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CONTENTS OF THIS NUMBER.

	PAGE
I. CANADA AT THE GREAT EXHIBITION. (2) The Educational Department of the International Exhibition. (3) Lect Articles in the Exhibition...	129
II. PAPERS ON COLONIAL SUBJECTS—(1) Nova Scotia's Birthday. (2) The Acadians and Louis Napoleon. (3) The Resources of Canada. (4) The Governor General's Visit to the Educational Institutions of Montreal. (5) Canadian Administrations since the Union	131
III. BIOGRAPHICAL SKETCHES—No. 24. William Buell, Esq. No. 25. Colonel John Clark. No. 26. The Rev. Dr. Falloon. No. 27. The Right Hon. Lord Canning. No. 28. Major-General Bruce. No. 29. Sir Thos. Wyse	138
IV. PAPERS ON PRACTICAL EDUCATION—(1) Object Teaching. (2) See to the School House. (3) Evils of Mental Precocity	138
V. PAPERS ON NATURAL HISTORY—(1) The Swallow. (2) A case of Feline Tenderness. (3) Pass in a new character	139
VI. MISCELLANEOUS—(1) "Waiting for 'Pa'" (2) The Queen and the Manufacturing Distress. (3) The Widows' Address to the Queen. (4) The Prince of Wales and the Princess Alice. (5) Marriage of the Princess Alice. (6) The Princess and the Matrons and Maidens of England.....	140
VII. EDUCATIONAL INTELLIGENCE	141
VIII. LITERARY AND SCIENTIFIC	144

CANADA AT THE GREAT EXHIBITION.

(The London "Times" on Sir William Logan.)

Canada is most worthily represented in Class I., thanks to the director of the Canadian Geological Survey, Sir William Logan. Justice compels us to deviate from the course which we have hitherto pursued, and bestow more than a passing notice on this indefatigable geologist. Unaided, he commenced in 1831, a geological survey of part of the great South Welsh coalfield, extending from Cwm Avon to Carmarthen Bay, and completed it in seven years, at no small pecuniary sacrifice. Such was the estimate of the accuracy and value of this survey by the late director of the Geological Survey of Great Britain, Sir Henry De La Beche, that, with Sir William's consent, it was adopted as part of the national work. In 1842 Sir William went to Canada, where he has ever since resided, devoting his life, with a singleness and earnestness of purpose truly remarkable, to the exploration of the structure and the mineral resources of that vast territory. Not having the advantage of an accurate map of the country, such as has been supplied to our home geologists by the Ordnance Survey, he was obliged to make a topographical survey *pari passu* with a geological one. Few persons can imagine the arduous nature of this work. Our indomitable geologist is often compelled to penetrate the trackless primeval forest, to force his way across the tangled cedar swamp, and brave the dangers of Canadian Rapids in a frail canoe; and to these difficulties we add that his path is disputed at every step by the most relentless and invincible foes with which man in these regions has to contend—countless hosts of mosquitoes and black flies. Very different is the comparative light and gentlemanlike occupation of our home geologists, who have no such hardships to encounter, and, after the pleasant ramble of the day, never

fail to enjoy the luxury of an English cottage. Sir William Logan has neither sought wealth nor honours, but has quietly and modestly pursued the one great object of his life with a devotion as rare as it is praiseworthy. Let it not be supposed that this eulogium is prompted by any feeling of personal regard. It is a just tribute, and no more, to a man who has striven during many years to develop the vast mineral resources of Canada, not with a view to his own advantage, but from pure love of his work. We are glad to know that the Canadian Government fully appreciate the value of the labours of this self-denying and faithful public servant. The Canadian territory comprises about 300,000 square miles, and about 100,000 have already been surveyed by Sir William and his small staff of assistants.

Enormous deposits of magnetic iron ore—which, when pure, is the richest of all the ores of iron—have been discovered by Sir William Logan in the Laurentian rocks, which present no traces of organic remains, and are the oldest sedimentary series in the world. The ore occurs interstratified with the rocks containing it. The accumulation of this ore in some localities is so great as to appear incredible. Thus one bed is not less than 500 feet thick! On the Rideau Canal there is another bed 200 feet thick, which is now worked at Newborough, and from which the ore is conveyed to Kingston on Lake Ontario. From this place it is put on board vessels at the cost of \$2.25 per ton, and taken to Cleveland, on Lake Erie, Ohio, whence it is sent to Pittsburg, Pennsylvania, to be smelted. The best quality of ore is met with in a bed 25 feet thick in the township of Madoc. Fine samples of all these ores are exhibited. Canada also possesses extensive tracts of bog-iron ore on the north side of the St. Lawrence, and this is the only ore which is at present smelted in the country, charcoal being the fuel. The smelting is conducted at the Radnor Works, which include a forge for the manufacture of iron. At these works a large number of railway wheels are made of cast iron derived exclusively from bog-iron ore. Cast-iron from ordinary bog-iron ore is about the last kind of metal many founders would dream of employing for such a purpose; and yet in the Canadian department of Class I. is exhibited a pair of railway wheels which have travelled, without shewing much evidence of wear, not less than 150,000 miles or about six times round the earth. And it should be remembered that in Canada there are great alternations of temperature, the heat of summer being intense, and the cold of winter extremely bitter. These