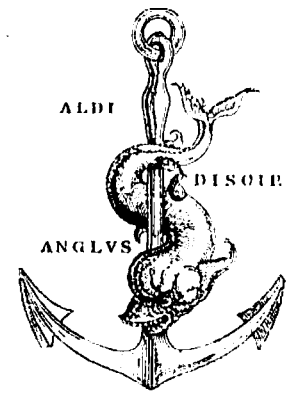


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ON THE
POWER WISDOM AND GOODNESS OF GOD
AS MANIFESTED IN THE CREATION
OF ANIMALS AND IN THEIR HISTORY HABITS
AND INSTINCTS

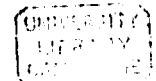
BY THE
REV. WILLIAM KIRBY, M.A. F.R.S. ETC.
RECTOR OF BARIHAM.

VOL I



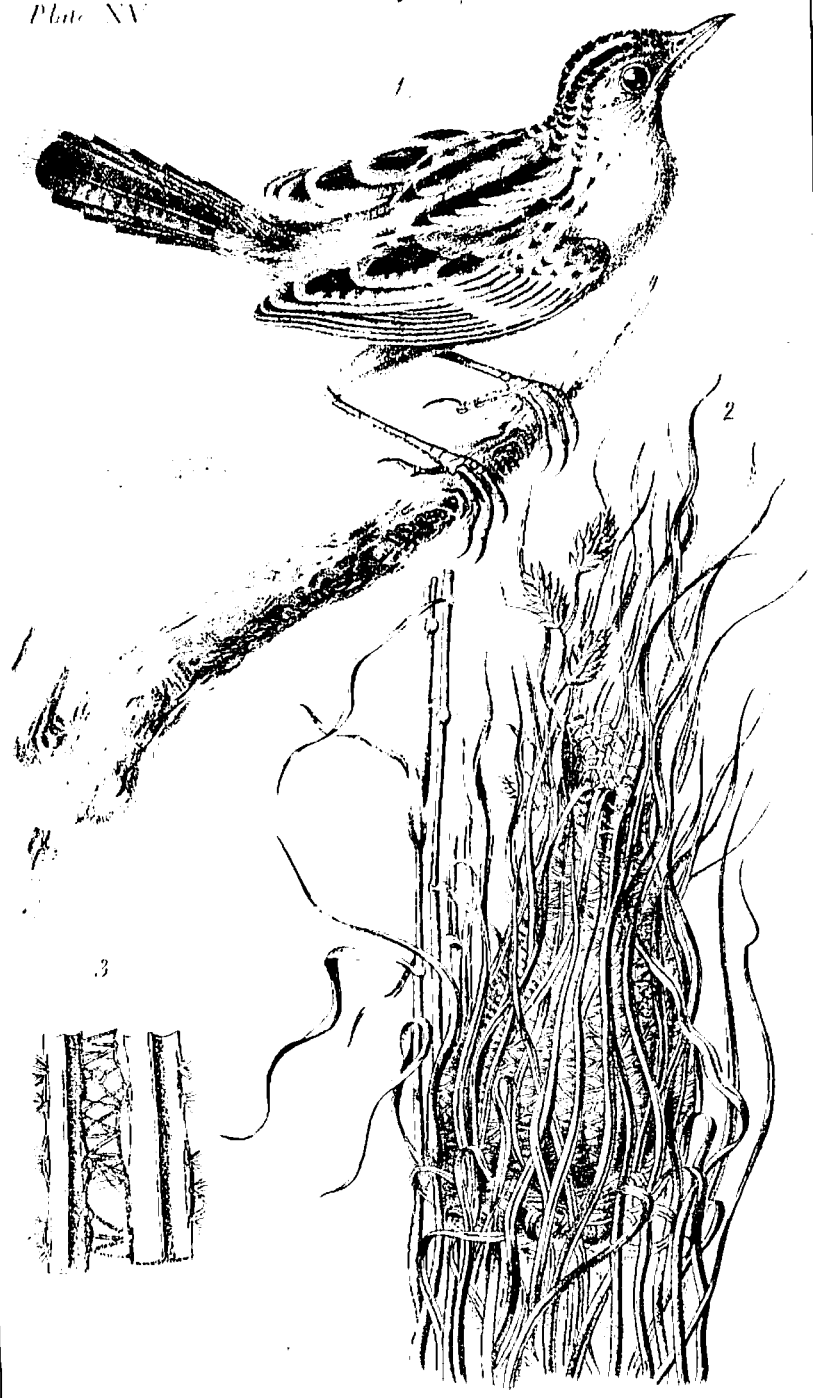
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406 pp.

Plate XV



admitting this—it would enable us to answer in the affirmative to the query above stated—namely, that there were species of animals originally created which have since ceased to exist. Being no longer necessary to bear a part in carrying on the general plan of Divine Providence with regard to our globe, they were permitted or caused to perish.

One circumstance, which I have not seen adverted to, seems to confirm this hypothesis: that so few fossil remains, if any, of tropical birds have hitherto been discovered in cold countries, while such numbers of the quadrupeds of warm climates, both viviparous and oviparous, are met with every day in a fossil state. Now the birds could readily shift their quarters southward, when the temperature grew too cold for them, while the quadrupeds might be stopped by seas, rivers, and other obstacles.

Another question may be asked with respect to the subject I am discussing; might not the animals now become superfluous have been excluded from the ark at the time of the general deluge, and so left to perish? This would furnish a very easy solution of the difficulty, but the text of Scripture seems too precise and express to allow of such a supposition. For the command to Noah is—“*Of every living thing of all flesh, two of every sort shall thou bring into the ark.*” But yet the terms here employed must be limited

to those animals that required such shelter to preserve them from destruction by the diluvial waters; so that the expression—“*of all flesh*”—necessarily admits of some exceptions.

But there are doubtless very many animals still existing upon the earth and in its waters, that have not yet been discovered. When we consider the vast tracks of terra incognita still shut out from us in the heart of Africa, that fatal country hitherto as it were hermetically sealed to our researches, and from whose bourn so few travellers return; how little we know of Central Asia, of China, and of some parts of North America; we may well believe that our catalogues of animals are still very short of their real numbers, even with respect to those of the largest dimensions. Burchell and Campbell appear to have met with more than one new species of rhinoceros in their journey from the Cape of Good Hope into the interior;† the same country may conceal others of the same gigantic or other tribes, which, when it is more fully explored, may hereafter be brought to light.

Again, with regard to the productions of the various seas and oceans that occupy so large a portion of our globe, we know comparatively few, especially of its molluscous inhabitants. What are cast up on the shores of the various

† See Appendix, note 8.

cavities of the skull—'those holes where eyes did once inhabit,' were often stopped up by shells or pieces of coral forcibly crammed into them." The bones of the *Mastodon* were found by Humboldt at an elevation of more than 7,000 feet above the sea, and in central Asia those of horses and deer have been met with at an elevation of 16,000.¹

NOTE 8, p. 19.—*Burchel and Campbell appear to have met with more than one new species of rhinoceros in their journey from the Cape of Good Hope into the interior.* Burchel describes one under the name of *Rhinoceros sinus*.² Campbell's had a straight horn projecting three feet from the forehead, different from any he had seen, and its horn resembled that of the supposed unicorn.³ There is in the Norwich Museum a horn flattened at the summit, nearly straight, and three feet long, which also seems to belong to another species.

NOTE 9, p. 23.—*The word of God, in many places, speaks of an abyss of waters under the earth. Scientific men in the present day seem to question this.* The passages in Holy Writ, besides those quoted in the text, that appear evidently to affirm that an abyss exists in the earth, are chiefly the following.

In the book of Genesis, in the blessings pronounced, both by Jacob and Moses,⁴ previous to their death, upon the tribes of Israel, in that relating to Joseph, amongst others are mentioned—*The blessings of the deep that lieth under*, or as the same words are more literally translated

¹ *Quarterly Review*, No. LVII. p. 155.

² *Travels*, ii. 75. *Bulletin des Sc.* Juin 1817. 96.

³ *Travels*, 295.

⁴ *Comp. Genes.* xlix. 25 with *Deut.* xxxiii. 13.

in Moses' blessing—*The deep that coucheth beneath*.¹ The expression in these passages evidently alludes to an abyss under the crust of the earth, from which blessings may be derived; and which is emphatically described as *couching* beneath, as if the mighty waters it contained were lying in repose like a beast at rest, and chewing the cud, in contrast with the incessantly fluctuating and stormy ocean.

When the children of Israel murmured for water in Rephidim, Moses at the Divine command smote the rock in Horeb, and water flowed out of it in a copious stream, which there is reason to believe followed them in all their wanderings through the wilderness. If we consider the nature of that *dry and thirsty land where no water is*, it is evident that this perennial stream could not be derived from the clouds that hovered round the summits of Mount Sinai, the rocks of that district were washed by no rivers derived from above, and seem not calculated for percolation. But what was the case—the stroke of the wonder-working rod of the Lawgiver of Israel produced a fissure in the rock, which opened a channel through which the waters, before in repose in the great deep, rushed forth in a mighty stream; and therefore the Psalmist says—*He clave the rocks in the wilderness, and he gave them drink, as out of the great abysses.* Alluding evidently to a source of *sweet* waters below.

The prophet Jonah, in the prayer he uttered when incarcerated in the fish's belly, has these words—*I went down to the bottoms of the mountains; the earth with her bars was about me for ever*.² A parallel expression is used in Moses' song—*A fire shall burn to the lowest hell—it shall set on fire the foundations of the mountains*.³

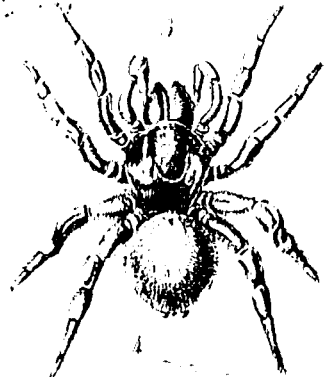
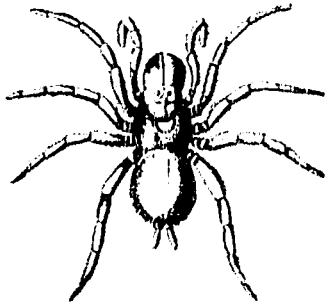
¹ Heb. רבצת תחת

² *Jonah*, ii. 6.

³ See 1 *Cor.* x. 4.

⁴ *Deut.* xxxii. 22.

Plate XI. B.



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VOL. II



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Soliped,¹ or whole-hoofed. He originally regarded the Solipeds as forming a separate Order, and, indeed, comparing them with the other Pachyderms, as the elephant, rhinoceros, hippopotamus, hog, &c., the horse genus seems scarcely to belong to the same Order. Illiger, who altered the name, but without sufficient reason, to *Solidungula*, considers them as distinct.

Though the speed of the deer, except in a single instance, on account of their usually slight form and slender limbs, has not been applied by man to his purposes, and to add to the velocity of his progress, yet in the soliped race, especially in that noble quadruped the *horse*, we have an animal endowed with equal speed and greater strength, and by their undivided hoof, where speed as well as strength is required, calculated, with much more advantage and less injury, to traverse—both as beasts of burthen and draft, and as adapted peculiarly for the conveyance of man himself—not only soft and verdant prairies, but hard and rocky roads. Hence this animal has been employed by man from a very early period of society. We do not indeed know whether the mighty hunter, Nimrod, went to the chase of man and beast on horseback, though it is not improbable; but both

¹ Gr. Μορξ. Aristot.

the horse and the ass were common in Egypt in Joseph's time,¹ the latter was used by Abraham to ride upon,² and asses are enumerated amongst his possessions when he went up from Egypt fifty years before.³

The sole organs of prehension of this tribe are their mouth and upper lip. Every one knows how adroit the horse and ass often become in the use of these organs, not only in gathering their food, but in opening gates that confine them to their pastures.

In the genuine Pachyderms the foot begins to show marks of division. In the rhinoceros there are three toes, in the hippopotamus four, and in the Proboscidiæ of Cuvier, including the elephant and *Mastodon*, or fossil elephant, there are five toes, three of the nails of which only appear externally, and four on the hind-foot of the Asiatic species.⁴

The *Swine* family divide the hoof like the Ruminants; it consists of two intermediate toes, large, and armed with nails or hoofs, and two lateral ones much shorter and not touching the ground; in this respect also resembling many Ruminants. In hilly and mountainous districts these upper toes are probably useful in locomotion.

The prehensory organ of the animals here

¹ Genes. xvii. 17. ² xxii. 3. ³ xii. 16. ⁴ *E. indicus*.

the north of Europe, and specimens of its powerful jaws and tusks may be seen in the British Museum. From its lower jaw two powerful tusks rise as in the Hippopotamus, to which Mr. Owen regards it as approaching very near, and as forming the link that unites the Cetaceans to the Pachyderms. The herbivorous Cetaceans, in common with the generality of the Pachyderms, are likewise armed with tusks; so that the interval that separates the Hippopotamus and Deinotherium from the Dugong is not very wide.

The grand function of the, for the most part, mighty animals which constitute the tribe I am speaking of, seems to be that of inhabiting and finding their subsistence, in the tropical forests of the old world; both Africa and Asia have each their own rhinoceros, and elephant, which, by their giant bulk, and irresistible strength, can make their way through the thickest forests or jungles. Even the swine, from the thickness of its skin, suffers nothing from pushing through bushes and underwood in search of acorns; and most of these animals, by means of their tusks, muzzle, or horns, can dig up the roots that form their food. The hippopotamus seeks his provender in the African rivers, and by means of the tusks with which the under-jaw is armed,—in this differing from the dugong, in which the tusks are in the upper jaw,—is enabled to root

up plants growing under the water. The tapir acts the same part nearly in the New World that the hippopotamus does in the old.

By the efforts of the Pachyderms, in general, in pursuit of their own means of subsistence, a way is often made for man more readily to traverse and turn to his purpose forests and woody districts, that would otherwise mock his efforts to penetrate into them. When we consider the vast bulk and armour of the rhinoceros, for instance, and the violence with which he endeavours to remove obstacles out of his path, we may in some degree calculate the momentum by which he is enabled to win his resistless way through the thickest and most entangled underwood.

I need not enlarge on the *second* Sub-order of the Pachyderms, the Solipeds, the well-known equine and asinine tribes; every one must be struck by the contrast that their structure and characters exhibit to those of the *first* Sub-order, or typical ones. A fiery and intelligent eye; a *neck clothed with thunder*, to use the words of inspiration; a graceful form; speed that often outstrips the wind; are the distinctive characters which the highest tribe of them exhibits; while the other, though less beautiful, still has the organs of sight and hearing singularly conspicuous; a long tail; and its integument clothed with a shaggy coarse fur: besides these charac-