

**CATALOGUE OF
THE WESTERN
SCOTTISH FOSSILS**

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Catalogue of the Western Scottish Fossils by J. Armstrong & J. Young & D. Robertson

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J. ARMSTRONG & J. YOUNG & D. ROBERTSON

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OF THE
WESTERN SCOTTISH FOSSILS.

COMPILED BY
JAMES ARMSTRONG, JOHN YOUNG, F.G.S.,
AND DAVID ROBERTSON, F.G.S.

WITH INTRODUCTION
ON
THE GEOLOGY AND PALAEOLOGY OF THE DISTRICT,
BY PROFESSOR YOUNG, M.D.



GLASGOW:
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1876.

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PREFACE.

The nucleus of this volume is the Catalogue of Carboniferous Fossils of the West of Scotland prepared by Messrs. Young & Armstrong, and published in 1871 by the Geological Society of Glasgow. That list has been brought down to the present time, and the geology of the vaguely designated "West of Scotland" completely represented by newly prepared lists of the fossils obtained from all the deposits from the Silurian to the Glacial included. No one who has not tried it knows the labour such lists involve, but those who have tried it can estimate the continuous labour which Mr. Armstrong has bestowed on the work, and the care with which Mr. Young and he have revised the proof-sheets,—itself no light task. Mr. Young prepared the preliminary sketches of the Old Red, Carboniferous, and Permian formations, and notes on the distribution of the Carboniferous fossils. Mr. David Robertson has supplied a great want by his complete list of Glacial fossils.

Mr. Charles Lapworth has, with his wonted kindness, and even more than his wonted energetic enthusiasm, written the summary of Silurian stratigraphy, and enhanced the value of the volume by the four beautiful plates of Graptolites. Mr. Dairon supplied important information regarding the Moffat district.

Messrs. Armstrong & Young desire to acknowledge the readiness with which their friends undertook every trouble by which the work of compilation might be lightened, and fulness and accuracy secured.

Mrs. Robert Gray has given a list of the Silurian fossils in her cabinet. Dr. Slimon has revised the lists of Lesmahagow fossils, and corrected the localities for that classical district. Dr. Rankin of Carlisle, Dr. Grosart of Shotts, Mr. John Smith of Eglinton Iron Works, Kilwinning, Mr. R. Craig, Langside, Beith, Mr. James Linn, Livingstone, Mr. A. Patton, East Kilbride, and Mr. James Bennie, H.M. Geological Survey, have given much valuable information as to Carboniferous localities, and as to the occurrence of species at various horizons. Mr. James Thomson and Mr. R. Ether-

idge jun., were kind enough to diminish the labour of reference by sending copies of their published papers.

Dr. J. Bryce, LL.D., wrote the notice of the Jurassic Strata of Skye and Raasay, the list of fossils being prepared by Mr. Armstrong from the published papers referred to in that section. The Mull species are the determinations of Mr. T. Davidson, F.R.S., and Mr. Etheridge, F.R.S.

Mr. Davidson corrected the lists of Brachiopoda, Professor Rupert Jones those of the Ostracoda, and the Rev. A. M. Norman those of the Post-Tertiary Polyzoa. Professor John Morris has likewise given special help. To these gentlemen Glasgow geologists are under obligations, not for the first time.

Mr. D. C. Glen and Mr. J. Young, jun. have made a list of the Western Minerals and Rock specimens from the Hunterian collections, and from published papers and catalogues.

The Introduction is an attempt to translate into history the geological details of the district. The discussion is by no means exhaustive, neither are the views it contains likely to receive general acceptance. But the object of the writer will have been gained if the visitor finds it easier with the help of this Introduction to realise the relations of the strata in a general way, and if resident students of Geology are induced to methodise their knowledge for the purpose of refuting the errors of the author.

The Local Executive Committee of the British Association deserve the thanks of all students of science for the wise liberality with which they have entered on this publication, and thus secured what private means could not have easily accomplished—a record of Scottish Geology and Palæontology, which will be a permanent memorial of the meeting of 1876.

JOHN YOUNG, M.D.

GLASGOW UNIVERSITY, August, 1876.

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THE GEOLOGY AND PALAEOLOGY OF THE WEST OF SCOTLAND.

THE geological history of Scotland strikingly recalls that of Northern America. In both countries the Laurentians or fundamental gneiss form the basis of the stratified series; but while in America younger strata flank the northern face of the Laurentian mass, in Scotland the narrow band of fundamental gneiss forming the backbone of the Hebrides sinks abruptly into the Atlantic Ocean. On Geikie's map are shown the areas in which the fundamental gneiss has been recognized, but it is uncertain whether patches elsewhere may not yet be referred to this group of highly altered strata. Sir R. Murchison adopted Sir W. Logan's term Laurentian gneiss in place of fundamental gneiss, believing that these earliest stratified rocks were synchronous in time, as they are similar in composition, and in discordance with superimposed strata. The adoption of the American group-name has been objected to both because the Scottish gneiss has not up to the present time yielded any fossils on which a comparison might be founded, and because there is, in defect of other evidence, no proof that the metamorphic series in America and Scotland may not be of different dates, though homotaxially their relations are similar. The negative evidence—the want of fossils—cannot have a positive value assigned to it; and the second objection is equally without positive value. It has been suggested elsewhere that the existence of pre-Laurentian stratified deposits is an assumption; and it is noteworthy that wherever the Laurentian rocks or their equivalents have been found they are subordinated to strata whose analogy to Huronians or Cambrians is generally accepted. In other words, the general parallelism of succeeding deposits is admitted, and a broad margin is asked for only in the case of these earliest rocks. The Scottish Cambrian series is very simple in its character as it is limited in its extent. The red and purple sandstones and conglomerates of which it is composed are such deposits as, according to Professor Ramsay's views, might have been accumulated during a continental condition of things in Northern Scotland, while in Western England the