

M E M O I R S

O F

S C I E N C E AND THE A R T S.

VOL. I. PART II.

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VII. *Observations of the Places of Herschel, made at Edinburgh, with an Equatoreal Instrument. By JOHN ROBISON, A. M. &c.*

	M. T. Edin.	Ap. Long.	Er. Th.	Ap. L. N.	Comp.
	d. h. ' "	s. o ' "	"	' "	
1787. Jan.	12..06..39..24	3..23..35..17	+8	32..20	4
	15..06..05..11	3..23..27..44	-7	32..20	3
	17..06..13..16	3..23..22..17	+5	32..19	2
	18..06..05..33	3..23..19..42	+2	32..21	2
	20..06..23..04	3..23..14..24	+7	32..17	4

HENCE it may be deduced, that the planet was in opposition January 13^d..04^b..56["] M. T. Greenwich, in longitude 3^d..23^o..32[']..24["] from the mean equinox, and 30[']..38["] N. L. Hel.

The error of the theory is nearly +5" lon. and -18" lat. If the error was owing to the substitution of Bradley's rhombus instead of the micrometer used before, it will be diminished nearly 2".

The telescope has an achromatic object glass, 44 inches focal distance, magnifying power 19½, distinct field 92'. The planet was always compared with at least two stars in the field, and when the position of the horary wire was very oblique to the horizon, and the altitudes small, a correction was made for the difference in refraction.

Both ends of the polar axis were firmly supported in a stone wall, the telescope turning round on a pin within two inches of the upper pivot of the axis, and close by the object glass. The other end of the telescope was supported (at the place of the wires) by a stiff rod turning round a pin within two inches of the lower end of the polar axis; thus the telescope, axis and rod formed a triangle. Another stiff rod was fastened to the telescope at the place of the wires, with a double joint, its other end passing through a socket fixed by the window, where it was held fast by a screw-pin. The rod was in a plane, nearly parallel to the equator. By means of this instrument, which, exclusive of the telescope, did not cost above three pounds, the image of the star was kept perfectly steady, even in very boisterous winds.

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VIII. *Answer*

II. *Description of the double-horned Rhinoceros of Sumatra.* By Mr. WILLIAM BELL, Surgeon.

THE animal here described, was shot about ten miles from Fort Marlborough. The writer drew up the following description the next day, when it was not at all putrid.

"It was a male, the height at the shoulder was four feet four inches; at the sacrum nearly the same; from the tip of the nose to the end of the tail, eight feet five inches. From the appearance of its teeth and bones it was but young, and probably not near its full size.

"The shape of the animal was much like that of the hog. The general colour was a brownish ash; under the belly, between the legs and folds of the skin, a dirty flesh colour.

"The head much resembled that of the single horned rhinoceros. The eyes were small, of a brown colour; the *membrana nictitans* thick and strong. The skin surrounding the eyes was wrinkled. The nostrils were wide. The upper lip was pointed, and hanging over the under.

"There were six *molars*, or grinders, on each side of the upper and lower jaw, becoming gradually larger backward, particularly in the upper. Two teeth in the front of each jaw.

"The tongue was quite smooth.

"The ears were small and pointed, lined and edged with short black hair, and situated like those of the single horned rhinoceros.

"The horns were black, the larger was placed immediately above the nose, pointing upwards, and was bent a little back; it was about nine inches long. The small horn was four inches long, of a pyramidal shape, flattened a little, and placed above the eyes, rather a little more forward, standing in a line with the larger horn, immediately above it. They were both firmly attached to the skull, nor was there any appearance of joint, or muscles to move them.

"The neck was thick and short, the skin on the under side thrown into folds, and these folds again wrinkled.

"The body was bulky and round, and from the shoulder ran a line, or fold, as in the single horned rhinoceros, though it was but faintly marked. There were several other folds and wrinkles on the body and legs; and the whole gave rather the appearance of softness.

"The legs were thick, short, and remarkably strong; the feet armed with three distinct hoofs, of a blackish colour, which surrounded half the foot, one in front, the others on each side. The soles of the feet were convex, of a light colour, and the cuticle on them not thicker than that on the foot of a man who is used to walking.

"The testicles hardly appeared externally.

"The penis was bent backward, and opened about eighteen inches below the anus. At its origin it was as thick as a man's leg, and about two feet and a half long; the bend in it occasions the urine to be discharged backwards. The glans is very singular: the opening of the urethra is like the mouth of a cup with its brim bending over a little, and is about three quarters of an inch in diameter; the glans here is about half an inch in diameter, and continues that thickness for an inch and a half; it is then inserted into another cup like the first, but three times as large. The glans afterwards gradually

gradually becomes thicker, and at about nine inches from the opening of the urethra are placed two bodies on the upper part of the glans, very like the nipples of a milch cow, and as large; these become turgid when the penis is erected. The whole of this is contained in the prepuce, and may be considered as glans.

"From the os pubis arises a strong muscle, which soon becomes tendinous. This tendon is continued along the back, or upper part, of the penis; it is flattened, is about the size of a man's little finger, and is inserted into the upper part of the glans, near the end. The use of this muscle is to straiten the penis.

"On the under side of the penis there are two muscles, antagonists to the above; they arise from the os ischium fleshy, run along the lower side of the penis, on each side of the corpus spongiosum, and are inserted fleshy into the lower side of the glans. The action of these muscles will draw in the penis, and bend it.

"The male has two nipples, like the female, situated between the hind legs, they are about half an inch in length, of a pyramidal form, rounded at the end.

"The whole skin of the animal is rough, and covered very thinly with short black hair. The skin was not more than one third of an inch in thickness, at the strongest part; under the belly it was hardly a quarter of an inch; any part of it might be cut through with ease, by a common dissecting knife.

"The animal had not that appearance of armour which is observed in the single horned rhinoceros.

"Since I dissected the male, I have had an opportunity of examining a female, which was more of a lead colour; it was younger than the male, and had not so many folds or wrinkles in its skin, of course it had still less the appearance of armour.

"The only external mark which distinguishes it from the male is the vagina, which is close to the anus; whereas, in the male, the opening for the penis is eighteen inches below the anus."

III. Description of a Species of *Chaetodon*, called, by the Malays, *Ecan bonna*. By Mr. WILLIAM BELL.

"THE fish called *Ecan bonna*, by the Malays, is broad, flat, and of a lead colour; the belly is flat, white, and in places tinged with green. The eyes are a bright yellow. The body is covered with small semicircular scales.

"Its length is generally about eighteen inches; its breadth thirteen, and, at the thickest part, it is nearly three inches thick.

"It is frequently caught at Bencoolen, and several other parts on the west coasts of Sumatra, and is said to grow to a much larger size. Its flesh is white, firm, and well flavoured, and it is considered as a good fish for the table.

"It has six fins: two pectoral, two ventral, one dorsal, and one anal fin. The tail is broad, and of a triangular form.

"The pectoral fins are small, blunted at their ends, and placed a little behind the gills.

"The ventral fins are placed on the sternum, and are longer, and more pointed.

"The dorsal fin arises at the beginning of the spinous processes of the back, and is continued down nearly to the tail.

"The anal fin arises a little below the anus, and is also continued on almost to the