

THE ANNALS
AND
MAGAZINE OF NATURAL HISTORY,

INCLUDING
ZOOLOGY, BOTANY, AND GEOLOGY.

(BEING A CONTINUATION OF THE 'ANNALS' COMBINED WITH LOUDON AND
CHARLESWORTH'S 'MAGAZINE OF NATURAL HISTORY.')

CONDUCTED BY
P. J. SELBY, Esq., F.L.S., GEORGE JOHNSTON, M.D.,
CHARLES C. BABINGTON, Esq., M.A., F.R.S., F.L.S., F.G.S.,
J. H. BALFOUR, M.D., Prof. Bot. Edinburgh,
AND
RICHARD TAYLOR F.L.S., F.G.S.

VOL. VIII.—SECOND SERIES.

LONDON:

PRINTED AND PUBLISHED BY RICHARD TAYLOR.

SOLD BY LONGMAN, BROWN, GREEN, AND LONGMANS; S. HIGHLEY AND SON;
SIMPKIN, MARSHALL, AND CO.; PIPER, BROTHERS, AND CO.; W. WOOD,
TAVISTOCK STREET; BAILLIÈRE, REGENT STREET,
AND PARIS: LIZARS, AND MACLACHLAN AND
STEWART, EDINBURGH: CURRY, DUBLIN:
AND ASHER, BERLIN.

1851.

CONTENTS OF VOL. VIII.

[SECOND SERIES.]

NUMBER XLIII.

	Page
I. Report upon the Researches of Prof. MÜLLER into the Anatomy and Development of the <i>Echinoderms</i> . By THOMAS H. HUXLEY, F.R.S. (With a Plate.)	1
II. Report on MM. L. R. and C. TULASNE'S "Memoir on the History of the Hypogæous Fungi." By MM. JUSSIEU and AD. BRONGNIART	19
III. On the Anatomy of <i>Antiopa Spinolæ</i> , a Nudibranchiate Mollusk. By ALBANY HANCOCK, Esq. (With two Plates.)	25
IV. A Catalogue of British Spiders, including remarks on their Structure, Functions, Economy, and Systematic Arrangement. By JOHN BLACKWALL, F.L.S.	37
V. On the <i>Skeneadæ</i> . By WILLIAM CLARK, Esq.	44
VI. Descriptions of new species of Coleopterous Insects. By T. TATUM, Esq., M.E.S.	49
VII. Some Remarks on Mosses, with a proposed new Arrangement of the Genera. By WILLIAM MITTEN, A.L.S.	51
Proceedings of the Royal Institution; Zoological Society	59—73
Notices of one or two of the rarer Birds found in the South of Scotland, by John Alexander Smith, M.D.; <i>Achæus Cranchii</i> , by William Thompson, Esq.; <i>Gymnetrus Banksii</i> ; <i>Carcharias Vulpes</i> , by William Thompson, Esq.; On the <i>Chemnitzia</i> , by George Barlee, Esq.; Meteorological Observations and Table	73—80

NUMBER XLIV.

VIII. On the Hinge of the Fossil Genus <i>Platymya</i> , Agassiz; with the description of a new species. By J. LYCETT, Esq.	81
--	----

	Page
IX. Palæontological Notes. By JOHN MORRIS, F.G.S. (With a Plate.)	85
X. Notice of some new Footsteps in the Bunter Sandstone of Dumfries-shire. By ROBERT HARKNESS, Esq.	90
XI. A Catalogue of British Spiders, including remarks on their Structure, Functions, Economy, and Systematic Arrangement. By JOHN BLACKWALL, F.L.S.	95
XII. Contributions to the Botany of South America. By JOHN MIERS, Esq., F.R.S., F.L.S.	103
XIII. Further Observations on the <i>Chemnitzia</i> . By WILLIAM CLARK, Esq.	108
XIV. On the Reproductive Organs of the Lichens and Fungi. By M. L. R. TULASNE	114
<i>New Books</i> :—Manual of British Botany, 3rd Edit., by Charles Cardale Babington, M.A., F.L.S., F.G.S. &c. — Hymenopterologische Studien, by Arnold Foerster	121—129
Proceedings of the Zoological Society; Linnæan Society; Royal Irish Academy	129—152

On Wolves Suckling Children, by the Honourable F. Egerton; *Carcharias Vulpes*, by William Thompson, Esq.; Preservation of Preparations for the Microscope; Notice of a Sea-Beach during the Silurian Epoch, by R. Harkness; On the Cell-membrane of Diatomaceous Shells, by J. W. Bailey; A Comparative Examination of the Objective Glasses of Microscopes from Mr. Ross of England, Mr. Spencer of America, and M. Nachez of Paris, by J. Lawrence Smith, M.D.; Note on *Antiope costata*, by J. G. Jeffreys; Meteorological Observations and Table

153—160

NUMBER XLV.

XV. Observations on the Affinities of the <i>Olacaceæ</i> . By JOHN MIERS, Esq., F.R.S., F.L.S.	161
XVI. Geographical Notices, and Characters of fourteen new species of <i>Cyclostoma</i> , from the East Indies. By W. H. BENSON, Esq.	184
XVII. Descriptive Characters of two species of the Genus <i>Pterocyclos</i> , discovered by Dr. BLAND. By W. H. BENSON, Esq. (With a Plate.)	195
XVIII. A Catalogue of <i>Rotifera</i> found in Britain; with descriptions of five new Genera and thirty-two new Species. By PHILIP HENRY GOSSE, A.L.S.	197

	Page
XIX. Remarks on <i>Dickieia</i> . By JOHN RALFS, Esq. (With a Plate.)	204
XX. A few Remarks upon the Crag of Suffolk. By W. B. CLARKE, M.D., of Ipswich	205

Proceedings of the Zoological Society; Linnæan Society; Botanical Society of Edinburgh	211—235
--	---------

<i>Holostomum cuticola</i> , by Robert Wigham (with a Plate); On the Occurrence of <i>Trigonellites</i> in the Upper Chalk at Norwich, by T. G. Bayfield; Localities of rare British Crustacea, by Alexander G. Melville; Note on <i>Pedicellaria</i> , by Arthur Adams; Addendum to Mr. Benson's Paper on <i>Cyclostoma</i> ; <i>Terebella medusa</i> , by C. Spence Bate; Meteorological Observations and Table	235—240
---	---------

NUMBER XLVI.

XXI. On the <i>Cidariidæ</i> of the Oolites, with a description of some new species of that family. By THOMAS WRIGHT, M.D. &c. (With three Plates.)	241
---	-----

XXII. Observations on the Connexion between the <i>Crinoideæ</i> and the <i>Echinodermata</i> generally. By THOMAS AUSTIN, F.G.S., Fort Major, &c.	280
---	-----

XXIII. Descriptions of two new species of Nudibranchiate Mollusca, one of them forming the type of a new genus. By JOSHUA ALDER and ALBANY HANCOCK. With the Anatomy of the Genus, by ALBANY HANCOCK. (With two Plates.)	290
--	-----

XXIV. On <i>Chantransia</i> , Desv. By JOHN RALFS, Esq.	302
--	-----

XXV. A List of all the Mosses and Hepaticæ hitherto observed in Sussex. By WILLIAM MITTEN, A.L.S.	305
--	-----

XXVI. On the Development of the Cirripedia. By C. SPENCE BATE. (With three Plates.)	324
---	-----

XXVII. A Catalogue of British Spiders, including remarks on their Structure, Functions, Economy, and Systematic Arrangement. By JOHN BLACKWALL, F.L.S.	332
---	-----

Proceedings of the Zoological Society; Botanical Society of Edinburgh	339—346
---	---------

<i>Orthogoriscus mola</i> , by Dr. John Alex. Smith; <i>Carcharias Vulpes</i> , by Dr. J. Harvey; On the Arrangement of Fossil Animal Remains in Collections, by J. E. Gray, Esq., F.R.S., V.P.Z.S. &c.; Early	
--	--

has some resemblance to several of the shorter *Arcomyas*, and more especially to the figure of *A. ensis*, Etud. Crit. t. 9. fig. 4-6 (misprinted *A. brevis*), but the valves in that shell are less compressed and the umbones are more gibbose: our species however cannot be an *Arcomya*, for M. Agassiz has satisfied himself, from an examination of numerous moulds, that the hinge of that genus is without teeth; we have fortunately succeeded in clearing the hinge of the shell itself in more than one specimen of *Arcomya*, and are enabled to add our humble testimony to the same effect. There remains to be noticed a shell whose resemblance to our species is so considerable, that little doubt can exist that both belong to the same genus; this is the *Psammobia lævigata* of Phillips, figured at pl. 4. fig. 1. vol. i. of the 'Geology of Yorkshire.' The resemblance of the external form to *Psammobia* must be allowed, and the hinge characters, though distinct from the *Psammobiæ*, are more nearly allied to its subgenus *Psammotea*, which has no tooth in the right valve; but the figure of the tooth and pit in the recent shells will be found to be very different to our fossil; the *Psammobiæ* likewise have an elevated nymphal callosity supporting the ligament which is wanting in the fossil.

Though rare, our species was gregarious; several specimens occurred in near proximity. Height 13 lines, lateral diameter 17 lines.

Locality. Rodborough Hill near Stroud, where it occurs in the upper ragstone of the Inferior Oolite.

IX.—*Palæontological Notes.* By JOHN MORRIS, F.G.S.

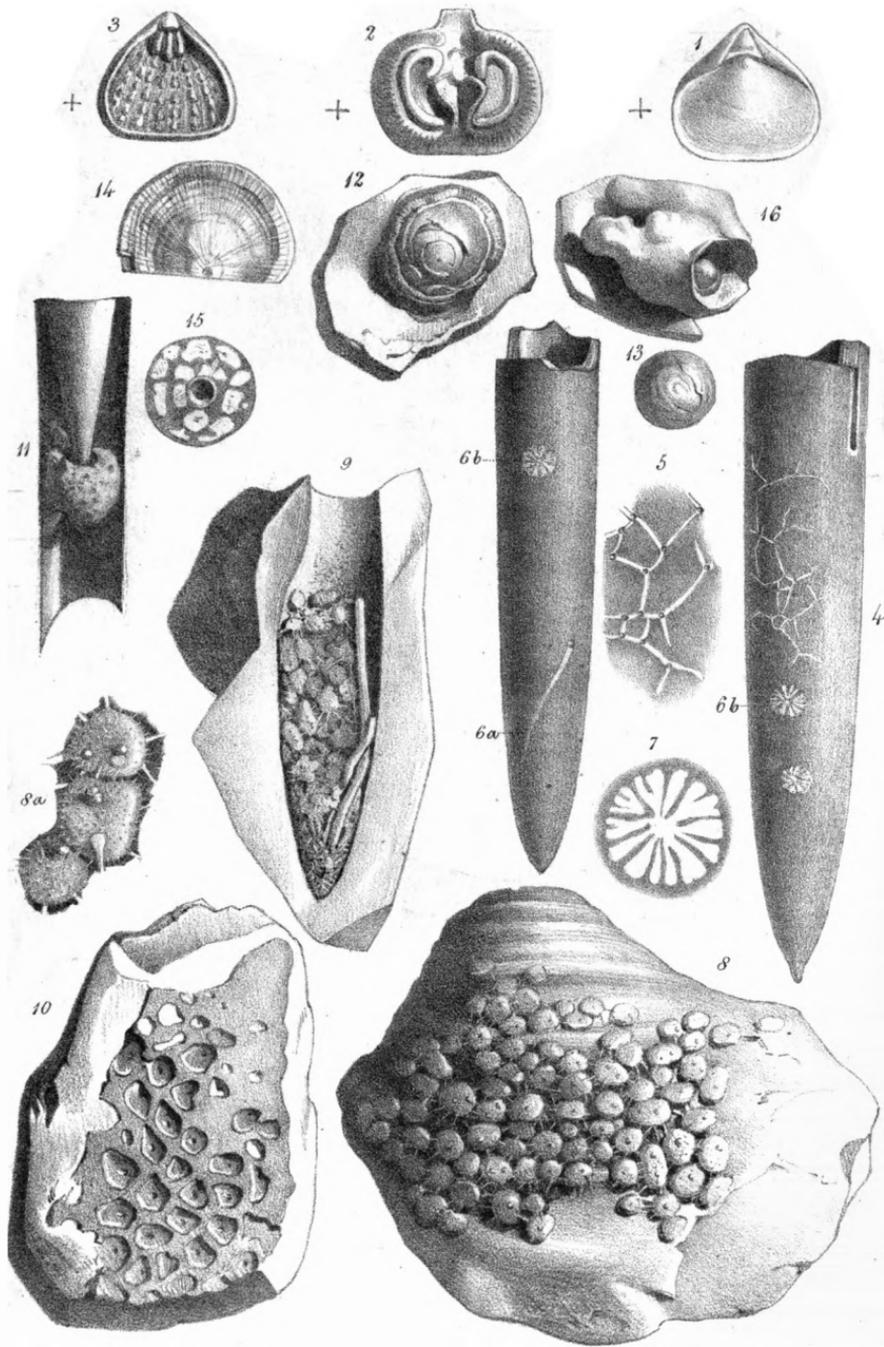
[With a Plate.]

THE following notes relate to some new or little-known organisms of the chalk, and are chiefly contained in the collection of Mr. Wetherell of Highgate:—

THECIDEA, Defrance. *Thecidium*, Sow.

The genus *Thecidea*, established by Defrance for certain Terebratuliform shells with a peculiar apophysary system, is very rare in a recent state, one species only having been obtained from the Mediterranean. The fossil species are not numerous: Bronn enumerates eight species, one from the Jurassic and seven from the Cretaceous formations. In this country the genus has only been recently noticed: Mr. Moore of Ilminster has discovered four in the Lias, and two others have been found in the Inferior Oolite, all of which are described and figured by Mr. Davidson*; to these, another is now added from the Chalk.

* Palæontographical Society, Article Brachiopoda.



Thecidea Wetherellii. Pl. IV. fig. 1-3.

T. testa parva, tenui, irregulari, sublævigata; valva inferiori triangulari vel pentagonali, interne striata; area brevissima, deltidio magno; valva superiori operculiformi planulata vel subconvexa.

A small, thin and smooth shell, nearly as wide as long, of a pentagonal form, and triangular towards the cardinal region, rounded laterally and straight on the anterior margin.

The inferior valve is attached by nearly the whole of its surface, the edges only being slightly elevated, and the beak depressed; the cardinal area is small, and chiefly occupied by a large triangular, rather elongated deltidium; besides the cardinal teeth, the interior beneath the deltidium is furnished with three laminar processes, of which the central one is generally the longest and most elevated; the inner surface of this valve is marked by longitudinal granular striæ (fig. 3). The smaller valve is flat or slightly convex, and has a large apophysary system, divided on each side in a deep, arched or reniform sinus; the cardinal process is large, and the margin of the valve is minutely granulated.

This species presents considerable resemblance in its general form to the recent *T. mediterranea*, and more to the *T. triangularis*, figured by Mr. Davidson, from the Inferior Oolite and Lias of England, and which is also found in the same formations as well as in the Great Oolite of Normandy. The apophysary system differs from that of the recent species in being more simple and less flexuous, and approaches that of *T. hippocrepis*, Goldf.; but the dissepiment is not so broad as in that species. It is frequently attached to the shells of *Ananchytes*, *Spatangus*, and *Inoceramus* from the Upper Chalk of Northfleet, Kent, and has been dedicated to N. T. Wetherell, Esq., who has succeeded in preserving this and many other minute and rare organisms from the same locality.

TALPINA.

Under this name M. von Hagenow has arranged certain problematical branching bodies which traverse the spathose guard of the Belemnite, and whose position in the animal kingdom has not been defined, whether as belonging to the Annelides or to the boring Sponges. M. Hagenow remarks, that only the cylindrical thread-like channels are left, by which the Belemnite has been perforated, most likely after the death of the animal, and perhaps only after the outer shelly substance was decayed, but evidently before the process of petrification commenced. These channels are close under the surface of the Belemnite, either simple or branched, and frequently show openings at the surface, and are filled with

chalk, and therefore appear in the brownish and half-transparent Belemnite as fine yellowish threads, which are still more marked when it is wetted or oiled. M. Hagenow * describes two species from the chalk of Rugen, and Quenstedt † has subsequently added two more; all the forms are found in the Belemnites of the English Chalk; and it is somewhat remarkable that these parasitical bodies have been hitherto only detected in the section, *Belemnitella*, D'Orb.—no traces of them having been observed in the Belemnites of the Jurassic series.

Talpina solitaria, Hag. Pl. IV. fig. 6 a.

Simple, slender, rarely branched, cylindrical or little compressed channels, which either extend along the Belemnite in a straight or little-curved direction, or follow its cylindrical form in a spiral manner; they are about the size of a fine knitting-needle, and have only simple openings.

Talpina ramosa, Hag. Pl. IV. fig. 4.

Very fine thread-like channels which are variously branched or irregularly netted; the orifices, which are visible to the naked eye, always exist at the end of the tubes, as well as at those points where the lateral channels diverge from the main one or from each other.

The specimen figured is from the chalk at Norwich, and kindly lent me by Mr. S. Woodward.

Talpina dendrina, Quenstedt. Pl. IV. fig. 6 b, & 7.

This form has a very dendritic appearance; the branches are compressed, closely aggregated, generally arising from a common centre, and diverging in a somewhat radiating manner, variously dichotomous and rarely anastomosing.

This form is very common on the Belemnites from Gravesend and Norwich, and has been figured with a view of directing the attention of geologists to the subject, as it is doubtful whether it has really arisen from organic action.

CLIONA OR CLIONITES. *Vioa*, Nardo, Michelin.

The origin of those singular organic impressions which occur in the shells of Inocerami and the flinty nodules of the Chalk, long remained in obscurity, but are now referred to the operations of a sponge allied to or identical with *Cliona*.

The excellent monograph by Mr. Hancock on the characters

* Jahrbuch für Mineral. 1840, p. 671.

† Die Cephalopoden, p. 470.

and habits of the recent species, in a late Number of the 'Annals,' is well known.

Fossil species have been noticed in the shells of the Crag, London clay, the Chalk, and the Gryphæa of the Lower Greensand; and Prof. M'Coy has lately described a species under the name of *Vioa prisca*, in an *Avicula* from the Silurian rocks.

Mr. Parkinson (1811) appears to have first noticed these bodies as occurring in the state of siliceous casts, and suggested that they may have been the work of some animals of a nature similar to the Polypes; and subsequently in 1814 the Rev. W. Conybeare* published a memoir on them, with some excellent illustrations of the common species, and asserting "that the origin of these bodies was widely different from that assigned by Parkinson, they being in fact siliceous casts moulded in little hollow cells excavated in the substance of certain marine shells; the work perhaps of animalcules preying on those shells and on the vermes inhabiting them." At the end of this paper is an interesting letter from Dr. Buckland which has been generally overlooked, as showing at that early period his suggestion that similar organisms which committed the ravages in the recent oyster, probably also effected the perforations in the shells of the extinct *Inocerami*:—

"The hollows that afforded a mould for the formation of these singular bodies appear to me to have been the work of some minute parasitical insect. The small aperture, the cast of which now forms the projecting axis of each globule, was probably perforated by this intruder as the entrance to his future habitation; having completed this passage, and excavated at its termination a cell suited to his shape and convenience, he appears by the aid of a delicate auger or proboscis to have drilled many minute and almost capillary perforations into the substance of the shell on every side around him, taking care to leave always partitions sufficient to support the roof of his apartment. Having exhausted all the nourishment which could in this manner be procured with safety from the vicinity of this first establishment, the insect appears to have emigrated, and after working for itself a lateral passage to a sufficient distance, to have formed a new settlement in the midst of fresh supplies. In the recent oyster shell which I have transmitted, you will perceive that this process has been carried on, to a great extent, in the intermedial matter between two or three sets of the pearly plates comprising it; and yet without effecting the destruction of the exterior crust, or in any degree injuring the inner surface of the shell, which remains un-

* "On the origin of a remarkable class of organic impressions occurring in nodules of flint" (Geol. Trans. 1 ser. vol. ii. p. 328. pl. 14).

touched, and, notwithstanding these attacks, still equally adapted to every purpose required by the œconomy of its inhabitant."

We have given some illustrations of the most abundant species, *Clionites Conybeari**, one (fig. 8) in which the siliceous casts of the cavities cover almost entirely the surface of an Inoceramus—a specimen presented by Mr. R. A. Austen to the Museum of Practical Geology. Fig. 9 is a specimen filling a portion of the cast of a Belemnite from Norwich; fig. 10 shows simply the cavities left in the shell of an Inoceramus from Northfleet, Kent. Another species in a Norwich chalk-flint, *C. glomerata* (fig. 11), which appears to be distinct from the last, consists of one cell having an irregular globose form, obtusely tuberculated over the whole surface, and having two large canals diverging from it.

Pearl-like bodies.—Most persons are aware that some forms of the conchiferous mollusks are subject to certain abnormal secretions, assuming a more or less regular form, and composed of fibro-calcareous matter generally arranged in a concentric manner; sometimes it is solidly attached to the inner layer of the shell, of which it forms a portion; at others it is found perfectly free in the fleshy substance of the mollusk itself, of a symmetrical shape, as in the perfect pearl. Evidence of phenomena resulting from similar conditions has been detected in certain fossil genera, but few if any instances have been recorded †. The collection of Mr. Wetherell contains many illustrative specimens; in one, a *Gryphæa* (fig. 16) from the drift of Muswell Hill, and probably coming from the Oxford clay, is an irregular elongated body free at both ends, but attached by a considerable portion of its surface, the external lamina being continuous with the shell; the outer layers do not however show the regular fibrous arrangement of a pearlaceous body, but this may have been changed by subsequent mineralization. In another specimen (fig. 12) the pearly body is attached to the interior of an Inoceramus, and shows the concentric arrangement of the fibrous substance, and which is better exhibited in the specimen (fig. 14), showing a complete section of one of considerable size, quite unattached to any shell, from the Chalk of Kent, but from which Mr. Wetherell has obtained a few other specimens of similar structure, varying in their dimensions.

* *Clionites Conybeari*; cells irregular, somewhat polygonal, with one or more papillæ; surface finely tuberculated; connecting threads numerous. (References: Park. Org. Rem. pl. 8. f. 10; Dr. Mantell's Pictorial Atlas, pl. 40. f. 10.)

† There is an indistinct allusion to the occurrence of pearls in a fossil state, in Woodward's 'Essay towards a Natural History of the Earth,' 1695, p. 23.

EXPLANATION OF PLATE IV.

- Fig. 1. *Thecidea Wetherellii*, magnified.
 — 2. —————, ventral valve magnified.
 — 3. —————, dorsal valve magnified.
 — 4. *Talpina ramosa*, Hag.
 — 5. Figure magnified.
 — 6 a. *Talpina solitaria*, Hag.
 — 6 b. ————— *dendrina*, Quenstedt.
 — 7. —————, figure magnified.
 — 8. Siliceous cast of *Inoceramus*, with *Clionites Conybeari*.
 — 8 a. *Clionites Conybeari*, cells magnified.
 — 9. *Talpina solitaria* and *Clionites Conybeari* in cavity of *Belemnites mucronatus*.
 — 10. Cells of *Clionites* in an *Inoceramus* shell.
 — 11. *Clionites glomerata*, in cavity of *Bel. mucronatus*.
 — 12. Pearl-like body attached to the inner shell of *Inoceramus*.
 — 13. Pearl-like body unattached.
 — 14. Section of ditto, showing concentric arrangement.
 — 15. Section of a *Belemnite*, with cavities of *Clionites*.
 — 16. Pearl-like body attached to a *Gryphæa*.

X.—Notice of some new Footsteps in the Bunter Sandstone of Dumfries-shire. By ROBERT HARKNESS, Esq.

THE quarry which has hitherto furnished the most numerous and well-preserved impressions of footmarks from the Bunter sandstone is Corncockle, in the parish of Applegarth, Dumfries-shire. Some few have also been obtained from the Craigs quarry near Dumfries; and recently the quarries at Locherbriggs, in the same neighbourhood, have afforded tracks of animals. To these localities there may now be added the quarry of Green Mill, in the parish of Caerlaverock, which promises to rival Corncockle both in the number and perfection of its footsteps. The nature of the sandstone in these different localities is similar, consisting of strata, made up of laminæ of brownish and red-coloured sand, regularly bedded, dipping in the same direction and at nearly the same angle; the only variation being at the Craigs quarry, where the stone is of a coarser nature than at the other quarries.

With regard to the impressions which have been obtained from Corncockle, one of them is figured in Buckland's 'Bridgewater Treatise,' and referred to a Chelonian reptile; and others are now being figured and described by Sir William Jardine in his new work 'The Ichnology of Annandale,' a publication in which the footprints are illustrated by coloured lithographs of the size of the originals, and which will form a valuable addition to our knowledge of the Triassic fauna, and be the first work devoted exclusively to Ichnology published in this country. The footsteps