# MEMOIRS OF THE GEOLOGICAL SURVEY OF NEW SOUTH WALES. PALAEONTOLOGY, NO. 4. THE FOSSIL FISHES OF THE HAWKESBURY SERIES AT GOSFORD

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649586943

Memoirs of the Geological Survey of New South Wales. Palaeontology, No. 4. The Fossil Fishes of the Hawkesbury Series at Gosford by C. S. Wilkinson & R. Etheridge & Arthur Smith Woodward

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd. Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

C. S. WILKINSON & R. ETHERIDGE & ARTHUR SMITH WOODWARD

# MEMOIRS OF THE GEOLOGICAL SURVEY OF NEW SOUTH WALES. PALAEONTOLOGY, NO. 4. THE FOSSIL FISHES OF THE HAWKESBURY SERIES AT GOSFORD

**Trieste** 

### DEPARTMENT OF MINES.

#### MEMOIRS OF THE GEOLOGICAL SURVEY OF NEW SOUTH WALES. c. s. wilkitson, p.g.s., ac, geological subvetoble-chabel

PALÆONTOLOGY, No. 4. r. etheridge, jnr., palæontologist.

### THE FOSSIL FISHES

#### OF THE

## HAWKESBURY SERIES AT GOSFORD.

BT

ARTHUR SMITH WOODWARD, F.Z.S., F.G.S., of the Department of Geology and Palmontology, British Museum (Natural History Branch), London.

ISSUED BY DIRECTION OF THE HON. SYDNEY SMITH, M.P., MINISTER FOR MINES AND AGRICULTURE.

, MIIMBI Vunwis any T

SYDNEY : CHARLES POTTER, GOVERNMENT PRINTER.

11a 74-90

### CONTENTS.

LETTER OF C. S. W	ILKINS	on, Esc	a, 1.8	., F.G.S	l, &a.			•••			PAGR
STRATIOBAPHICAL N	OTE DI	N T118	Fisil-	BED AT	THE	RAILWA	Y BALL	AST	QUARRY	NEAR	
GOSFORD : BY	T. W.	EDGEW	ORTH	DAVID,	B.A.,	åc., G	EOLOGIC.	AL S	CRVEYOR		vii
EDITOR'S PREFACE											xiii

### MEMOIR.

I.	INTRODUCTION						•••					1
II	-DESCRIPTION O	F THE	GENERA	AND S	PECINS	•••			•••			3
	ORDER-SE	LACHII						•••				3
	FAMILY-CESTRACIONTIDÆ											3
	ORDER-D	PNOI							•••			4
	FAMIL	x-(1)										4
	ORDER-GA	NOIDEI										6
	FAMILY — PALEONISCIDÆ ,, CATOPTERIDÆ ,, BRLOKORHYNCHIDÆ ,, SEMIONOTIDÆ						1.25				•••	7
												15
												22
												30
	,,	Рпо	LIDOPHO	RID.E		•••						43
III	-CONCLUSION											50
1V	TABLE SHOWING	тив С	EOLOGIC.	AL AND	GROGE	APILIC	AL DIST	RIBUTI	ON OF	THE VA	RIOUS	
(	JENERA											51
V	-INDEX TO THE	GENER	A AND S	SPECIES	DESCR	IBED				•••		57

11a 74-90 B

.

Δ.

1 5 •

\* \*

i.

e.

×

.

.

8

1

### LIST OF PLATES AND ILLUSTRATIONS.

Plate A .--- Vertical Section of Hill near Gosford, at foot of which is the Railway Ballast Quarry. Plate B.--Horizontal Section of Railway Ballast Quarry near Gosford.

 Plate
 I.—Gogfordia.

 Plate
 II.—Gogfordia and Myriolopia.

 Plate
 II.—Gogfordia and Dictyopyge.

 Plate
 II.—Apateolopia and Dictyopyge.

 Plate
 V.—Apateolopia and Dictyopyge.

 Plate
 V.—Pristisonus.

 Plate
 V.—Pristisonus.

 Plate
 VI.—Pristisonus.

 Plate
 VI.—Cleithrolopia.

 Plate
 VI.—Cleithrolopia.

 Plate
 VI..—Belonorhynchus.

 Plate
 X.— Bo.

Woodcut-Restoration of Cleithrolepis.

iii

.

. . . . . . .

## LETTER OF TRANSMITTAL.

Geological Survey Branch, Department of Mines, Sydney, 1 March, 1890.

I have the honour to submit Memoir No. 4 of the Palxontological Series of the Geological Survey of New South Wales, on the Fossil Fishes of the Hankesbury Series at Gosford, by Mr. Arthur Smith Woodward, F.G.S., of the Geological Department, British Museum.

The collection of fossils therein described contains over four hundred specimens, the examination of which Mr. Woodward generously undertook; and I avail mysolf of the present opportunity of acknowledging our indebtedness to that able Palecontologist for his valuable work.

The discovery of fossil fish remains in the Hawkesbury Series at Gosford was made by Mr. Blunt, Railway Contractor, when opening a quarry for railway balast; but my attention was first called to their occurrence there by Mr. A. Lambert, who brought me a specimen showing the impression, not only of a fish, but also of a small Labyrinthodont. The latter has been described and figured by Professor W. J. Stephens, M.A., F.G.S., in the *Proceedings* of the Linnean Society of New South Wales, Vol. I (2nd Series).

I sent the Geological Survey Collector to the Gosford Quarry, and he succeeded in obtaining this splendid collection from a small bed of grey shale interstratified with beds of sandstone near the base of the Hawkesbury Series. The latter forms the middle division of the group which comprises, in descending order, the Wianamatta, Hawkesbury, and Narrabeen Series, and is considered to be of Triassic age.

Mr. T. W. E. David, B.A., F.G.S., who has examined the Gosford district, has furnished the accompanying Note on the geological horizon of the Fish-bed.

I have the honour to be,

Sir, Your obedient servant, C. S. WILKINSON,

Geological Surveyor-in-Charge.

**HARRIE WOOD, ESQ., J.P.,** Under Secretary for Mines.

Sir,

.| ø · • <u>.</u> i