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PART I.

CONSIDERATIONS ON THE NATURAL HISTORY OF ANIMALS, THEIR CHARACTERS, AFFINITIES, ORGANISATION, CLASSIFICATION AND SPECIES.

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The actions of animals only take place by means of movements that are stimulated, and not transmitted from without. Irritability is a faculty which they all possess, and is not found except in animals: it is the source of their actions. It is not true that all animals possess feeling, nor the faculty of carrying out acts of will.

V. ON THE TRUE ARRANGEMENT AND CLASSIFICATION OF ANIMALS - - - 56

That animals may be arranged, as regards their larger groups, in a series which exhibits a gradually increasing complexity of organisation; that the knowledge of the affinities between the various animals is our only guide in determining this series, and that the use of this method dispenses with arbitrary judgments; lastly, that the number of the lines of demarcation, by which classes are established, has to be increased in correspondence with our knowledge of the different systems of organisation, so that the series now presents fourteen distinct classes, of great service in the study of animals.

VI. DEGRADATION AND SIMPLIFICATION OF ORGANISATION, FROM ONE EXTREMITY TO THE OTHER OF THE ANIMAL CHAIN, PROCEEDING FROM THE MOST COMPLEX TO THE SIMPLEST - - - 68

That it is a positive fact that on following the animal chain in the usual direction from the most perfect to the most imperfect animals, we observe an increasing degradation and simplification of organisation; that, consequently on traversing the animal scale in the opposite direction, that is to say, in the same order as Nature's, we shall find an increasing complexity in the organisation of animals, a complexity which would advance with evenness and regularity, if the environmental conditions, mode of life, etc., did not occasion many anomalies in it.

VII. OF THE INFLUENCE OF THE ENVIRONMENT ON THE ACTIVITIES AND HABITS OF ANIMALS, AND THE INFLUENCE OF THE ACTIVITIES AND HABITS OF THESE LIVING BODIES IN MODIFYING THEIR ORGANISATION AND STRUCTURE - - - 106

How the environment acts upon the organisation, general form and structure of animals; how changes subsequently occurring in their environment, mode of life, etc., involve corresponding changes in the activities of animals; lastly, how a change in the activities, which has become permanent, involves on the one hand more frequent use of certain parts of the animal, thus developing and enlarging them proportionally; while, on the other hand, this same change diminishes and sometimes abolishes

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(See the *Additions* at the end of Part I.)

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That the natural order of animals constitutes a series, which we should traverse from the most imperfect animals to the most perfect, in order to be in harmony with the order of Nature; for Nature did not bring them all into existence at the same moment. Since she had to form them in turn, she was obliged to begin with the simplest, and only produced at the end those with the most complex organisation. That the classification presented herewith is unquestionably the one that approaches most nearly to the order of Nature; so that if there are any corrections to be made in it, it can only be in matters of detail; I believe, for instance, that the Naked Polyps should form the third order of the class, and the Floating Polyps the fourth.

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Some general considerations on nature, and her power to create life and organisation, and subsequently to increase the complexity of the latter. In all these operations, she works only by the action of various moving fluids on supple bodies, which are modified, organised, and animated by these fluids.

I. COMPARISON OF INORGANIC BODIES WITH LIVING BODIES, FOLLOWED BY A PARALLEL BETWEEN ANIMALS AND PLANTS - - - - -	191
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that they are controlled by laws peculiar to themselves ; but, on the contrary, that it is true that the laws, which regulate the changes occurring in bodies, meet with very different conditions in living bodies from those that they find in lifeless bodies, and hence work upon the former results very different from those worked upon the latter.

That living bodies have the faculty of building up their own substance for themselves and thus forming combinations which would never have come into existence without them ; hence their remains furnish the material which serves for the formation of the various minerals.

VIII. OF THE FACULTIES COMMON TO ALL LIVING BODIES - 259

That life endows all bodies which possess it with certain faculties in common, and that the production of these faculties requires no special organ whatever, but only such a state of things in the parts of these bodies as may enable life to exist in them.

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AN ENQUIRY INTO THE PHYSICAL CAUSES OF FEELING, INTO THE FORCE WHICH PRODUCES ACTIONS, AND LASTLY INTO THE ORIGIN OF THE ACTS OF INTELLIGENCE OBSERVED IN VARIOUS ANIMALS.

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this system confers on some animals only the faculty of muscular movement, on others this faculty together with that of feeling, and on others again these two faculties together with that of forming ideas, and of carrying out by this means various acts of intelligence.

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III. OF PHYSICAL SENSIBILITY AND THE MECHANISM OF SENSATIONS - - - - - 321

That it is not true that any matter, or any part of a living body, can have in itself the faculty of feeling; but that it is true that feeling is a phenomenon resulting from the functions of a special system of organs capable of giving rise to it.

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That since muscular action is a power fully adequate for the production of the movements performed by animals, and since nervous influence is able to excite that muscular action, such animals as have physical feeling possess in their inner feeling a power quite capable of driving to the muscles the fluid which excites their movements; and it is in fact by its emotions that this feeling obtains the force to work the muscles.

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That, since the will always results from a judgment, and since a judgment necessarily arises from a comparison of ideas, a thought, or some impression that causes it, every act of will is an act of intelligence, and that consequently only animals with a special organ for intelligence can carry out acts of will.

That, since the will always depends on a judgment, not only is it never really free, but, since judgments are liable to numerous causes of error, the will resulting from them is less reliable than instinct in the inner feeling driven by some need.

VII. OF THE UNDERSTANDING, ITS ORIGIN, AND THE ORIGIN OF IDEAS - - - - -	362
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That all acts of the understanding require a special system of organs for their execution; that acquired ideas are the material of all operations of the understanding; that although every idea is originally a sensation, every sensation need not become an idea, since a special organ is necessary for its formation, and the sensation, moreover, has to be noticed; finally, that, in all acts of intelligence, the nervous fluid is the only active factor, in that it moves in the organ concerned, while the organ itself remains passive, simply providing for the diversity of the operations by the diversity of its parts.

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