(1826) p. 371; Fisch. Syn. Mamm. (1829) p. 203, sp. 12; Less. Suppl. Buff. (1847) p. 113; Burm. Syst. Uebers. Thier. Bras. (1854) p. 87; J. E. Gray, Proc. Zool. Soc. (1867) p. 271; id. Cat. Carn. Mamm. (1869) p. 22.

Felis brasiliensis, F. Cuv. Hist. Nat. Mamm. (1828) vol. ii. pl. 139.

Felis elegans, Less. Cent. Zool. p. 69, pl. 21.

Leopardus tigrinoides, J. E. Gray, List Mamm. Brit. Mus. (1843) p. 42.

Panthera brasiliensis, Fitz. Sitzungsb. Akad. Wiss. Wien, (1869) lix. p. 236.

Panthera macrura, id. ibid. p. 242.

Panthera venusta, id. ibid. p. 244.

Hab. Central America southwards to Paraguay.

4. On some Points in the Visceral Anatomy of the Rhinoceros of the Sunderbunds (*Rhinoceros sondaicus*). By A. H. Garrod, M.A., F.R.S., Prosector to the Society.

[Received October 1, 1877.]

Our present knowledge of the visceral anatomy of the Rhinocerotidæ is confined to that of the two species *Rhinoceros unicornis* and *Ceratorhinus sumatrensis*. Professor Owen has given us, in the 'Transactions' of this Society (vol. iv. pp. 31 *et seq.*) an exhaustive account of the former of these animals; and in the 'Proceedings' (1873, pp. 92 *et seq.*) it has been my endeavour to indicate most of the important features in the latter, which, as Prof. Flower has kindly pointed out to me, were briefly described by Sir E. Home in the 'Philosophical Transactions' (1821, p. 271). On the present occasion I bring before the Society my notes on a young female of the Sondaic Rhinoceros (*Rhinoceros sondaicus*), which died in the menagerie of Mr. C. Jamrach, after having been in this country for a little more than half a year. It was only the skinned trunk which came into my possession. It is the nature of the mucous membrane of the small intestine which was certain to be of greatest interest; and this I am able to describe in detail.

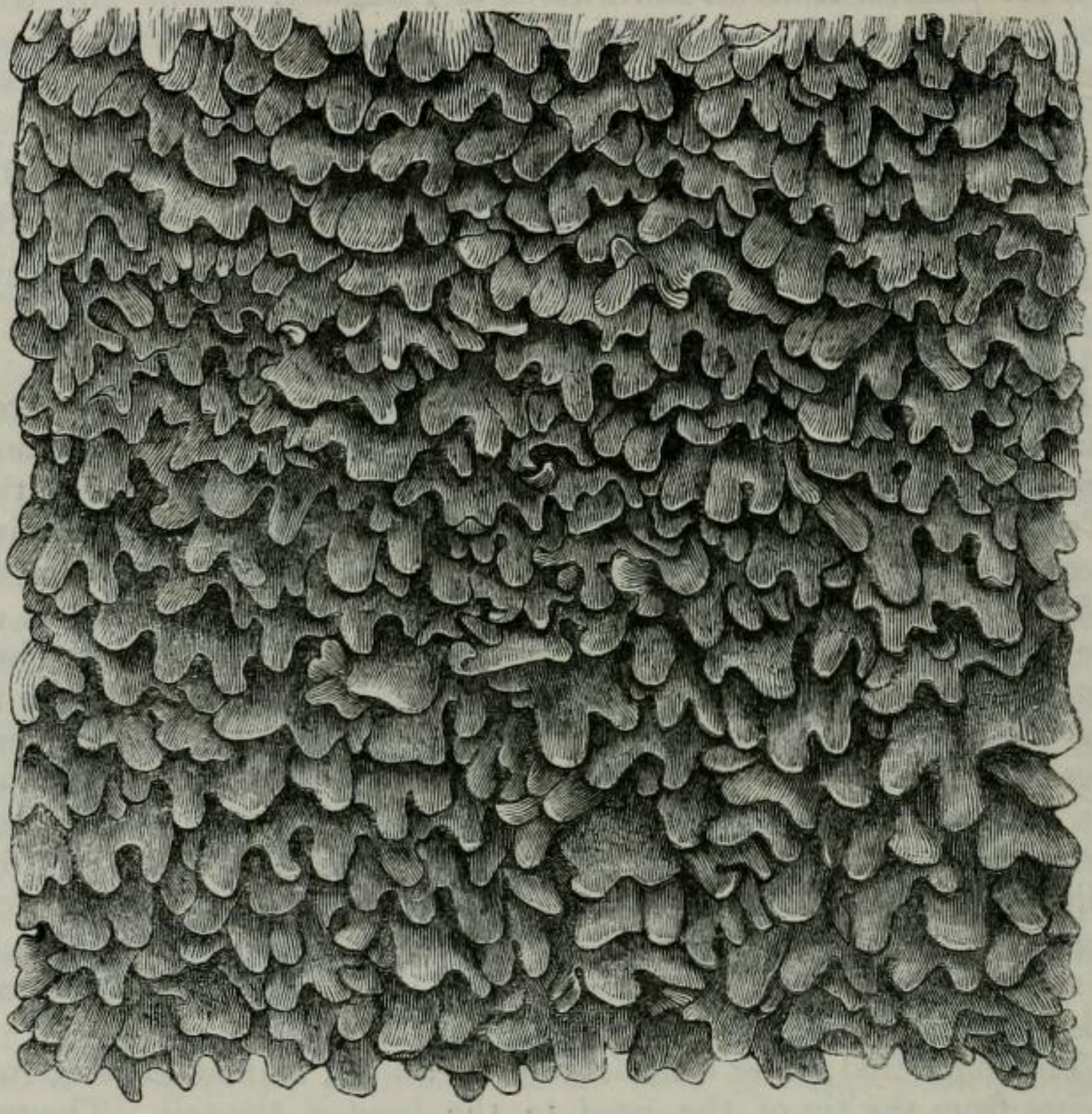
The individual under consideration measures, stuffed, six feet two inches from the tip of the nose to the base of the tail. The tail itself is a foot long, whilst the height of the animal at the shoulder is three feet. From the middle of the occipital crest, along the curve of the superior surface of the skull, to the tips of the nasal bones is thirteen and a half inches, the same measuremeut in adult animals being twenty-two inches.

The single milk-incisor on each side of each jaw is still in place, as are all the milk-molars. The first true molar has not cut the gum; but its cap is seen within the bony alveolus. No traces of the other molars are visible.

Mr. E. Gerrard has kindly lent me the skull for examination. In its base it exhibits the characteristic peculiarities of the species so clearly enunciated by Prof. Flower[1], the vomer being free behind and developed into a tongue-shaped process; the mesopterygoid fossa being expanded, and the free ends of the pterygoids everted at the same time that they are broad. No second combing-plate is present on the uncut first upper molar tooth.

The animal is too young to be contrasted advantageously with Prof. Peters's drawing[2] of *Rhinoceros inermis*, Lesson. I have, however, taken the opportunity of comparing that figure with the skulls of *R. sondaicus* in the College-of-Surgeons' Museum, and fail to see

Fig. 1.



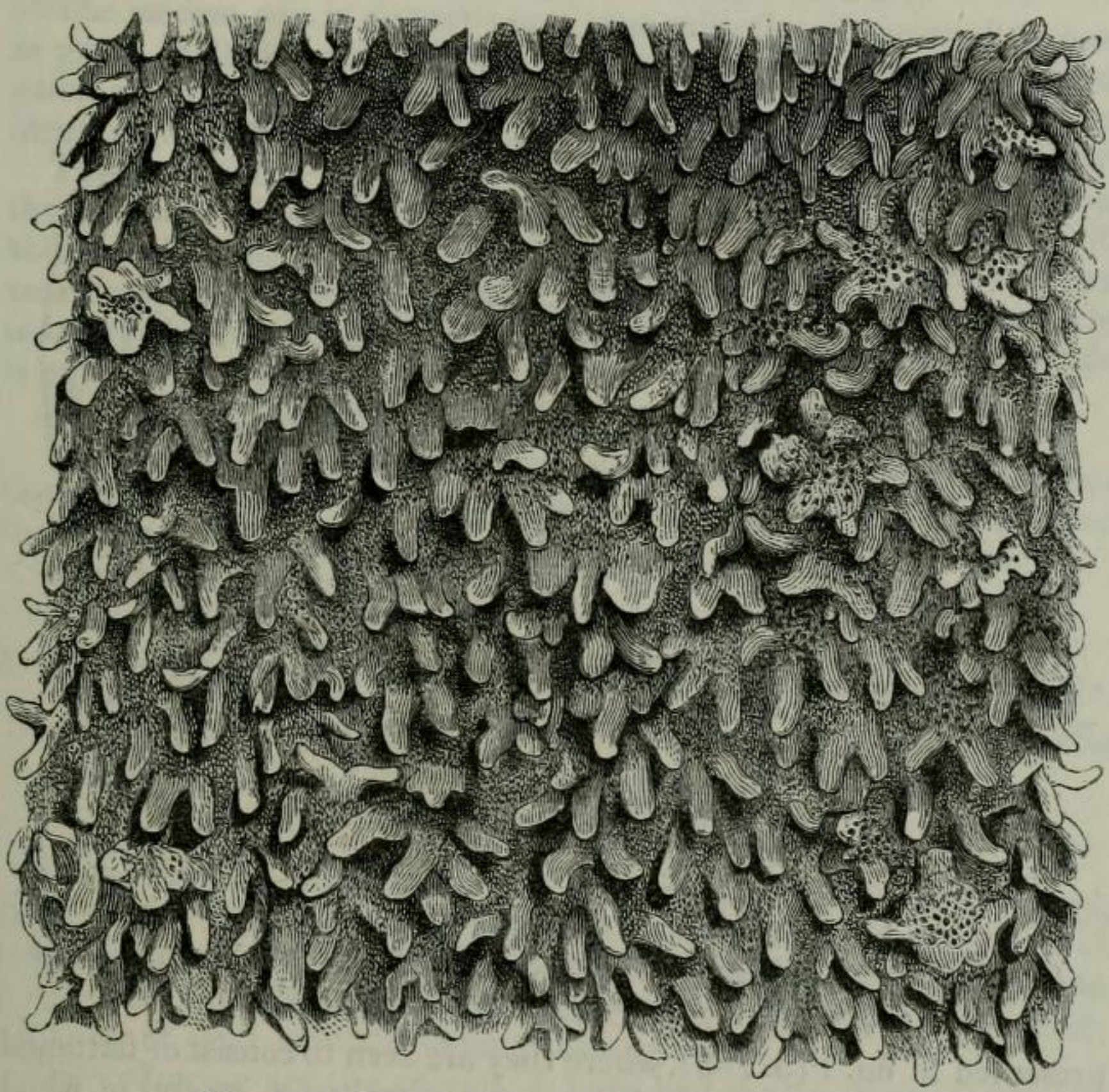
Mucous surface of duodenum of *Rhinoceros sondaicus*.

that there are sufficient differences to justify specific differentiation. Prof. Flower had previously done the same, and had arrived at a similar conclusion, as he found that even greater differences than those pointed out by Prof. Peters are to be detected in individuals which are all undoubtedly of Indo-Malay origin.

[1] P. Z. S. 1876, p. 447.
[2] Monatsb. der königl. Akad. zu Berlin, 1877, p. 68, pl. ii.

In skin-folding and surface-texture the Sunderbund and Javan specimens agree exactly; the young Sunderbund animal presenting a most striking uniformity in the size of the epidermic tuberculation, except in the gluteal region, where the boiler-bolt-shaped tubercles are somewhat larger than elsewhere. Along the back the scattered brown hairs, which spring from the yielding linear intertubercular surfaces, are also well developed.

Fig. 2.



Mucous surface of ileum of *Rhinoceros sondaicus*.

The following are the lengths of the alimentary viscera :—

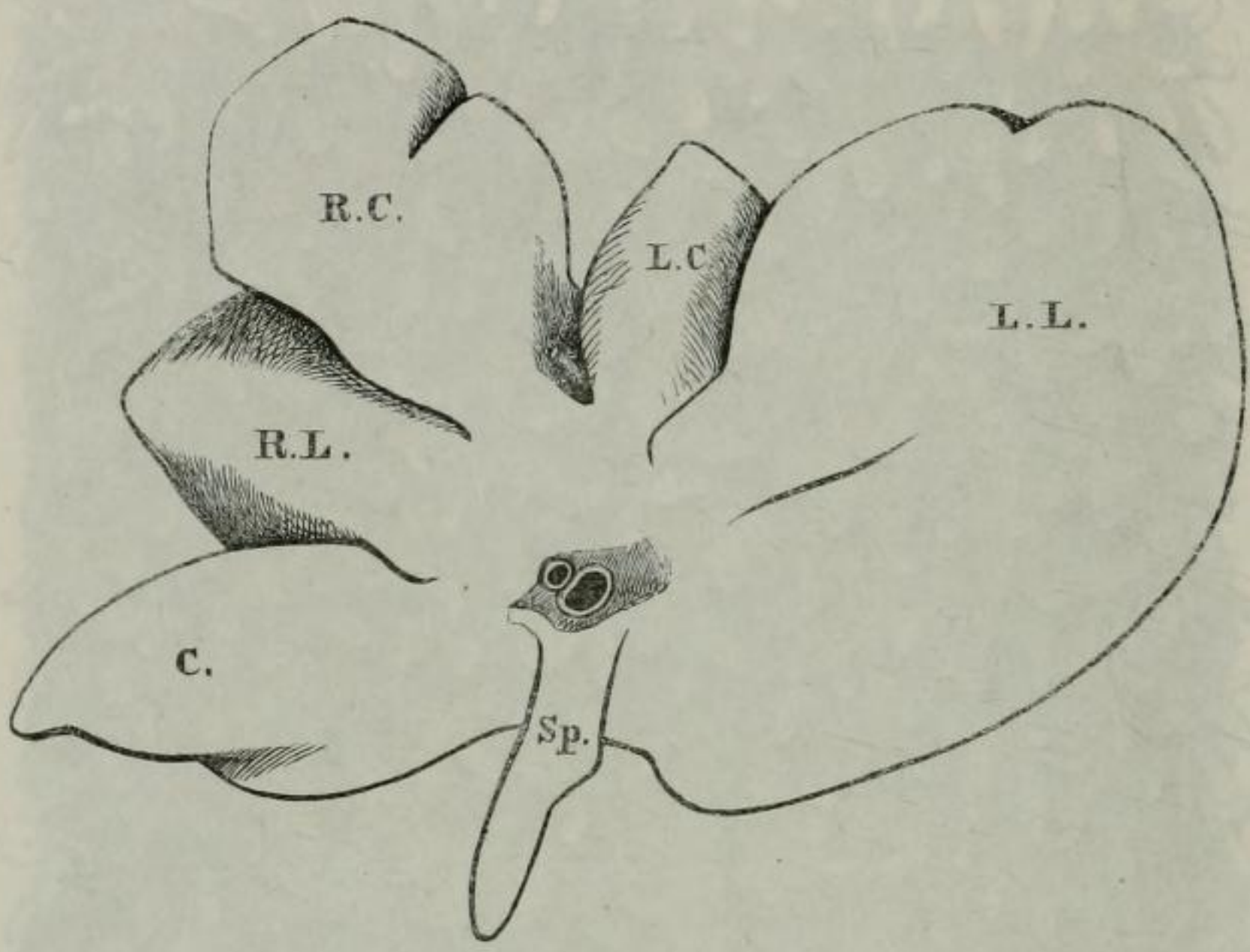
Small intestine, 26 feet 2 inches.
Large intestine, 9 feet 10 inches.
Cæcum, 1 foot 3 inches.

The stomach, in shape, is very much like that of *R. unicornis* as figured by Prof. Owen. Its cardiac surface is lined with the smooth white squamous epithelium found in all the Perissodactyla. This occupied about one third of the total gastric area, extending along most of the lesser curvature, the rest being covered with a smooth

and thick digestive coat. There is no trace of any œsophageal valve like that found in the Horse.

The small intestine is somewhat larger in the duodenal region than elsewhere. Its first three inches are destitute of the flattened papillæ found elsewhere; but here, as all along the small intestines, minute villi are present everywhere. Three inches from the pylorus the papillæ commence, and resemble those similarly situated in *Rhinoceros unicornis*[1], except that they are not quite so long. They are re-

Fig. 3.



Liver of *Rhinoceros sondaicus*. Visceral surface.
L.L. Left lateral. *L.C.* Left central. *R.C.* Right central. *R.L.* Right lateral. *C.* Caudate. *Sp.* Spigelian lobe.

presented in fig. 1 (p. 708), where they are seen to consist of flattened, round-tipped processes of the mucous membrane, several of which are blended at their bases, in transverse lines. None are more than ·3 of an inch in length, and most about ·6 inch broad where they first become free. They give the impression of being incomplete valvulæ conniventes which have been cut and deeply jagged at their free edges. The opening of the bile-duct is 7 inches from the pylorus, being a nipple-like tubular projection, nearly an inch long, among the papillæ. From the spot where they commence, all the way to the ileo-cæcal valve, these papillæ are found—those near the last-named situation differing from those in the duodenum in being more scattered and freer from one another, many in the ileum springing independently from the mucous membrane. Nowhere,

[1] *Vide* Prof. Owen's figure, Trans. Zool. Soc. vol. iv. pl. xii. fig. 1.

however, are they otherwise than flattened, broad, and blunt-tipped, none anywhere being circular and slender like those in the ileum of *R. unicornis*[1], the existence of which I have had the opportunity of verifying. They never exceed ·3 of an inch in length. Numerous Peyer's patches exist in the ileum, as may be inferred from fig. 2 (p. 709) which is a representation of a portion of the inner surface of the small intestine quite close to the ileo-cæcal valve.

Such being the case, *R. sondaicus* differs from *R. indicus* in that the papillæ of the ileum are short, flat, and broad, instead of long, cylindrical and narrow, "like tags of worsted" (Owen).

The cæcum coli is a short blunt cone, with the diameter of its base as great as its length (1 foot 3 inches); and comparing the disposition of the colic flexures and proportionate diameter, I found them identical with those of the Sumatran species as I have figured them[2].

The liver wants the gall-bladder, and differs but little from that of the Sumatran species. Fig. 3 (p. 710) is an outline-sketch of its abdominal surface, which, when compared with that of *Ceratorhinus sumatrensis* (P. Z. S. 1873, p. 102), shows that the right central lobe is larger than the right lateral, instead of smaller. The spigelian lobe is equally long and slender.

The pancreas is of good size and fairly concentrated.

The uterus is bicorn, each cornu measuring 8 inches, at the same time that the corpus uteri is 3 inches long. Each ovary is situated in a pocket of the peritoneum.

5. Note on an Anatomical Peculiarity in certain Storks. By A. H. Garrod, M.A., F.R.S., Prosector to the Society.

[Received October 1, 1877.]

The Ciconiidæ, whilst presenting great uniformity in their myology, differ among themselves in one feature which seems to me to be of sufficient interest to deserve special record, as it may aid those who study their external characters to arrive at a more satisfactory determination of their affinities among themselves.

The following are the species I have had the opportunity of dissecting:—

Ciconia nigra.
—— *alba.*
—— *boyciana.*
—— *maguari.*
Abdimia sphenorhyncha.
Xenorhynchus australis.
—— *senegalensis.*
Leptoptilus crumeniferus.
—— *argala.*
Tantalus ibis.

In all these birds, with the exception of *Abdimia sphenorhyncha* and *Xenorhynchus senegalensis*, I have found the ambiens muscle, which courses obliquely through the front of the capsule of the knee,

[1] Trans. Zool. Soc. vol. iv. pl. xii. fig. 3.
[2] P. Z. S. 1873, pp. 99, 100.