mind.”—Rom. vii. 22, 23; 1 Pet. ii. 11.

This continued struggle produces all that defective obedience, tainted service, and defilement of life which beclouds the Christian's course, until he has laid down his vile body, awaiting its renovation in the morning of the resurrection.

of carrying us along; or on the cow as supplying us with meat and milk. To be sure, the dog forces *himself*, almost whether we will or not, upon our attention, and even a bull-baiting butcher is constrained to fondle and make much of his dog. Now, what I want is, to excite in my hearers a greater attention to, and therefore a greater respect for, the animals that are domesticated around them. I am quite sure that a study of their characters will add greatly to our amusement and convenience. I am quite sure that it will induce us more and more to use our influence in future to protect them from abuse; and that as it is very true that the master's eye makes the beast fat, so also the master and mistress's *respect* will make the beast happy. I remember an observation made to me by one of the most gifted of the human race—one of the stars of this generation—the poet of nature and of feeling—the good and the great Mr. Wordsworth—having the honour of a conversation with him, after he had made a tour through Ireland—I, in the course of it, asked what was the thing that most struck his observation here, as making us differ from the English; and he, without hesitation, said it was the the ill treatment of our horses; that his soul was often, too often, sick within him, at the way in which he saw these creatures of God abused. Now I am sure you will agree with me that here is a great evil, and you will allow that it depends very much on the upper classes to discountenance and counteract, especially the hard usage of horses.

Would you believe it, that in Ireland, though there was an express act of parliament passed against it 300 years ago, the practice of harrowing by horses drawing from the tail, is still resorted to: the following is part of a letter I received yesterday:—

“The good old custom of harrowing by the tail, is still followed in Erris. In justice to those who continue the practice, it is said that it is not cruel, for

the horses submit to it quietly. Indeed, some people here assert, that it is the most humane way of doing the work ; in proof of which I shall sketch the following anecdote. I was on my way to dine with a worthy old *gentleman* who resided here on my first arrival, nineteen years ago ; and observing, as I went through the farm, this practice, it was natural for a foreigner to express strongly his feelings on the barbarity of the thing. 'I beg your pardon,' said my host, 'you are quite mistaken ; for I assert, and feel assured I will induce you to agree with me in opinion, that it is the most humane way of working the beast ; and for this reason, that he harrows with more ease to himself.' 'Impossible,' said I. 'I will prove it to a sailor as you are, with ease,' replied the old gentleman. 'Pray, when you anchor your ships, why do you give them a long scope of cable when it blows hard ?' 'Because,' said I, 'the hold the anchor has of the ground is in an inverse ratio to the sine of the angle the cable makes with the ground.' 'Oh!' said my old friend, 'being neither an orangeman nor ribbonman, I know nothing about your *signs*, though I guess at what you mean. Now, if you give a long scope of cable to increase the resistance, don't it stand to reason that a short scope must have a contrary effect ; and therefore, must not harrowing by the tail be easier to the animal than from the collar, inasmuch, as in the latter case, the harrow rope is shortened by the whole length of the horse.' My host, chuckling with delight, seemed to consider this argument a floorer. And my 'But, dear sir, there is a vast difference between securing a cable to the bolt and making it fast to the rudder-pintles,' neither diminished his glee nor induced him to change his opinion. He continued this practice to his dying day ; and up to last year it was, and now, 1840, it will be practised. It is hard to break a custom attended with no expense.

‘Of what use is a tail,’ says the Erris man, ‘if not to save all sorts of harness?’”

But it is not only horses that are ill-treated. There is that poor little inferior beast, the ass, that appears to be consigned, by general consent, to all the wrongs that the lowest of the human race may inflict; the urchin’s sport, the tinker’s drudge. I suppose, besides the cross marked on his withers, the reason why it has been considered a religious animal, is its patient endurance of contumely and injury; and is he a fool for that? No; I think he deserves credit for it; and if the truth were known, he has often more wit than his master. I have read of a man who undertook to teach an ass Greek. There are two-legged fellows, every one knows, crammed with Greek, Latin, and Hebrew, and yet they are downright donkeys. John Wesley tells of an ass that, while he was preaching, walked gravely up to the door of the chapel, stood stock-still, put forward his long ears, and remained in a posture of pious attention all the time of the sermon. I myself once saw something like that. I was at a country church in Munster; there was a large congregation, the day was sultry, and all the windows were open to let in air; and the minister was in the middle of his sermon, which was muddy in doctrine, prosy in its composition, and altogether mighty soporific; when lo! an ass that was grazing in the church-yard, put in his head and ears through the window, just opposite the pulpit, and set up a long and loud bray. The effect of the double discourse was irresistible. Laughter could not be controlled, until all were brought back to seriousness by seeing the minister’s wife carried out in a fainting fit.

I assert, that were you to make yourselves acquainted with asses, you would find them clever enough. I once purchased an ass for the amusement of my children. I did not allow him to be cudgelled, and he got something better to graze on than thistles.

Why, I found him more knave than fool; his very cleverness was my plague. My ass, like the king's fool, proved the ablest animal about the place; and, like others, having more wit than good manners, he was for ever, not only going, but leading other cattle into mischief. There was not a gate about the place but he would open—there was not a fence but he would climb. Too often he awoke me of a summer's morning, braying for sheer wantonness, in the middle of my field of wheat. I was obliged to part with him, and get a pony, merely because he was too cunning to be kept.

I could relate some curious instances of their memory for persons and places, and their attachment to individuals. I shall allude but to two; one, the well-known story of Captain Dundas's ass, that he had shipped from Gibraltar to Malta; and when a storm came on, when far on their voyage, and the vessel was in such danger that all the live stock was thrown overboard, the ass swam to shore at Cape de Gat, and in an incredible short space of time made his way over the rivers and mountains of the Ronda, for 200 miles, until he found himself standing at the door of his master's stable in Gibraltar. But this is a book story, and the thing happened far away. I shall tell you what I know of an ass. There is a lady resident in a parish where I was for some years minister. She is the most tender-hearted of the human race; her tenderness, though a general feeling, is principally confined to the lower animals. I am disposed to think that if in Turkey or India, she would leave all her worldly goods to endow an hospital for deserted, disowned, and abused animals. Well, this lady was walking along the road, and she met a train of tinkers, proceeding towards Connaught, and one tall, tan-skinned, black-haired, curly-polled fellow, in all the excited cruelty of drunkenness, was belabouring his ass's sides with a blackthorn cudgel. This was too

much for my friend. She first rated the man for his barbarity. She might as well have scolded Beelzebub. She then coaxed the ruffian, and asked him would he sell the creature, which he consented at once to do, asking, of course, three times the common price. You may judge of the joy of this amiable woman, when the beast, now her own ass, was relieved from its panniers, allowed to roll about in the dust, and graze at liberty. For a long time she kept him perfectly idle, until he recovered his spirits; then he became troublesome, and would break his bonds, and used to go a-braying and curvetting, and seeking for assinine society, all over the country. Idleness is certainly, after all, a bad thing for asses, as well as men; and so this capricious fellow found it; for shortly a tinker (perhaps the very one who sold it) stole it, and for three or four years there were no tidings of the ass, until one day, as his kind mistress was taking her usual walk along the road, she saw a man urging along an ass, straining and bending under a heavy laden cart.

Now the moment my friend came near, there was an evident alteration in the deportment of the ass; immediately the ears, that were but just now hanging listlessly over its eyes, were cocked, and its head elevated in the air; and raising its voice more like a laugh than a bray, it urged itself under its heavy load into a trot, and came and laid its snout on the shoulders of the lady, who, at once, and not until *now*, recognized her long-lost property, which she had again to purchase at a high price. It is many years since that occurred; the beast is alive, and so is the lady. I hope it won't be her lot to see in it that rare spectacle, a dead ass.

There is another domestic animal that, I think, has not got fair play from man, and that is a goose. If we want to write down a mark of *positive* contempt against the intellect of a man, we say he is an

ass ; if would proceed in our lowering designation, we assert he is a goose. Now, wild or tame, I hold that geese are not to be sneered at. The wild are the most wary of all that take wing—see how aloft the flock soars, observe with what beautiful mathematical precision the order of flight is kept—listen to the voice of direction or of warning that the sentinel keeping in advance, every now and then gives out ; look how each bird in turn takes the leadership, and how the one relieved assumes his regular position in the rear ; let no one venture to tell me that there is not considerable intelligence in these animals ; every one knows how watchful geese are, even in their domesticated state ; every school-boy has learned how they saved the Roman Capitol. I must tell you, amongst many anecdotes I know of geese, one that came under my own observation : when a curate in the county of Kildare, my next neighbour was a worthy man who carried on the cotton-printing business, and who, though once in very prosperous circumstances, was now, in consequence of a change in the times, very poor ; in his mill-yard was a gander, who had been there forty years ; he was the finest, the largest bird of his kind I ever saw, his watchfulness was excessive ; no dog could equal him in vigilance, neither could any dog be more fierce in attacking strangers and beggars ; he followed his old master wherever he went, and at his command would fly at any man or beast ; and with his bill, wings, and feet he could and would hurt severely. Whenever my neighbour paid me a visit, the gander always accompanied him, and as I was liberal of oats, and had besides one or two geese in my yard, he would, before his master rose in the morning, come up and give me a call ; but neither the oats nor the blandishments of the feathered fair could keep him long away, and he soon solemnly stalked back to his proper station at the mill. Well, year after year I was perfecting my friendship

with Toby the gander, and had certainly a large share in his esteem, when one winter, after being confined to the house with a severe cold, I, in passing through the mill-yard, inquired for my friend, whom I could no where see—"Oh, sir," said the man, and he was about the place as long as Toby himself, "Toby's gone"—"gone where?" "Oh, he is dead,"—"how dead?" "Why we eat him for our Christmas dinner." "Eat him !!!" I think I have been seldom in the course of my life more astonished and shocked; positively I would have given them a fat cow to eat, could I have saved poor Toby; but so it was. Upon inquiry, I found out, that the poor gentleman had not means to buy his Christmas dinner; that he was too proud to go in debt, and determined as he was to give his people a meat dinner, poor Toby fell a sacrifice to proud poverty. While honouring the man for his independence, I confess I never could look upon him afterwards without a sense of dislike; I did not either expect or desire that he should suffer as he *who slew the albatross*,* but I was sure he would not be the better in this world or the next for killing the gander.†

* Who has not read Coleridge's "Ancient Mariner."

† I have been favoured with the following anecdote of a goose, by Mr. Thomas Grubb.

At the flour mills of Tubberakeena, near Clonmel, while in the possession of the late Mr. Newbold, there was a goose, which by some accident, was left solitary, without mate, or offspring, gander or goslings. Now it happened, as is common, that the miller's wife had set a number of duck-eggs under a hen, which in due time were incubated, and of course the ducklings, as soon as they came forth, ran with natural instinct to the water, and the hen was in a sad pucker; her maternity urging her to follow the brood, and her selfishness disposing her to keep on dry land. In the meanwhile, up sailed the goose, and with a noisy gabble, which certainly (being interpreted) meant, leave them to *my* care—she swam up and down with the ducklings, and when they were tired with their aquatic excursion, she consigned them to the care of the hen. The next morning, down

Pigs, also, are in my opinion ill-used and slandered animals ; if men are dirty, debased, or ignorant, they are called a swinish multitude. But I hold that there is no animal cleaner in its habits than a pig ; they are debased, it is true, but man has done it by bad breeding ; and as to ignorance, I utterly deny the charge. No, quite the reverse, they are most intelligent ; no inferior animal, neither dog, horse, nor cow makes his nest as does the pig ; their senses are so acute, that they foresee better than any other animal the changes of the weather : and I am sure you all must have observed how they carry straw in their mouths to make themselves comfortable when they see the storm approaching.

To be sure, such intellectual qualities are only observable in those of the race that are allowed to come to years of discretion, as in sows ; for, by our modern breeding, we fatten and kill off pigs before they come of age. The Dublin Society and other agricultural bodies have much to answer for in this way, encouraging a precocity, in fattening up childish pigs before their intellects are expanded : in this way we are condemned to eat bad pork and

came again the ducklings to the pond, and there was the goose waiting for them, and there stood the hen in her great frustration. On this occasion, we are not at all sure that the goose *invited* the hen, observing her maternal trouble—but it *is* a fact, that she being near the shore, the hen jumped on her back, and there sat, the ducklings swimming, and the goose and hen after them up and down the pond. And this was not a solitary event ; day after day, the hen was seen on board the goose, attending the ducklings up and down, in perfect contentedness and good humour—numbers of people coming to witness the circumstance, which continued until the ducklings, coming to days of discretion, required no longer the joint guardianship of the goose and hen.

While this paper was passing through the press, a lady supplied me with the following anecdote of a goose, which she assures me can be depended on. I have every confidence in her credibility : A goose—not a gander—in the farm-yard of a gentleman, was observed to take a particular liking to her owner. This attach-

worse bacon. Why, when I observe at one of our cattle shows, a huge unwieldy bag of blubber, a poor apoplectic young thing, that can scarcely walk or breathe for very plethora; sirs, it is no more like an old bristly, high-backed, long-legged, sharp-snouted grunter, such as ere-while I used to see in Munster, and such as I have lately observed in Germany, than an Irish spalpeen is to a London alderman. Now, suppose that all of you ladies were cut off in your teens, what would become of the educated intellect,

ment was so uncommon, and so marked, that all about the house and in the neighbourhood took notice of it; and, consequently, the people, with the propensity they have to give nicknames, and with the sinister motive, perhaps, of expressing their sense of the weak understanding of the man, called him GOOSEY. Alas! for his admirer—the goose's true love did not yet run smooth. For her master, hearing of the ridicule cast upon him, to abate her fondness, insisted on her being locked up in the poultry yard. Well, shortly after, he goes to the adjoining town, to attend petty sessions, and in the middle of his business what does he feel but something wonderfully warm and soft rubbing against his leg, and and on looking down, he saw *his* goose, with neck protruded, while quivering her wings in the fulness of enjoyment, looking up to him with *unutterable* fondness. This was too much for his patience or the bystanders' good manners, for while it set them wild with laughter, it urged him to a deed he should ever be ashamed of; for, twisting his thong-whip about the goose's neck, he swung her round and round until he supposed her dead, and then he cast her on the adjoining dunghill. Not very long after, Mr. GOOSEY was seized with a severe illness, which brought him to the verge of the grave; and one day, when slowly recovering, and allowed to recline in the window, the first thing he saw was *his* goose, sitting on the grass, and looking with intense anxiety at him. The effect on him was most alarming. "What!" says he, "is this cursed bird come back to life, and am I, for my sins, to be haunted in this way?" "Oh! father," says his daughter, "don't speak so hardly of the poor bird. Ever since your illness it has sat there opposite your window—it scarcely takes any food." Passion, prejudice, the fear of ridicule, all gave way before a sense of gratitude for this unalterable attachment. The poor bird was immediately taken notice of—treated, from henceforth, with great kindness; and, for all that I know, goose and goosey are still bound in as close ties as man and bird can be.

the judgment, the wisdom, the wit, the learning you have exhibited in your more mature life? So it is with pigs. By the intentional degradation of man, and by the greedy knife, they are not allowed the development of intellectuality. Still, after all, they are cunning creatures, and they know both friends and foes. Have you ever seen—for if you have not, I have—when a certain functionary, whose business it is to put rings in pig's snouts, and perform *other offices*, rather disagreeable to the creature, when he comes sounding his horn, every pig in the place goes off to hide. There is no animal which knows its home and loves it more; you will see them going forth in the morning, to look for food, and coming home in the evening; have you not seen at a cabin door how imploringly poor muck asks to get in; what different notes of entreaty it uses, and sometimes it stands scolding for admission, as much as to say, "Judy, agra, why won't you let ME in to my supper, seeing that I'm the boy that pays the rint." I know no animal that shows such sympathy in the sufferings of its fellows, and it is very capable of attachment; it is also often beloved. Peter Pindar tells us of the passionate sorrow of an English lord for the loss of a favourite pig, and he consoles himself in the following pathetic strain:—

" O! wipe those tears so round and big,
Nor waste in sighs your precious wind;
You've only lost a single pig,
Your wife and son are left behind."

I have also heard a pitiful poem of a poor Galway weaver on the death of his pig: now you must know that in Galway, pigs are kept in the top floors of the houses, and that many are littered, reared, fattened, killed, salted, and made into bacon without ever touching the ground, living this way they help to pay the

rent of the garret—it's well for you I don't recollect more than the following stanza :—

“ Paddy Blake the weaver had a little pig,
The pig was little because it was not big ;
This pig was sick and like to die,
Which made poor Paddy and his wife to cry.”

Now this, if not so elegant, is not so tedious as the poem of the two thousand lines which some one wrote on pigs, the beauty of which consisted in this, that it was all written in Latin hexameters, and every word began with a P.* An Italian abbot has also written a poem in praise of pigs, and he calls upon Apollo and all the muses to assist him in celebrating their virtues. Now this production is in great estimation with the people who love their swine, and let them live on to an age of discretion, and the pig returns the love lavished on it. An English traveller in South Italy, describes the pigs running out on the roads to meet their respective owners, as they come from their work in the fields, and declares himself much amused by the mutual caresses that passed between man and pig on the occasion ;† in that country they are em-

* This poem is entitled “ Pugna Porcorum.”

† The late learned and good Dr. Brinkley, Bishop of Cloyne, used to tell an interesting anecdote of one of his pigs. In the farm-yard, a person appointed for that purpose, used to give corn to the turkeys at a certain place, and the pig observing this, took care diligently to attend ; and though his snout did not seem well adapted for picking up single grains of oats, yet Muck beat the turkeys all to nothing, and contrived to get the largest share. This, the henwife seeing, took a dirty advantage, and had, on the following day, the pig locked up, while the turkeys were being fed. On his enlargement he hastened off to the feeding ground, but there were neither oats nor turkeys. So off he set, found out where the flock of turkeys was, and drove them before him as a shepherd would his sheep, until he had them at the usual spot, and there he kept them the whole day, not one would he allow to budge, expecting that old Molly would come with her sieve of oats.

ployed to hunt for and set truffles, which grow under ground; they have been known also to set partridges.

I shall trouble you with but one story about cows; it came within my knowledge this summer; the circumstance occurred to one of my own. I am in the habit every year of buying two or three Kerrys; they are the kindest little creatures in the world; they pay very well, and though wild at first, they become, under proper treatment, exceedingly gentle and familiar; when I buy them I always choose from the head and horn; I pick out those I consider to have good countenances. Last year I was very lucky in the three I bought; they became in a short time great pets; I generally go out in the morning before breakfast, and they always meet me at the gate of the pasture, expecting to have their heads scratched and be spoken to; one in particular, a quaint, crumpled-horned little lassie, used to put her snout into my pocket like a dog, to look for bread and potatoes which I generally brought with me; her breath was so sweet and large eyes so placid, that I was almost tempted to be of the humour of the man who loved to kiss his cow. Well, there was a swing-swong in this field, and my Kerry lass, who was inordinately curious, seeing my young ladies swinging, thought (I suppose) she might take a swing herself; be this as it may, one day, about noon, a constant and loud lowing of cows was heard at the gate nearest the house, and my brother, who was within, hearing the unusual and continued noise, went out to see what was the matter; as soon as he came to the gate he saw two of the Kerry cows very uneasy, but not the third, so he proceeded into the grounds, and as he went, the cows followed him, still lowing, until he arrived at the farthest end of the land, when he saw my pet, the third Kerry, entangled in the rope of the swing, and caught by her head and horns, where she must

have been soon strangled if not relieved ; the moment my brother extricated her, the lowing of the others ceased ; I could not learn that my Kerry fair one ever after attempted the humours of a swing-swong.

Of cats, time does not allow me to say much, but this I must affirm, that they are misrepresented, and often the victims of prejudice. It is strictly maintained that they have little or no affection for *persons*, and that their partialities are confined to *places* ; I have known many instances of the reverse. When leaving, about fifteen years ago, a glebe-house, to remove into Dublin, the cat, that was a favourite with me and with my children, was in our hurry left behind ; on seeing strange faces come into the house she instantly left it, and took up her abode in the top of a large cabbage stalk, whose head had been cut off, but which retained a sufficient number of leaves to protect poor puss from the weather ; in this position she remained, and nothing could induce her to leave it, until I sent a special messenger to bring her to my house in town. At present I have a cat that follows my housekeeper up and down like a dog ; every morning she comes up at day-break in winter to the door of the room in which the maid-servants sleep, and there she mews until they get up ; I don't expect that she will be long-lived.

Of dogs, I need not say much. Large books are to be got, descriptive of their fidelity, intelligence, and usefulness ; and each of you no doubt has some fact that has come under your own knowledge, and which convinces you that dogs have almost reasoning powers. Many of you, no doubt, have read of the Newfoundland dog in Cork, who, when vexed, barked at, and bitten at by a cur, took it up in his mouth, went quietly to the quay, and dropped it into the river ; and when, after a time, he saw it carried down by a strong tide, and unable to swim to shore, he plunged in, took the culprit by the neck, brought it

to land, and giving it a good shake, departed—the shake being as much as a *hint* to go and sin no more. Here was justice tempered with mercy—here was an acquaintance with the nature and uses of secondary punishments, that would have done credit to a political economist. But I cannot leave the subject of dogs without recounting what I heard within these few days, respecting a dog I have the pleasure of knowing; and I am assured, that the *facts* can be attested by fifty persons or more; in truth, by the inhabitants of a whole village.

The rector of a parish in the county of Sligo, at whose house I spent some days last September, has an English spaniel, now rather advanced in years. He has been of great value as a sporting dog; and besides, being remarkable for general sagacity, has acted as a playfellow, a guide, and a guardian, to seven sons. Now the eldest had just gone out into life, with every promise of being a credit to his parents, and a blessing to them and others. He had been ordained and appointed to a curacy, where he was loved, honoured, and followed. But in the midst of his sacred labours, and in attendance on a sick bed, he got a fever; during the progress of the disease, his parents were apprised of his illness, but not so as to communicate much apprehension; but still being at a distance of one hundred and forty miles, they were anxiously looking out for another letter. In this interval, the spaniel was observed to have left the hall-door, where he usually basked during the day, and betake himself to a high ditch that overlooked the road towards Dublin. There he continued to howl at intervals, and though sometimes coaxed away, and sometimes driven by his master with blows, he returned, and for two days continued; when, without any apparent reason, he left the spot, and came back to his usual haunts. In the regular course of post a letter brought the sad tidings, that on the

day on which the dog ceased howling, the young man had breathed his last.

Of all the sights under the sun, perhaps the most touchingly grievous is the spectacle of parents mourning over the death of children that have arrived at maturity, and who just give the goodly promise of being the sure stay of their declining years. The parents I now allude to, have been sorely tried in this way ; for the year following, the next son, a youth of twenty, a fine manly fellow, with every quality of head and heart, that a fond father could desire—*he*, also, was seized with fever. It is not for me to detail the alternations of hope and fear that possessed the minds of this much-tried family. But what I must relate is, that the spaniel was found to have returned to his former station on the ditch, and there, was uttering his melancholy howl. I can never forget the deep feeling with which the father told me how an aged female follower of the family, and who had nursed the boy, taught him to lisp Irish on her lap, came up and told him in an *agony of tears*, that it was all of no use—he might as well send away the doctor—for that yonder was the dog, and there he was howling, and it was all over with Master Edward, for God had called him away. And so it was. The youth died ; and from *that moment* the dog ceased to howl ; neither was he any more seen resorting to the place he had so ominously occupied. I have heard of many similar instances of dogs being acquainted with the coming death of those they love, but not with one so well attested as this. I tell what I believe to be true, and without drawing any superstitious or supernatural inferences from it. I can only conclude, that there may be communicated to the acute senses of dogs and other animals, (as for instance, ravens and magpies) evidences of approaching dissolution which, to us, are altogether unexplainable ; and that there

may be in heaven and earth, things not dreamed of in our philosophy.*

* In corroboration of the above statement, I give the following extract of a letter I received from a lady with whom I had subsequently conversed, and who, I am assured, would not willingly assert what she thought was untrue:—

“I hope you will accept the following statement, in return for the gratification I received from your lecture on the sagacity of animals.

“When I was a child on my dear mother’s knee, she often amused me with stories of the affection and sagacity of ‘Dick,’ her father’s favourite dog. One incident remained deeply impressed on my mind. My grandfather, Mr. H——m, of the county of Cavan, came to Dublin, on business, and shortly after, ‘Dick’ repaired to an old lime-kiln, which he refused to leave, and then set up a dismal and incessant howl. The next post brought the news that Mr. H——m was seized with gout in his stomach, and before his son could reach Dublin, he was no more. The dog ceased to howl exactly at the period of his master’s death; and having refused the food brought to him, was found dead before the funeral arrived at the family burial place.”

My valued friend, Robert Ball, the devoted and able naturalist, to whom Dublin owes the establishment of the Zoological Society, on the 8th ultimo, concluded the lectures by a well-digested *résumé* of what had been delivered by those who had gone before him during the season. When he came to my *effort*, he thought it necessary to cull me out from the rest, as deserving of censure, for my story of the Sligo dog, thinking it proper, no doubt, to warn off the minds of the audience from the superstitious feelings which he assumed my narrative was calculated to engender. Now, on this occasion, I must, with great respect say, that I am neither convicted by his inference nor converted by his explanation. And first, with respect to his inference, that my story was superstitious, I don’t consider that it was. I allow, it is to *me* (if true) unexplainable—but what of that, are we, at this day, to withhold circumstances that are well attested, because we cannot explain them. If thus afraid of **FACTS**, what would become of geology? No; fearlessness of investigation is the character of sound philosophy; and, as Sir Philip Crampton rightly said in his lecture on the same evening—that it was the proper work of the scientific world not to deny a statement, however startling, because improbable—but to investigate dispassionately whether it were a *fact*. Well, but Mr. Ball is determined to take the sting of superstition out of the tail of my story, and he is right if he could, by explaining in a very

It is now time for me to have done ; done, I say, for I have not finished ; for though I have satisfactorily

common-place way, what I would make believe to be unaccountable as follows. I don't say these are the words of Mr. Ball—I merely quote from memory: People *superstitiously* believe dogs know and announce the coming of death to those to whom they are attached, by howling. But this is a vulgar error, and arises from the common practice of dogs howling by night ; and persons, when any in a family are sick and dying, being then more watchful, or more liable to hear when dogs howl. I myself, says he, on one occasion, was witness to this superstition, and instrumental in removing both the cause and the feeling. I was in a house when an important member of the family was so sick as to cause serious apprehension for his life. One night, when thus dangerously ill, the dogs began to howl. Oh ! all concluded the man *must* die—don't we hear the dogs. But this was not Mr. B.'s conviction ; for he went out to the kennel where the dogs were, and then found a cat that had interloped, and ventured to abstract some of the dogs' food—that they hunted her, and she escaped through a hole, where they could not follow, and therefore they howled with vexation. Mr. B. put an instant stop to the howling, by stopping the hole through which the cat had escaped, and so debarred the cat from future access to the kennel, and the dogs from their provocation. Moreover, what was better than all—his friend recovered. With this explanation and this narrative, the secretary considered he had made my story “reading made easy” for all the young ones attending the lecture. But, begging his pardon, I think that he leaves *my* narrative as unexplained as ever. And I might as well say that I overthrew the credit of every circumstance handed down to us by strong and creditable testimony as having the *appearance* of being supernatural ; because, the other night, I detected my servant-boy in the act of terrifying a chamber-maid into hysterics, by passing before her in a white sheet and a chalked face. Who denies that it is common for dogs to howl by night in town or country—who denies that the watchful are vexed and pained, when such noises alarm and disturb the sick. I wanted no explanation on this point, but what I told as extraordinary, and which, (if true) I demand a philosophical explanation of, is the fact, that a dog, not accustomed to howl, went on two occasions *to a certain spot*, whither he was *unaccustomed to resort* ; that he there continued howling *for two days, and could not, by force or entreaty, be driven away, up to a certain period, and that that period was found to coincide with the death of the individuals to whom he was attached*. And what was still more extraordinary, that *the first death took place at a distance of a*

proved, at least to myself, that inferior animals have intellectuality, I have not shown how the mere inti-

hundred and forty miles. Now, I hope Mr. B. will hit off a more satisfactory solution ; and to keep his hand in, I beg he will unriddle the following, as *two instances* amongst *many* of the same kind I could adduce, of dogs having a power of knowing circumstances through the medium of some sense not cognizable by us:—A poodle dog, belonging to two ladies of the name of P——re, in the county of Mayo, was equally attached to both ; his sagacity was remarkable, and his action denoted sense, common and uncommon. Now, the ladies, his owners, used to take, in turn, the pleasurable relaxation of visiting amongst their friends ; and in this way they ranged through a wide circle of acquaintances. The day either was to come home, no matter whether the time was fixed previously or not, or was known to those at home, Poodle was seen to start forward to meet his coming mistress. And even suppose there were more roads than one by which she *might* return, the dog, with unerring certainty, was found to go forth on the very road the lady had taken.

The lady who has supplied me with the story of the *tender* goose, gives the following narrative of a dog, which can be vouched for:—A gentleman of property had a mastiff, of great size, very watchful, and, altogether, a fine, *intelligent* animal. Though often let out to range about, he was in general chained up, during the day, in a wooden house constructed for his comfort and shelter. On a certain day, when let out, he was observed to attach himself particularly to his master ; and when the servant, as usual, came to tie him up, he clung so to his master's feet—showed such anger when they attempted to force him away—and altogether was so *particular* in his manner, that the gentleman desired him to be left as he was, and with him he continued the whole day ; and when night came on, still he staid by him—and on going towards his bed-room, the dog resolutely, and, for the first time in his life, went up along with him, and rushing into the room, took refuge under the bed, from whence neither blows nor caresses could draw him. In the middle of the night a man burst into the room, and, dagger in hand, attempted to stab the sleeping gentleman ; but the dog started at the robber's neck, fastened his fangs in him, and so kept him down, that his master had time to call for assistance and secure the ruffian, who turned out to be the coachman, and who afterwards confessed, that seeing his master receive a large sum of money, he and the groom conspired together to rob and murder him—and that they plotted the whole scheme leaning over the
ROOF OF THE DOG'S HOUSE!!!

mate observation and study of their capabilities can make them more happy in themselves, or more useful to us. But I think that it may be *inferred*, without any extended process of reasoning, that the more we study the character of animals, the more we shall respect and cherish them. It is want of consideration, rather than absolute cruelty, that makes us inflict the wrongs we do. To this also tends the bad education which young persons receive—the vulgar errors they imbibe. I remember, when a boy of seven years old, squeezing a cat to death under a gate, in order to put to the test the philosophical theory of my father's stable-boy, who assured me that a cat had nine lives. What, I say, has perpetuated the tyranny of man over the inferior animals but bad education. The vicious trainings of the nursery, in the first instance; then the kitchen; then the stable yard; and when Master Tom is grown in obstinacy, cruelty, and mischief, *too* bad to be borne *at home*, then comes a public school to case-harden the youth in all his tyrannical propensities; and so in due course he becomes a reckless man, hunting, shooting, fishing, cock-fighting, and in all his sports abusing the creatures of God.

Ladies who now hear me; mothers as you are, or may be, look to your nurseries; there are planted the first germs of cruelty. My mammy-nurse set *me* the example of catching flies on the window, and tearing off their legs and wings; or, as it is better described as follows:—

“ Who gave me a huge corking-pin
That I might the cock-chafer spin,
And laughed to see my childish grin,
My Granny.

“ Who put me on a donkey's back,
And gave me whip to lash and smack,
Till its poor bones did almost crack,
My Granny.”

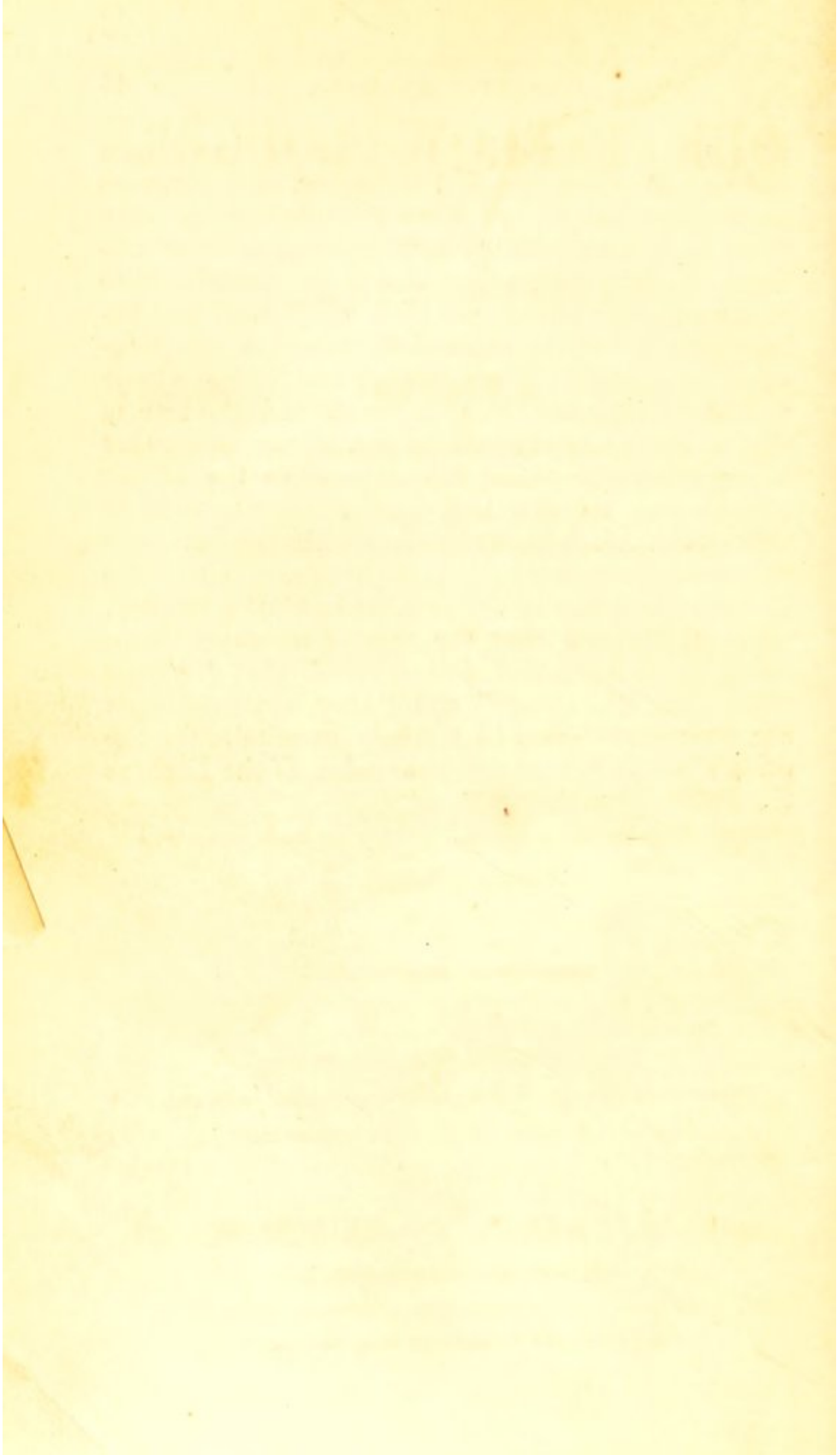
But I shall say no more on this subject, except to recommend to your notice—and if this my lecture does no other good, it will do well in recommending to your perusal—and as it is not dear, to your purchase, a treatise on the rights of animals, and man's obligation to treat them with humanity, by our amiable townsman, Dr. Drummond, whose book on this subject (THOUGH I CANNOT RECOMMEND HIS SERMONS), I can venture to say, is learnedly, feelingly, and persuasively written, and is quite free from any taint of his peculiar tenets.

That the study of the habits of animals may enable us not only to domesticate many that are now wild, but also to improve the powers of those now in use, I think also may be shown. I am sure it will be found better to train a horse than to break him. In this respect I assume that the Bedouin Arab manages better than the Irish horse-breaker: the one makes his fleet courser his friend—the other, with the spur of whiskey in his head, and the iron rowel of another in his heel, extinguishes the spirit, while he forms the gaits of the trembling creature he has subdued. I remember the first horse I had ever broken in. I was obliged to contract with the old ruffian (for want of better) I had to employ, to give him half-a-pint of raw whiskey as his *morning* before he would condescend to mount the colt. But, ladies and gentlemen, I must cease; allow me to do so with the observation, that man has not yet fulfilled his duties even towards the animals he has contrived to domesticate; that in all his improvements he has advanced but little in the *morale* of treating inferior animals; and I cannot but express the opinion that much has to be learned and much practised that may be conducive to *our* use and *their* happiness.

Surely, I who have seen bull-baiting and cock-fighting, and many other cruel and ferocious games discountenanced, and in a great measure disused, may

anticipate a brighter day, when education, based upon the religion of our merciful Redeemer, will teach us to use and not abuse; when true knowledge may teach us to treat kindly, considerately, inferior animals. I really do consider that there is much yet to be done for our benefit and their happiness; and benevolence, guided by experience, induction, and judgment, may achieve great things; and so knowledge and humanity going hand in hand, and the love of God in Jesus Christ presiding over all our views, that happy millennial period will come when the inferior animals may stand in the same relation to man as they did to Adam before the fall, when the Sovereign of heaven pronounced *all* to be very good; and the figurative language of the prophet be almost realized, when he foretold that the most ferocious animals would be so tame and domesticated, that "a little child shall lead them;" and "they shall not hurt nor destroy any more in my holy mountain, for the earth shall be full of the knowledge of the Lord as the waters cover the sea."

THE END.



3

OUR FELLOW LODGERS.

A LECTURE

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS.

BY

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MDCCLXVII.

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READ BEFORE A MEETING OF THE ROYAL COLLEGE OF PHYSICIANS,
AT SIR PATRICK DUN'S HOSPITAL, 10TH DAY OF APRIL, 1840.

3/18

OUR FELLOW LODGERS.

Τὰ ζῶδια ἐν τοῖς σωμάσι πολλα συν ἡμιν συνοικοῦντα.

THERE is no pretence, perhaps, more unfounded, or less capable of being sustained, than that which man assumes to the exclusive possession of his own body. He arrogantly supposes, that because he is allowed for a season to exercise over it some control, he is therefore its sole possessor—that it is made entirely for his use—and that its great Architect collected the materials from the various elements of heaven and earth, to erect an edifice in which he was *alone* to dwell. It is most true that this edifice is “fearfully and wonderfully made”—beautiful in its structure, cunning in its contrivance, and a meet residence for that immortal spirit which its builder has placed within it; but it is not true that that spirit is the only living occupant; many others are permitted equally to share the right, and to some of them is assigned possession of its very best apartments. This will be most apparent, if we take a brief view of our Fellow Lodgers.

Entomologists enumerate above 1600 species of minute beings, endued with animal life, of various forms and organization, which they denominate *entozoa*. Of these, eighteen are found connected with the human body; some in parts which nature seems

to have fitted for their reception, and of which they are the *permanent* and *regular* occupants; such as *Ascarides*, small white worms; *Lumbrici*, large round worms; and *Tenia*, flat tape worms. Others are only occasional residents—externs which settle in different convenient parts adapted for their temporary sojourn, and where they are not *generally* found: those are called by various names, according to the circumstances of their generation; and some are of a form and nature so anomalous, that no particular name has been yet assigned them. On these last, I will venture to offer a few remarks.

It is well known that the fluids of the human body abound with animalcules, invisible to the naked eye, but distinctly seen when submitted to a microscope of high magnifying powers. If a globule of some of those fluids be placed under a lens, immediately on being taken from the body, and while yet warm and preserving its animal heat, it presents the appearance of a bath, in which many animated beings are seen to swim about. In those that I have examined, they resembled tadpoles, impelling themselves by their tails, which they vibrated with great activity, and moved forward with considerable velocity. I have frequently tried to observe some trait of their habits and manners, but the time allowed for the examination was so brief, that I was always disappointed. When the liquid in which they swam lost its animal heat, the vital principle it imparted was withdrawn, the animalcules ceased to move and seemed to perish, and immediately became invisible in the fluid in which they floated. Of this description are the minute beings detected in lachrymal secretions, in the pustules of psora, and other cutaneous diseases, whose generation are supposed to be not the cause, but the consequence of the vitiated fluid.

But besides these, the existence of larger *entozoa* in the *living* human body in this way, has been emphatically dwelt on by writers both sacred and pro-

fane. The earliest account we have, perhaps, is that recorded in the book of Job. The distemper under which the patriarch laboured seemed to be a collection of entozoa, which we translate *worms*, forming a lodgment in his skin, and in the integuments of the muscles. He exclaims, in the bitterness of his anguish, "My flesh is clothed with *worms*, and my skin is broken and become loathsome."*

The death of Herod is attributed to the same cause, and the sacred historian mentions it as of that kind which was most humiliating to human pride. The people shouted, saying, his voice was the voice of a god, and not a man; but the angel of the Lord smote him. "He was *eaten* of worms," while he was yet alive, "till he gave up the ghost."†

Among profane writers, many persons are recorded as having fallen victims to this malady. Acastus, son of Pelias, Alkman the poet, Pherecydes the theologian, Calisthenes the Olynthian, Mucius the lawyer, and Eunus, a leader in the Servile war, are said to have perished by some such disease. The cause or symptoms are not detailed; but two of them, Calisthenes and Eunus, died in prison, and it is probable, confinement, privation, and anxiety predisposed them to take it. But the distemper of which Sylla the dictator died, is more minutely described, and leaves no doubt as to the nature of the complaint. Pliny calls it ptheiriasis, and says, "Nascuntur in sanguine ipso hominis animalia exesura corpus"—"animals are generated in the very blood of a man which devour his body;"‡ and Plutarch thus details the symptoms. It was a considerable time before he perceived he had an ulcer in his body; but at length the putrescency of the flesh became apparent, and produced such a multitude of *φθειρες* (vermin, which we translate lice), that though persons were employed continually both

* Chap. vii. 4.

† Acts, xii. 23.

‡ Hist. Nat. lib. xxvi. c. 13.

day and night to remove and destroy them, they increased faster than they could be exterminated; and to such a degree did the distemper prevail, that, as Plutarch affirms—*σάρκα εἰς φθείρας μεταβαλλε πασην*—“it changed the whole flesh into lice;” and his clothes, baths, couches, and every place near him were polluted with a perpetual flux of corruption and vermin. It was in vain that he went many times a day into the water, to scour and cleanse his body, the disgusting insects multiplied so fast, as to baffle every attempt to destroy them; till at length they devoured him, and he, too, like Herod, was “eaten of worms,” while yet alive.*

In addition to these facts detailed by ancient writers, I have collected others, either communicated to me by friends, or which have come under my own personal observation. The first I shall mention is a very extraordinary case, told to me by my brother, Dr. Edward Walsh, Physician to the Forces. While serving in Canada, he was called to see Angus M'Donald, aged 55, an American farmer, active, and robust, and in good circumstances. He had been subject for some years to attacks of *dysuria*, which, however, did not interrupt his ordinary pursuits. At length he was affected with pain and swelling at the bottom of the pelvis; and one day, after great exertion in pursuit of strayed cattle, he was seized with acute pain in perineo, followed by fits of fainting. On recovering from the attack, the parts were examined. They were found much swelled, inflamed, and a substance was felt inside, which was discovered to be a large calculus. The inflammation terminated in an abscess, from which, on being opened, the calculus was extracted. Meantime other swellings supervened in different parts of the body, particularly round and in the glutei muscles. The obstruction in the neck of the vesica, and the rupture consequent on

* Plut. vit. Syll. ad finem.

the descent of the calculus, had created such a derangement of the parts, as to disturb their ordinary functions, causing discharges of nature to find an exit through the integuments, and forming abscesses through which they continually oozed. The weather was excessively hot, the thermometer stood at 96°, and the state of the patient was exceedingly disgusting to the medical attendant while dressing the abscesses. One day, on removing the bandages, a number of *living things* were observed in the discharge. They were very active in their motions, of an extraordinary and nondescript form, but most resembled *flies without wings*. But the circumstance of their formation most striking was, that they were *not* confined to the seat of disease. Tumours protruded, and abscesses formed in different parts, particularly under the axilla, so that the body was covered with them. When they were opened or discharged of themselves, the purulent matter contained quantities of the same insects, in a very active and lively state. On being touched with spirits of turpentine, they ceased to move, and were readily destroyed by applications of it. Others, however, rapidly succeeded, and the discharges every day became thinner, more copious, and more foetid. The patient soon sunk under it, and was relieved by death on the ninth day, after a severe suffering, aggravated by the horrid and *preternatural* generation, as he supposed, of those insects in his body.

My brother, in his communication, stated to me no theory or conjecture as to the cause of this extraordinary and nondescript generation, nor can I find it among his papers; and as it has pleased God that he has followed his patient, I cannot have recourse to his opinion. I do not presume to hazard any of my own, but leave it to more competent and learned persons to investigate it.

The next I shall mention was communicated to me by my much esteemed friend, the late Dr. Pope. It occurred in Sir Patrick Dun's Hospital, in the year

1815, and though there are some perhaps present to whom it is already familiar, there may be many to whom it is not known. I will, therefore, relate it.

Among the patients then in hospital, was a mechanic of the middle stature, having the muscular system feebly developed. His habit of body was what might be called cachectic, and his countenance very pale and languid. He laboured under a chronic disease of the digestive organs; but by means of the judicious treatment employed, his health appeared to be so much improved, that he was ordered to the convalescent ward. Just as he was about to move, suddenly there appeared creeping over his whole body and the bedclothes in which he lay, an immense quantity of insects, resembling *pediculi*, which increased so rapidly, that a countless multitude was seen creeping and strewed over the surrounding floor. On moving the hand on the surface of the body, it felt as if covered over with small protuberances; a sensation was produced as if prickles of some kind were stuck thickly in his skin; and, on inspection, it appeared that this feeling was caused by these insects *emerging* in different stages, and in the act of piercing the cuticle. Some were in a more advanced state of protrusion, extricating themselves, as it were, from the aperture through which they had just emerged; while others were entirely free, and crawling over the surface. Dr. Pope detailed to me the applications made to the patient, which it would be superfluous to state here. Suffice it to say, that, more fortunate than the dictator Sylla, because under more judicious treatment, he did *not* sink under the horrid disease, but was, in a short time, dismissed from the hospital perfectly cured.

When I was in the South of Ireland, many years ago, a case was mentioned to me by a medical friend; and though I believe it has since been published by Dr. Picknell, in the transactions of this college, it is too curious to be omitted in this detail.

Mary Riordan was a native of Cork. When she was about fifteen years of age, two clergymen of her persuasion died. They were men much esteemed, and of great reputed sanctity; and there existed a belief among the peasantry, that clay taken from the graves of such persons, possessed an extraordinary efficacy in protecting the man or woman who carried a portion of it about their persons from evil, and those who drank an infusion of it from disease. At the suggestion of an old woman, the poor girl went to the churchyard where they were interred, and brought home her apron full of the clay. By the advice of her mistress, she placed some of it in a tin can, and pouring water upon it, she stirred it up, then suffering the grosser parts to subside, she drank a portion of the remainder every morning. After some time she complained of an affection of sickness; she felt a nausea and a strong tendency to vomit, and at length began to discharge the contents of her stomach. There was found amongst it a quantity of insects, of the beetle kind, called by entomologists *bleps mortisaga*, in different states of existence—some were larvæ or eggs, some pupæ, some more advanced in shape, and some *perfect* insects, already furnished with *wings*; so that, immediately on being discharged from her mouth, they *flew* about the room. In this state she was brought to the Cork hospital. She was then twenty-eight, and the frightful disease had been generating in her body for thirteen years. Yet she still continued to use the disgusting medicine, convinced that it did *not cause*, but would *cure* it. It is reported that 700 larvæ of beetles were discharged from her stomach in an active state, some of which were destroyed by herself, and some escaped into apertures of the floor, besides as many more in the grub and yet inanimate stage. Nearly 100 were submitted to Dr. Thompson, of Cork, which averaged in size from one to half an inch in length. The *genus beetle* is very tenacious of life, and some of them, reserved as curi-

osities, were still animate after they had been kept a year in boxes and bottles. The patient was at length persuaded to desist from her medicine, and treated in return with large doses of turpentine, when the generation of the insects ceased, and she was dismissed convalescent. The trick of swallowing and ejecting from the mouth various things, is one often resorted to by jugglers; but in this case, from the manner in which it was watched and treated, there could be no deception; and the connexion of cause and effect was so immediate as to leave no doubt of the origin of the disease. The *bleps. mortesaga* is principally found to breed in churchyards, and in great quantities. Their ova impregnated the clay she had taken; they were matured and excluded by the heat of the stomach, and as soon as they attained life, they continually irritated that tender organ, by crawling over its highly sensitive coats, till, by a strong effort of nature, they were expelled from the place where they had generated.

On my first visit to France, some years ago, I went with friends from Paris to see St. Cloud. We walked there; the day was very sultry, and when we were about half way on the road, we were made sick by a very intolerable smell, that issued from a valley which lay beside us. We found it proceeded from a place called a *knacker's yard*, where decayed horses are sent to be killed, flayed, and broken up. The air above it was darkened with flies in incredible swarms, emitting a dull humming sound, and hovering over the putrid fragments of horse flesh that lay about; and we heard a circumstance which had just before occurred, which made us hasten our departure. A man was proceeding from St. Cloud to Paris with letters; he drank too much wine before he set out, was overcome with intoxication, and, when he came to this place, lay down to sleep. He continued on the ground for twenty-four hours, and was at length roused by an intolerable *itching* sensation, which he felt all over his body. This was succeeded, in a short time, by

tumours, which finally burst, and multitudes of worms or maggots fell out in such quantities, that *twenty-three large* plates full were gathered up in the hospital of St. Louis, in Paris, to which he was conveyed. He was treated with mercury, and finally recovered, but lost his eyes, which were eaten or melted out of their sockets. Dr. Cloquet, who afterwards reported the case, states, that the worms were of that species called *asticats*, and supposes that the flies, feeding on the carcasses of the horses, had alighted on the body of the sleeping man, and puncturing and penetrating the cuticle in various places, had deposited their ova within, and in this nidus they matured into maggots.

If I have not already exhausted your patience by such details of the experience of others, I will add one or two more, which either came under my own observation, or in which I was *personally the sufferer*.

I had met in France an intelligent Brazilian, sent over by the late Emperor Dom Pedro, to receive a European medical education. He came to London with the same object, and I had an opportunity of showing him some attention. When I afterwards visited Brazil, he found me out at Rio, and returned my attentions with interest. Among other advantages of information, he admitted me as a visiter to the hospital of the Misericordia, which he superintended. In this immense establishment were 760 beds, always full, and containing patients labouring under all varieties of tropical diseases; and when any case of peculiar interest occurred, he apprised me of it, and I visited with him. The fecundity of insect nature in Brazil is so great, that every place and every thing appeared instinct with life. Decayed trees seemed never to die; but when their proper vegetation was extinct, they were covered with innumerable parasites, and perforated by millions of insect inhabitants. Animals afforded no less subsistence to the tribes of entozoa, and some of the patients in the

hospital seemed a compound of minute beings. From the mass I saw, I shall mention one or two cases. In tropical climates, the large blue fly is constantly buzzing about the sick, and when the patient sleeps or dozes with his mouth open, deposits its ova in that and other cavities. When I visited the hospital, I heard from my intelligent medical friend, a singular instance of this. A female, just recovered from a fever, complained of a violent headache, which increased daily, and at length terminated in her death. On a *post mortem* examination, it was found that maggots had generated in her brain; and the opinion was, that the blue fly, while she was ill, had deposited its larvæ in her nose, where they burrowed, and having made their way through the *os cribriforme*, had entered the substance of the brain, and so caused cephalalgia and death. I myself, shortly after, was witness to a circumstance of this kind. A negro slave was just recovering from a long illness, and had been discharged from the hospital of the Misericordia, when he complained of violent headache. He took, by the advice of a Brazilian practitioner, some cephalic snuff, in which *pulvis asari* was an ingredient. It produced violent sneezing, and one day, during a fit of sternutation, a quantity of small maggots were ejected from his nose, and through the roof of his mouth. They were about half an inch long, white, and terminated by a brown head, exactly resembling those generated in putrid flesh. They continued to fall for some days, but in diminished quantity, till at length they seemed exhausted. The headache ceased altogether, and I saw the man in perfect health. As he afforded no opportunity for a *post mortem* examination, the *seat* of the insects could not be ascertained; but it was generally supposed, though he was unconscious of it, that some *fly*, during his illness, had deposited its eggs in the nostrils, from whence the larvæ had made their way, by some unusual communication, into the *frontal sinus*, where the maggots finally made a settlement.

These morbid cases in the human subject recal to us the notion entertained by the ancients of worms bred in the head of every stag; it is thus recorded:—*Vermes cervi omnes continent in capite vivos, qui nasci solent sub lingua, in concavo circiter vertebram, qua cervici innectitur caput, magnitudine haud minores iis quos maximos carnes putres edunt.*—“All stags contain in the head living worms, which are generated under the tongue, in a cavity under the vertebræ, where the head is united to the neck, in size not less than the largest of those generated in putrid flesh.”* I am not sufficiently acquainted with comparative anatomy to say whether this be a fiction or reality; but farmers affirm that similar worms are still found in the heads of cattle.

Another insect which came under my notice in this hospital, was one which establishes itself in the muscular part of the body, generally in the leg. It is called *Dracunculus* or the *Guinea worm*, because it is supposed to have been brought by negroes from the coast of Africa. It is known to be occasioned by drinking, or bathing in the waters of stagnant pools or wells, where the animalcules or embryo worms were deposited. An indolent tumour is formed, which, in time, becomes painful. It swells into a point, which at length breaks, and a slender, hard substance is protruded from the aperture, which is found to be the head of a worm. When this appears, it is seized by some operator, who twists it round a quill or roll of cotton, and carefully strains it, till by some vermicular motion it elongates, and yields to the force. In this way, by twisting the quill or substance on which it is rolled, a portion of it is every day drawn out, till the whole animal is gradually extracted. On being unrolled, it is found to be a slender, white worm, of a very tenacious texture, nearly resembling the *small string* of a violin, about two feet long, surmounted

* *Math. Com. in Dioscorid. Fol. 288.*

by a black point, which seems to be its head. Native operators extract it with more success than regular surgeons. They ascertain, by feeling with the finger on the surface of the limb, the direction in which the worm is coiled; then making an incision over the middle, and forming a duplication of it into a loop, they draw it forward, and both ends come forth at the same time. The disease immediately ceases when the cause is thus extracted; but should it break in the operation, the part that remains behind causes painful ulcers, and even mortification.

A third insect which I saw in Brazil, establishes itself in the lowest extremity, and is always found in the *foot*. This is known in the West Indies under the name of *chigre*, and in Brazil is called *beesh*, a corruption of *bichu*, the Portuguese name for any insect. A small tumour is first perceived in the foot, generally in the heel, or under the toes, accompanied by a slight itching. When this is felt, the tumour is opened by some practitioner, and a small sack is found within, which is carefully extracted, and the cure is effected. Should it, however, be neglected, or break in the operation, a considerable inflammation ensues, which terminates in suppuration, and generates a foul phagedenic ulcer, eating into the adjoining parts, showing great indisposition to heal, and sometimes bringing on incurable lameness. This disorder is universal among the negroes, who walk through dust and sand with their naked feet. Nor do boots and shoes afford a protection to the better classes. Scarcely any of my acquaintance escaped. About this time a body of Irish, to the number of 2800, had emigrated to Brazil, under the conduct of Colonel Cotter. Some causes of dispute occurred with the government, and much dissatisfaction ensued. The intended colony was broken up, and the greater part of them sent back to Ireland. I saw many of those that remained behind lying by the wayside, who were affected with ulcerated feet by the

beesh, as they informed me, and I was told that many brought the disease home with them, and suffered under incurable lameness till their death.

Though I escaped such serious consequences, I myself was violently attacked with the malady. In travelling up the country with an Indian guide, I felt one morning an intolerable itching in one of my heels. My guide seeing me uneasy, and applying my hand frequently to the part, pronounced the word *beesh*, and cautioned me that I should *not* rub it. When we arrived at the next Rancho, he undertook to remove the cause, and knowing the sagacity of the man in other respects, I submitted entirely to his process. He brought me under a banana tree, and laid me on my face on the ground. Then drawing off my boot and stocking, he proceeded to operate on the affected place. He drew out a blunt faca or knife, which he carried always for the purpose, and carefully laid open different parts of my heel, extracted small portions of flesh about the size and colour of a pea, then laughed and bade me look. I turned round my head, and observed my heel excavated into various cells, and exactly resembling a *honeycomb*. I was really alarmed at the extensive injury, and thought the operator had lamed me more effectually than the *beesh*; but I was mistaken. He had prepared a leaf of *toasted tobacco*, which he now rubbed between his hands into snuff, and filling up the cavities with it, he tore a slip of banana leaf from the tree which overshadowed us, laid it on my heel, and bound over all a shred of cotton, which he separated from his shirt. A slight inflammation ensued, and when it subsided in about a week, he removed the bandage, and my heel was perfectly healed, though I had used violent exercise in travelling, and never rested for a day during the whole time.

As this affection is known to be produced by an insect, I was curious to examine the interior of the substances he extracted, to see what they contained.

To the naked eye they presented no appearance but that of unorganized lumps of sebacious flesh; but on placing one under the lens of a microscope of strong magnifying power, which I carried with me for such purposes, it exhibited a very beautiful appearance. It was a complete *sac*, forming a perfect nidus of a circular shape, and filled with a number of exquisite polished *eggs*, resembling *seed pearls*, and arranged in the neatest order. I carefully watched for the exclusion of some insect, but could discover no trace of animation, though I kept them several days. Removed from the genial warmth in which the instinct of the parent had placed them, I suppose they had all perished prematurely, and the nidus finally dried up or dissolved in putridity. The parent insect is exceedingly minute, and scarcely perceptible to the naked eye. It is considered a species of *flea*, and called by some entomologists *pulex minimus*. When the eggs are suffered to mature, or when the nidus is broken in extracting it, the insects are lodged in the integuments of the muscles, and the irritation they cause produces those inflammations which have such painful and distressing consequences.

The last case I shall venture to obtrude upon your notice, occurred to me in Ireland, while I superintended the Finglas Dispensary. I had been reading a French work, now, I believe, very scarce, called "Les Aventures de St. Pierre Viaud," in which it was stated that a young man, one of his party, was left behind in the woods, and when they returned to search for him, he was found exhausted by famine, but yet alive, though his lower extremities were mortified and filled with worms. His supporting life in this state was considered so extraordinary, that it was found necessary to attest its veracity by annexing to the narrative affidavits of the fact by eye-witnesses. While my mind was full of this extraordinary circumstance, it was notified to me, one evening in July, that a man was dying by the road-side, and I

went to see him. I observed a person in a large grey coat lying on his face on the ground, in a hollow beside a limekiln. At first I supposed he was asleep or intoxicated, but after some time, perceiving he did not stir, I was induced to examine him more closely, when I found him apparently dead. On turning him on his back to ascertain who he might be, a sight the most awful and horrid presented itself. The person was not dead; but on opening his coat, the whole surface of his body seemed a moving mass of worms, and his flesh, though thus teeming with animal life, was totally divested of animal heat; it was as cold as monumental marble, and to the touch caused a powerful sensation of chill and shuddering. His face was much injured, apparently from some bruises, inflicted either by blows or a fall; and from every aperture of his head, his ears, mouth, and nose, poured innumerable worms, as if the interior of the skull was entirely filled with them. His eyes were dissolved, and their cavities were occupied by a white moving mass, more terrible and disgusting than it would be possible to conceive, without ocular inspection; and while the living spectre stood before me, rolling about those sightless orbs, in mockery of eyes, I felt as if I could say to him—

“Thy bones are marrowless, thy blood is cold,
Nor is there speculation in those eyes,
Which thou dost glare withal.”*

After some time, the miserable being recovered sufficient strength to walk, and was so far restored to his voice and recollection, that he answered several questions. He told me *who* he was, and *where* he lived; that he was returning home the evening before on a car, and having drunk too much, he fell off and lay stunned with the fall till he was discovered. He could not account for the wounds in his head,

* Shakespeare.

nor for his lying off the road; but it is probable that he had received the contusions on his face from the fall, that the car had gone over him, and he had insensibly crawled to the place where he lay. The humidity of the ground, and the heat of the weather, had rapidly brought on a solution of the solids, in those bruised parts already predisposed to putrescency, and in the contact with the moist earth. In this were speedily deposited the ova of innumerable insects, whose generation was as rapid as these disposing causes were favourable; and thus, while the vital powers rallied at the centre, and the blood, circulating round the heart, preserved the principle of life within, the extremities, in which all circulation had ceased, were fast dissolving into their primitive elements.

I had the poor man brought into an out-house, and laid on some hay. The loathsome objects were removed as far as could be done. He was washed with spirits, vinegar, and turpentine, and cordials were poured down his throat, which he swallowed with some difficulty; and he so far recovered, that he recollected and took an interest in several trifling things—called for his coat, and felt for some half-pence which he knew were in the pocket, and seemed roused from that state of stupor in which he was found. But these appearances were fallacious. The putrescency rapidly increased—in a short time spasms in his throat prevented him from swallowing—he gradually became again insensible—and at twelve o'clock the next day he expired, in a state of total putrisolution, having sustained life in that dreadful condition for eighteen hours from the time he was first discovered, for the greater part of it in the full possession of his senses and faculties—though the whole surface of his body exhibited a mass of animated corruption.

I am conscious that to some these details may appear more revolting than curious or instructive; yet

for me they possess an interest beyond mere medical or physical facts. They obtrude upon my mind with a force that I cannot evade or turn aside that salutary warning of the Scriptures—"I have said to corruption, thou art my father, and to the worm, thou art my brother and my sister."* This destiny of man's mere mortal part is the most humiliating to human pride; and no doubt God intended that it should be so. The loathsome mass into which our body dissolves—the fearful beings it engenders—the hateful objects to which it finally gives life—are all

"Taming thoughts to human pride."†

We are taught that our perishable flesh, our mere carnal part, the great cause of sin, and the antagonist of purity and spirit, is not identical with ourselves, but is a temporary combination of those materials which had before, and which will hereafter, become the vilest bodies; and when the slender and mysterious thread of life no longer holds its particles together, the muscular arm, the ruddy cheek, and the sparkling eye, are destined to be the repast on which—

"The high-fed worm, in lazy volumes rolled,
Riots unscared;"‡

and thus man's carnal pride, and woman's carnal beauty, become component parts of those crawling things we now loathe and trample on.

Nor is this process delayed till we have no longer sense to know and to feel it. However striking the remark of an eminent preacher, "that the body is a house of clay that falls to pieces at the entrance of the smallest worm," it is not true. The worm is our FELLOW LODGER. We have all read, and shuddered while we read, the terrible supposition of the poet—

* Job, xvii. 16.

† Scott.

‡ Young.

“ It is as if the dead should feel
 The icy worm around him steal,
 And shudder while the reptiles creep
 To riot on their rotting sleep,
 Without the power to scare away
 The cold consumers of their clay.”*

Yet this fearful image of a poetic imagination is no fiction. What he has fancied of the dead is every day realised in the living subject. The animated, sentient human body is the abode of a thousand beings equally endued with life, and having as much right to occupy it as ourselves. They are tenants—joint tenants with us in those mud walls as long as our lease of life lasts, and when that expires, the poor tenement is then let out to other lodgers.

Yet we have the consolation to know that this miserable conformation will not endure — “ Though after our skin worms destroy *this* body, yet in our flesh shall we see God ;” † though, after this life, we shall be summoned from the several places of our mortal rest, and the material elements shall be reunited to the immaterial spirit, that every one of us may stand in his proper person before the awful tribunal of God to give an account of the deeds done in the flesh, yet, different, indeed, will be “ the body in which we shall then come.” When this mortal shall thus put on immortality, “ this corruption,” we are assured, “ will also put on incorruption” ‡ — “ Our present vile bodies shall then be changed into the likeness of God’s glorious body, according to the mighty working whereby He is able to subdue all things to Himself.” §

* Byron.

‡ Job, xv. 53.

† Job, xix. 26.

§ 1 Cor., xv. 54.

THE END.

POSTSCRIPT.

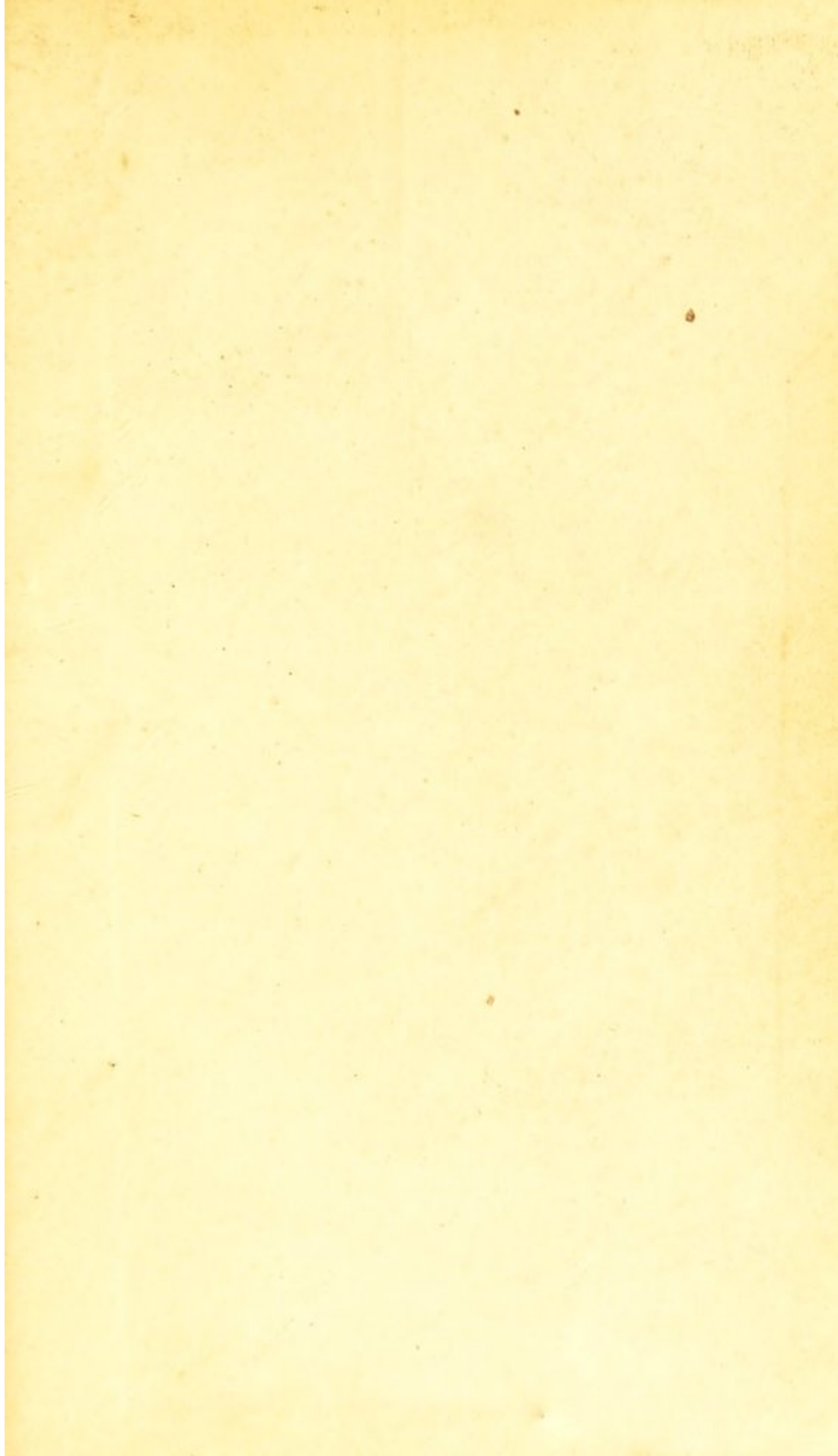
(Intended for insertion at page 16.)

WHILE I resided at Constantinople, I was witness to another species of *entozoa* more curious, and, with respect to its supposed function, far more extraordinary than any I have mentioned. The Turks enumerate *five species* of bubos, or glandular swellings, which appear in cases of plague, and denominate them by different names, indicative of their shape, size, &c. One of them is the Ampelocleri, which is so called from its knotty and contorted appearance, resembling “the branch of a vine,” as its name imports.* It is considered by the *hakims*, or native physicians, a favourable symptom, and they comfort their patients by repeating the words, *eia, eia*, “good, good,” whenever they ascertain its existence. When other pestilential tumors give indications of safety, they dissolve either by resolution or suppuration; but the ampelocleri disappears by a process as dissimilar as it is curious. After some days, a *vermicular* motion is felt under the skin of the bubo by the patient, which increases daily, till the tumor exhibits, perceptibly to the eye, the phenomenon of an animated substance. In a short time the skin spontaneously breaks, and there are seen issuing from various apertures active insects—

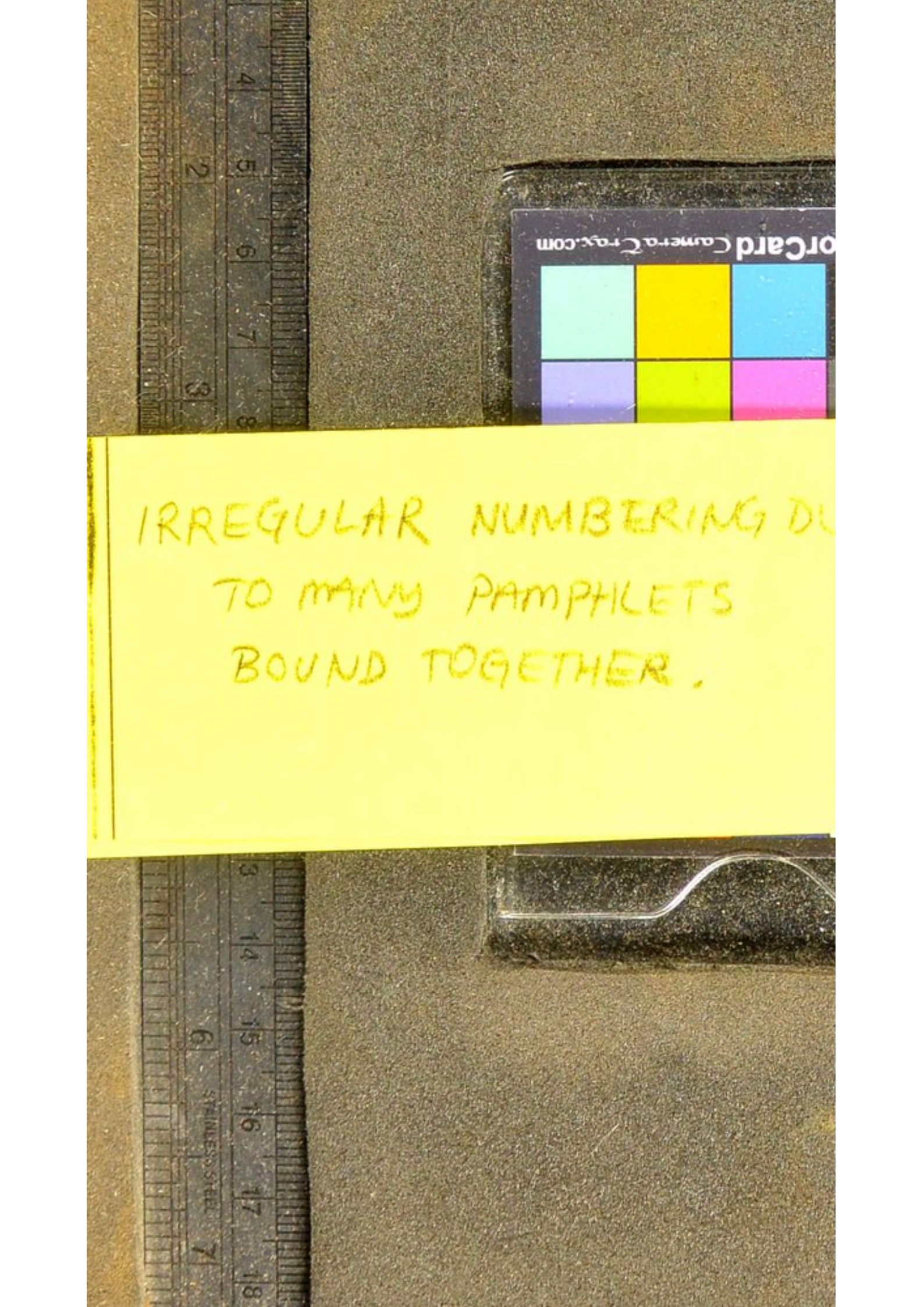
* Ἀμπιλοῦ κλάδος.

which had generated in the substance of the tumor, and burrowed in it, like emmets in an ant-hill. The body of the tumor is pierced with innumerable perforations, and, in texture and formation, exactly resembles a sponge: it becomes the food of the insects. The minute beings having performed the duty intended by nature, and consumed the morbid substance, by the singular and salutary process of devouring it, the remnant of it is absorbed, and disappears; and thus is discharged the pestilential matter through the agency of those singular insects, who become benefactors and preservers of those persons who have the good fortune to have them as "fellow-lodgers." The cure is complete, and the insects, having performed their part, are themselves destroyed by an unguent of dried parsley, made up with spirits of wine. The whole process is one of the most curious, perhaps, to be found in the economy of nature.*

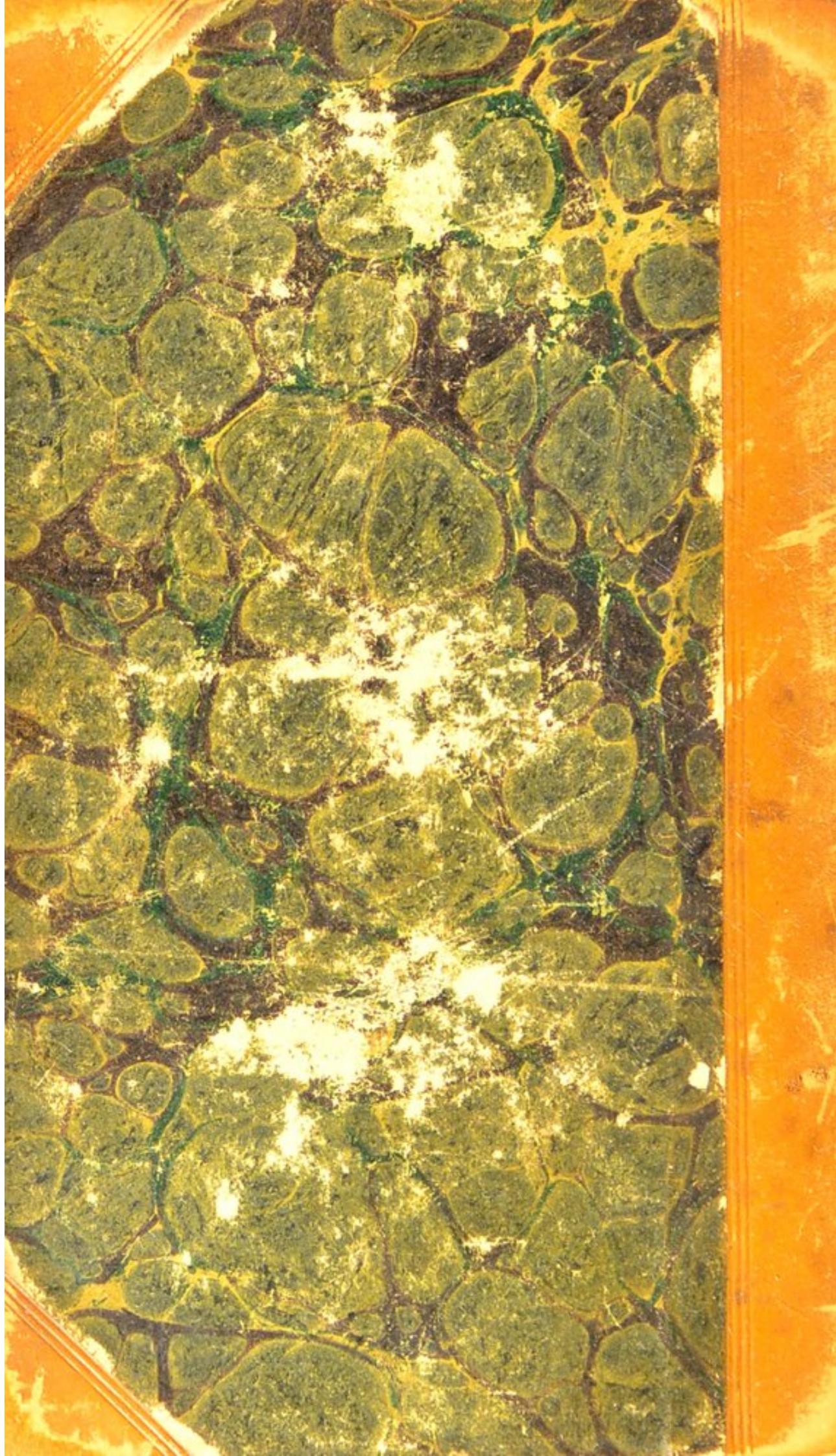
* The Fra Luigi di Pavia, who examined the symptoms of the plague for thirty-five years, thus speaks of the Ampeloclati:—
"Est d'une bonne forme et donne l'assurance de la vie du malade. Il continue pendant plusieurs jours et produit un grand nombre de vers qui devorent toute la chair dont il se compose—et qui lui donne l'apparence d'une eponge mal preparee."







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TO MANY PAMPHLETS
BOUND TOGETHER.



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