

GEOLOGY AND INHABITANTS

OF THE

ANCIENT WORLD.

DESCRIBED BY

RICHARD OWEN, F.R.S.



THE ANIMALS CONSTRUCTED BY B. W. HAWKINS, F.G.S.



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INTRODUCTION.

BEFORE entering upon a description of the restorations of the Extinct Animals, placed on the Geological Islands in the great Lake, a brief account may be premised of the principles and procedures adopted in carrying out this attempt to present a view of part of the animal creation of former periods in the earth's history.

Those extinct animals were first selected of which the entire, or nearly entire, skeleton had been exhumed in a fossil state. To accurate drawings of these skeletons an outline of the form of the entire animal was added, according to the proportions and relations of the skin and adjacent soft parts to the superficial parts of the skeleton, as yielded by those parts in the nearest allied living

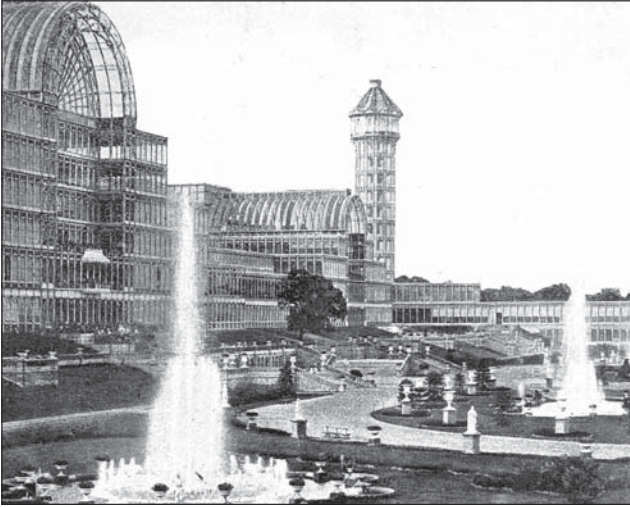
animals. From such an outline of the exterior, Mr. Waterhouse Hawkins prepared at once a miniature model form in clay.

This model was rigorously tested in regard to all its proportions with those exhibited by the bones and joints of the skeleton of the fossil animal, and the required alterations and modifications were successively made, after repeated examinations and comparisons, until the result proved satisfactory.

The next step was to make a copy in clay of the proof model, of the natural size of the extinct animal: the largest known fossil bone, or part, of such animal being taken as the standard according to which the proportions of the rest of the body were calculated agreeably with those of the best preserved and most perfect skeleton. The model of the full size of the extinct animal having been thus prepared, and corrected by renewed comparisons with the original fossil remains, a mould of it was prepared, and a cast taken from this mould, in the material of which the restorations, now exposed to view, are composed.

There are some very rare and remarkable extinct animals of which only the fossil skull and a few detached bones of the skeleton have been discovered: in most of these the restoration has been limited to the head, as, for example, in the case of the *Mosasaurus*; and only in two instances—those, viz., of the *Labyrinthodon* and *Dicynodon*—has Mr. Hawkins taken upon himself the responsibility of adding the trunk to the known characters of the head, such addition having been made to illustrate the general affinities and nature of the fossil, and the kind of limbs required to produce the impressions of the footprints, where these have been detected and preserved in the petrified sands of the ancient sea-shores trodden by these strange forms of the Reptilian class.

With regard to the hair, the scales, the scutes, and other modifications of the skin, in some instances the analogy of the nearest allied living forms of animals has been the only guide; in a few instances, as in that of the *Ichthyosaurus*, portions of the petrified integument have been fortunately preserved, and have guided the artist most satisfactorily in the restoration of the skin and soft parts of the fins; in the case of other reptiles, the bony plates, spines, and scutes have been discovered in a fossil state, and have



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