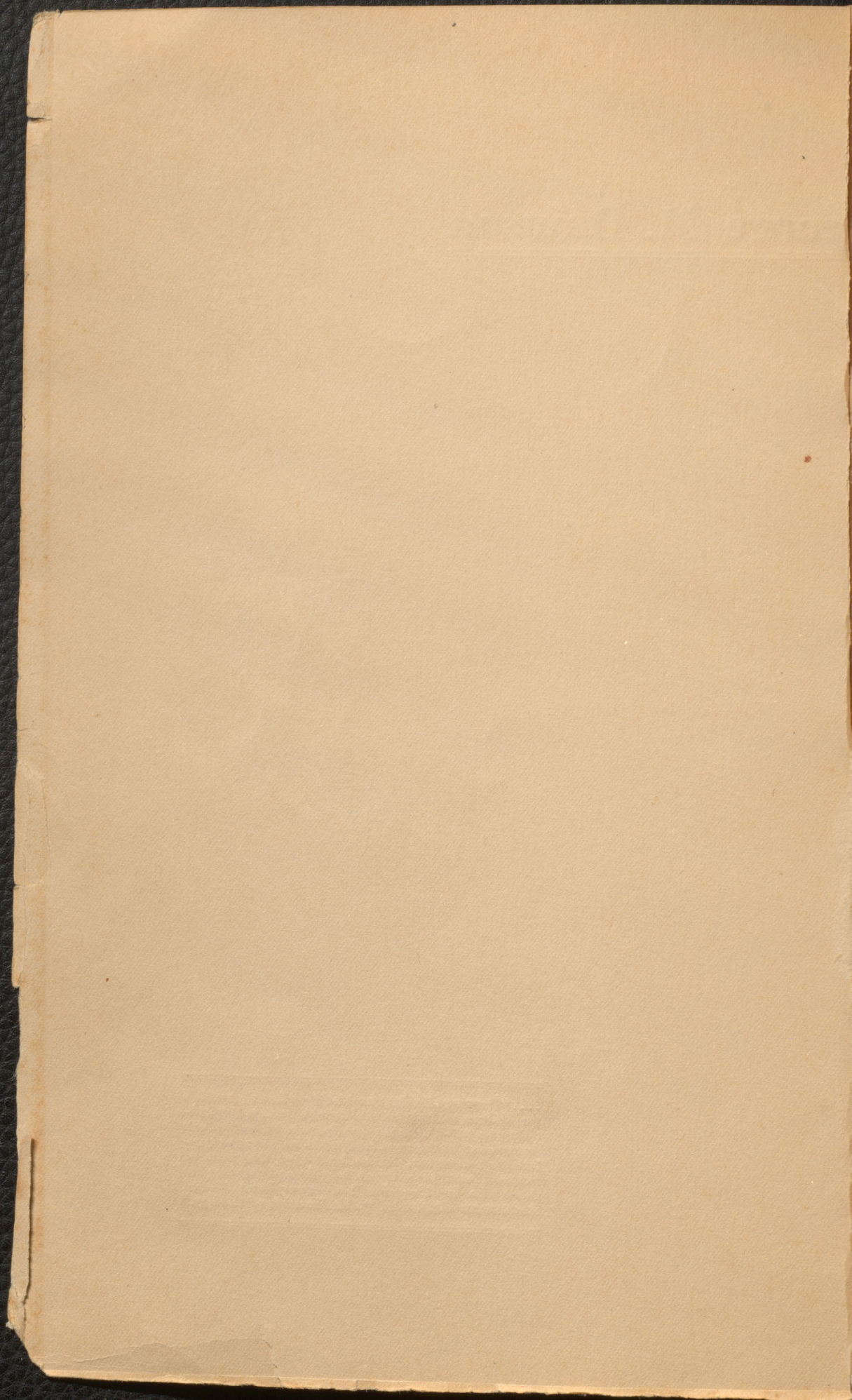
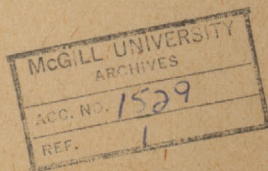


George M. Dawson

... "Proving all things and holding fast that which we believe to be true, let us look back with gratitude and pride to what has been achieved by our forerunners in the race, and while we labour to emulate their devotion, let us hold high the torch of Science, and pass it on bright and burning to those who shall receive it from our hands."—SIR ARCHIBALD GEIKIE in "*The Founders of Geology*."



DEDICATED TO ALL WHO, "BY THOUGHT AND
DINT OF HAMMERING," SEEK EARNESTLY TO MAKE
KNOWN THE TREASURES OF GEOLOGICAL SCIENCE
AND TO UNRAVEL ITS NUMEROUS AND AT TIMES
KNOTTY PROBLEMS, AS DID THE ESTEEMED AND
LAMENTED SUBJECT OF THIS SKETCH.



THE HISTORY OF THE
CITY OF BOSTON
FROM THE FIRST SETTLEMENT
TO THE PRESENT TIME
BY NATHANIEL BENTLEY
VOLUME I
1786

A

Biographical Sketch

OF

George Mercer Dawson

COMPANION OF THE ORDER OF SAINT MICHAEL AND SAINT GEORGE, DOCTOR OF LAWS OF THE MCGILL UNIVERSITY, MONTREAL, OF QUEEN'S UNIVERSITY, KINGSTON; ASSOCIATE OF THE ROYAL SCHOOL OF MINES, LONDON, ENGLAND; FELLOW OF THE ROYAL SOCIETY OF ENGLAND, OF THE GEOLOGICAL SOCIETY OF LONDON, OF THE BRITISH AND AMERICAN ASSOCIATIONS FOR THE ADVANCEMENT OF SCIENCE; CORRESPONDING MEMBER OF MANY OTHER LEARNED SOCIETIES, BOTH IN EUROPE AND AMERICA; DIRECTOR OF THE GEOLOGICAL SURVEY OF CANADA AND DEPUTY HEAD OF THE SAME DEPARTMENT, &c., &c.

BY

H. M. AMI, M.A., D.Sc., F.G.S.

OF THE GEOLOGICAL SURVEY OF CANADA.

OTTAWA: CANADA.

1901.

GEORGE MERCER DAWSON

GEORGE MERCEUR JAWSON

With the Compliments

OF

HENRY M. AMI.

*Geological Survey,
Ottawa.*



Taken by
George W. Dawson

BORN : AUGUST 1, 1849.

DIED : MARCH 2, 1901.

BIOGRAPHICAL SKETCH

OF

GEORGE MERCER DAWSON

Late Director of the Geological Survey of Canada, &c., &c.

TO WHICH IS APPENDED A LIST OF HIS WRITINGS COMPILED FROM
VARIOUS SOURCES.

(WITH A PORTRAIT.)

By H. M. AMI, OF THE GEOLOGICAL SURVEY OF CANADA.

The world of Science and especially of geology received a severe shock on the evening of Saturday, the second day of March 1901, when the news of the death of Dr. G. M. Dawson was announced. This sad event was altogether unexpected and leaves the ranks of the Canadian Geological Survey minus its head and most distinguished officer, one who had always taken a foremost part in carrying on the good work of his predecessors in the position of Director, and promoting geological research throughout the Dominion.

Not only as a geologist, but also as an ethnologist and naturalist Dr. Dawson was well known, and his too early demise will be sorely felt by the whole scientific world.

The immediate cause of his death, was a severe attack of capillary bronchitis which set in subsequent to a somewhat protracted but apparently only slight cold. Dr. Dawson had been attending to his official duties all day Thursday, February 28th, and had thus been only one whole day absent from the Department when he breathed his last at five minutes after six in the evening of Saturday at his rooms, in the Victoria Chambers, Ottawa.

His loss to Canada cannot be overestimated. His place can never properly be filled. He will be missed most, not only by the various members of the Geological Survey of Canada with whom he was in constant communication regarding the advancement and welfare of every part of the Dominion, but also by the numerous friends, correspondents and admirers the world over who knew him best, and sought to obtain from him reliable information upon the geology and economic resources of this part of the Empire.

The early training he received with his father, Sir William Dawson, at McGill University, subsequently in London, England, at the Royal School of Mines, eminently fitted him for the distinguished positions which he held during his lifetime, and at the time of his death, that of Director of the Canadian Geological Survey.

By his death there is removed from this sphere of activity one of the greatest lights and intellects of the last progressive half of the century just ended. His numerous and important writings are a monument which will ever stand as a mark of glory and renown to his life-work, his industry, talent and painstaking accuracy.

He was a Nestor in Canadian geology, and the grasp which his strong intellect had of all the problems relating to the economic and natural resources of our vast Dominion, made him master of his department and a centre of distribution of the most valuable information. With a diminished staff at his disposal, he guided the department under his care with unsparing as well as inspiring efforts, and was then producing more results and giving out more information than ever before in any period of the history of the Survey in all its different branches.

With the ever increasing demands for exact information concerning the mineral and other economic resources of Canada, with the increase of labour and attention to official matters, he was kept more than usually busy for the past six years. Through his personal efforts and that of his staff, he did so much to disseminate information regarding Canada's mineral resources, that the mining interests of the Dominion may now be said to be fairly well established upon a firm and non-speculative basis.

Dr. George Mercer Dawson was the eldest son of the late Sir William Dawson who was the honoured Principal of McGill

University for upwards of forty-four years, and who preceded the subject of this sketch by only a few months, having died in Montreal, his home, on the 19th day of November, 1899, at the advanced age of 79.

"Doctor George," as he was familiarly called, was born in the town of Pictou, Nova Scotia, on the first day of August, 1849, and at the early age of six years his father moved to Montreal, having accepted the principalship of McGill University. His early training was at home, under tutors, and subsequently, at the Montreal High School, and in McGill University, where, however, he did not graduate, but went to Edinburgh and London. There he carried on studies and researches in Mining and Geology, especially at the Royal School of Mines, London, from 1869 to 1872, carrying off the highest honours of his class and the Duke of Cornwall's prize in his year, also the Edward Forbes gold medal for palæontology, ranking *first*. He graduated as an "Associate of the Royal School of Mines, England," a much coveted title.

On his return to Canada he spent some time investigating the copper and iron deposits of Nova Scotia, his native province, and later lectured in Morrin College, Quebec. In 1873, he was appointed geologist and botanist to Her Majesty's British North American Boundary Commission, of which Major D. R. Cameron, R.A., was Chief Commissioner for Britain. His excellent report upon the Geology and Mineral Resources of the 49th parallel from the Lake of the Woods to the Pacific Ocean marked him out as a scholar and an eminent observer. He was then only twenty-five years of age when his first official report was prepared and the volume was so eagerly sought, that it is now quite out of print, the edition having been readily exhausted. A copy is now conceded to be actually worth its weight in gold.

Then it was that were laid down the lines upon which his subsequent career and researches lay, for, when he received from the Dominion Government the appointment on the Geological Survey staff, as Chief Geologist, in July, 1875, his explorations and researches led him into the vast and then practically unknown Northwest Territories, and in British Columbia. In the mass of his voluminous and much-sought-for reports upon the resources of the districts which he examined and explored will be found the

most authentic and useful information on those now rapidly developing and flourishing districts. In his Yukon explorations of 1887 and 1888, he examined and reported upon that most valuable and important district to which the world has been and is still looking for many years for a goodly share of its source of supply of gold. He was the real discoverer and describer of that now famous gold-bearing belt in which there is happily left as a monument to his indefatigable researches in the eighties the capital town or city of the Yukon Territory, which now bears his name.

Not only were his mental strength and intellectual vigour remarkable but even his powers of physical endurance were great. As an instance of the latter, may be mentioned a boat journey of 1,300 miles and a portage of fifty from the Valley of the Liard to that of the Yukon, which mark his zeal and energy as an accomplished explorer. It would be superfluous here to give even a synopsis of his numerous reports, suffice it to say that even his most scientific papers and official reports are all most readable and full of useful information on the regions traversed and described.

Besides being an eminent geologist, he was also a foremost naturalist. Amongst his contributions to the Empire may be mentioned his work as one of the Commissioners appointed by Her Late Majesty Queen Victoria, as one of the arbiters in the Behring Sea seal fisheries. The exact conditions and real facts concerning seal-life which were studied by him, have proved Great Britain's most powerful argument in the case. In 1892, after his work on this commission was ended, Her Majesty Queen Victoria was pleased to create him a C.M.G., and in 1890 and 1891 respectively, Queen's and McGill Universities conferred upon him the degree of doctor of laws *honoris causâ*. In 1883 he was appointed assistant director to the Geological Survey Department, and during Dr. Selwyn's administration proved a most capable officer and co-adjutor.

In 1891 he was made a Fellow of the Royal Society of England, the most distinguished body in Britain, for his eminent work in geological science. In 1893 he was elected President of the Royal Society of Canada; in 1894, corresponding member of the Zoological Society of London; in 1895, Fellow of the American Association for the Advancement of Science; in 1896, chosen

President of Section "C" in Geology of the British Association for the Advancement of Science, and in 1897 delivered a masterly inaugural address upon the Archæan geology of Canada. In the same year, the Royal Geographical Society of London presented him with their highest award, a gold medal; and in 1891 had been awarded the Bigsby medal for eminent researches in geology by the Geological Society of London. The recipient of this medal must not be older than forty-five years at his last birthday.

As an ethnologist and archæologist, Dr. Dawson stood foremost in Canada and was an eminent authority. Many of his spare hours were devoted to this most important subject. His report upon the manners and customs of the Haidas in the Queen Charlotte Islands and the numerous and interesting specimens he brought with him have laid the foundations of the ethnological department of the National Museum at Ottawa. The Geological Survey of Canada was fortunate in having so able a scientist and geologist as Dr. Dawson for its director. He has done much in disseminating exact knowledge regarding the vast regions of the west chiefly, whilst his attention and care has led him to take a most prominent part in the economic prosperity and development of the eastern or older provinces. His courteous and practical replies to the constant stream of correspondence which he received in his position as chief of the Geological Survey department, have done much to place Canada's mining interests on a firm basis. He had successfully carried out the work of his predecessors, Sir William Logan and Dr. Selwyn, in investigating the resources of Canada, both far and near. His death is an irreparable loss to Canada, to science, but especially to the Geological Survey Department.

Dr. Dawson was by nature of a retiring disposition, though exceedingly sociable and amusing as well as always interesting in company, yet more so was it the case with geologists, and above all in the field. He was unmarried and a prominent member of the Rideau Club, where he was most popular and highly appreciated. He proved to possess a perfectly inexhaustible fund of ready knowledge upon questions of Canadian, Imperial as well as of world-wide interest.

His writings are chiefly found in the Annual Reports of the Geological Survey department, in the Quarterly Journals of the Geological Society of London, in the American Journal of Science and Arts, the Canadian Naturalist and the Ottawa Naturalist. When in 1894 he was unanimously elected President of the Royal Society of Canada, the theme of his address was "The Future of Science in Canada." He was Associate Editor of the Journal of Geology of Chicago, and for three years he was President of the Ottawa Field-Naturalists' Club, during which term he did all in his power to advance and promote the interests of the Club. His was a life constantly devoted to the best interests of his official work. He combined indomitable energy with will power which did much to keep up his vital strength as against what might be termed a weakly physique. Close attention—possibly too close attention—during late years, to office work, and a lack of the outdoor physical exercise, which he was wont to enjoy in his arduous mountain climbings and in his explorations of many unknown regions of this great Dominion, possibly combined to weaken his constitution.

He was called away most suddenly and will be missed by all who knew him personally or through his writings; but he has left behind him a noble monument of his industry and push as an explorer and of his skill as a practical geologist both in his official work and in the personal influence which he exerted in the advancement of science and scientific thought in Canada and elsewhere for twenty-six years.

As a geologist Dr. Dawson's reputation was world-wide. He was one of those investigators in the realms of geological science who sought not only to point out the at once practical and economic side in the resources of the earth's crust of Canada, his native land, but one who diligently and intelligently hammered away at the numerous problems of pure geological science. They are numerous the problems in the geology of North America which are as yet unsolved; and, wherever an element of doubt came in, as to the truth or validity of the results propounded by this or that investigator, or whenever intricate bits of geology presented themselves to his mind and eye for investigation, he made it his sacred duty to closely examine and carefully study their various relations in the field as well as in the office, thus seeking

to ascertain all the facts of the case to enable him to arrive at a satisfactory conclusion of the difficult points involved. He never rested until the problem which he had before his mind was solved. In other words he was *thorough*. His reports, maps and papers are models of excellence and description. He had a facile pen, an intellect keen and lucid, which could grasp the situation at a glance. His love for thoroughness and the best possible work, came forth time and again in his endeavors, as the head of the Geological Survey of Canada, to present to the Hon. the Minister of the Interior, and to Parliament, the reports under his care, as well as the innumerable correspondence of the department making enquiries on the resources of every quarter of our great Dominion, as models of care and attention. The reports issued during his régime as Deputy Head and Director can truly be said to be the pride of the Department. As regards quality as well as quantity of work brought forth and exact information published and disseminated by him during the six years and two months of his administration, it cannot be denied that they are both unparalleled in any previous equal period in the history of this now old and established institution.

A cursory sketch of the various regions examined by Dr. Dawson during his connection with the Geological Survey of Canada will serve to shew the amount of territory which he covered and the nature of his extensive researches.

After completing his explorations and surveys in connection with the British American Boundary Commission, and writing his priceless memoir on the same, he contributed several reports which are found in the Reports of Progress of the Geological Survey of Canada for 1873-74, and 1874-75. These include reports on the hematite deposits of Pictou County, Nova Scotia; on the limonites of the same county and on the spathic ore deposits of the Sutherland's River, N.S.; also on the clay-iron stones of the Tertiary, along the 49th parallel, and the limestones of the Cretaceous of the Swan River and Thunder Hill in Manitoba; together with the results of his botanical researches along the 49th parallel.

In the Report of Progress for 1875-76 we find his report on Chilco and Nazco rivers and the trail to Fort George, B.C., and in the next year's report his results in the basins of the Blackwater,

Salmon and Necchacco rivers and of François Lake, B.C., along with a reconnaissance report of Leech River and vicinity on Vancouver Island. This report includes a statement of the condition of mines and mining in British Columbia at this early period. Coals and lignites and many minerals of economic importance were obtained by him along the route and analyses made by the department. These have served to lay down the foundation of our knowledge of the mineral wealth of that once remote province, a province whose resources, thanks to Dr. Dawson's work, are today well known and appreciated.

In 1877 and 1878 Dr. Dawson's field of explorations took him in the Queen Charlotte Islands. To obtain an accurate estimate of the subject of this sketch it is necessary to peruse that most interesting report on the resources and possibilities of these hitherto unknown islands from his pen. It was a virgin district for exploration, and the excellent maps which he prepared and were then published by the Department reflect greatly to his credit however young he was at that time. Not only as a geologist did he excel in this report, but he distinguished himself highly also as an ethnologist. He shewed the world of science what an abundant field for research and enquiry there was open on that western coast. Even with the languages and vocabularies of the different tribes of the aborigines which he visited and examined, he made himself familiar, and by his writings contributed much of permanent value to the philology of the coastal and other tribes of British Columbia.

Dr. Dawson's reports are usually accompanied by an extensive series of Appendixes. He was a most prolific collector of facts and specimens. Accordingly, his reports sometimes contain as many as a dozen appendixes on all kinds of subjects of importance and interest to our country, on the floras and faunas met with, the insects and crustacea, the shells of the land and of the sea, weather reports and other interesting meteorological observations. The fossil organic remains of the formations which he studied, he ever looked after most carefully, for he truly knew their great value as horizon-markers. He not only submitted these various collections to specialists and authorities throughout the country or abroad, from whom he received further information from time

to time, but also examined them himself and described them. Dr. Dawson had a keen eye for fossils, and would have made an excellent palæontologist had he followed one of his early inclinations. When the position of Palæontologist to the Geological Survey became vacant by the death of Elkanah Billings in 1875, (to whose memory he paid such a noble tribute but three months before he himself died) he himself was an applicant

Later, in the Report of Progress for 1878-79, he gives notes on the geology of areas drained by the Red and Assiniboine Rivers in Manitoba, and also describes the Coal deposits of the Lignite Tertiary of the Souris River, from the Great Valley and Porcupine Creek region. The report of his explorations on the Skeena, and down the Peace in 1879, are embodied in the Report of Progress for the year 1879-80, which is entitled "A report on exploration from Port Simpson to Edmonton, by the Peace River." Much important astronomical data has been furnished the government by Dr. Dawson during this and other numerous voyages and explorations which serve to fix the latitude and longitude or precise position of distant places on the Map of the Dominion of Canada.

In 1882 Dr. Dawson visited Europe where he carried on studies having for their object the utilization of the lignites of the West as fuels, and the results of his researches were embodied in an important report on this practical subject.

For our knowledge of the forest trees of British Columbia the country is under a great debt to Dr. Dawson. He sought not only to bring forward the immense value which they prove to possess but also to point out the best means of preserving such a grand heritage.

He did much to reveal the hidden geological structure and economic resources of the Districts of Alberta and Assiniboia, and especially as regards their coal areas. Up to 10,000,000 tons of coal to the square mile for hundreds of square miles of territory he has described and reported, and time will only serve to emphasize the accuracy of his descriptions of the carefully sought out facts from the bosom of Nature which was ever ready to yield her secrets to him who knew her heart and appreciated her bountiful stores. His report on the geology of the Bow and Belly Rivers in the Report of Progress for 1880-82 affords a condensed sum-

mary of his explorations in the districts just east of the Foothill country.

In 1883, Dr. Dawson was engaged along the western slope of the Rocky Mountains proper and had with him as assistant that year Mr. J. B. Tyrrell who examined the geology and structure of the Crow's Nest Pass with its great possibilities for Coal. In 1884 he carried on explorations farther north in the Rocky Mountain and Selkirks region and prepared a reconnaissance map and a report giving the results of his observations, together with notes on the geology and resources of the Red Deer River country.

In 1885, when Dr. Selwyn was appointed the Canadian Commissioner to the Colonial and Indian Exhibition, Dr. Dawson superintended the work of the Survey as Acting-Director, and his time was fully occupied in attending to the duties of the office, to the shipment of the minerals and ores of the Dominion and cataloguing of the same as well as of editing the first of the new series of the Annual Reports of the Survey. He however, found time to write and publish his own report on the Rocky Mountain region. On returning from Great Britain, Dr. Selwyn makes the following kindly allusion to his work in the Summary Report of the Department for that year :—

“I wish here to record my high appreciation of the very able
“and efficient manner in which Dr. Dawson has performed all the
“work.”

It was in 1876 that Dr. Dawson was officially appointed to the staff of the Geological Survey of Canada, as we read on page 7 of the Report of Progress for 1875-76, where Dr. Selwyn, as Director, writes as follows :—“Mr. G. M. Dawson, late Geologist and Naturalist on the International Boundary Survey of the 49th parallel was appointed and has since been actively engaged in exploration in British Columbia.” It was during this first year of Dr. Dawson's connection with the Canadian Survey that the Centennial Exhibition was held in Philadelphia and on page 2 of the report just quoted one can see that even at that early date he had the material welfare and prosperity of British Columbia at heart. We read that he contributed not a little towards the proper representation and display of the then little known mineral resources of the Pacific province, and not only were the minerals attended

to, but also the vegetable as well as the animal products of British Columbia.

His recent reports on the Kamloops District of British Columbia, those on the Southern Interior of the same province, on the Northwest Territories, on the Yukon Territory containing in 1888, as this last mentioned report did, nearly 400 pages of description of that now famous region including its gold-bearing gravels, also his Queen Charlotte and Vancouver Island reports, are all replete with the greatest interest and afford the best works of reference upon those important regions.

A list of Dr. Dawson's writings has been prepared from my own card catalogue, also from various bibliographic sources and references to original papers from his pen, in geology, natural history, &c. These comprise hundreds of reports, memoirs and papers on economic as well as scientific subjects. This Bibliography of Dr. George Dawson's is added to this brief and much too limited sketch of the life of one of Canada's foremost scholars and workers, as an index of contributions to the literature of geological and other sciences in Canada.

Dr. Dawson was President of the Ottawa Field-Naturalists' Club for three years, from 1891 to 1894, and as much as lay in his power he worked in the interest of our Club, not only by contributing important papers himself to the pages of its Transactions but also by encouraging others to do the same. His love for science and scientific work was unbounded, and of him it may be truly said that he spent himself for his country and his country's good. He was one of those who "by thought and dint of hammering" earnestly sought to make known the treasures of geological science in his native land, to unravel its numerous as well as interesting and at times knotty problems with regard to the truth as recorded in the rocks.

Especially in the West he will be greatly missed.

The writer cannot more fitly close this brief sketch than by quoting that admirable "Ode" from the pen of a well-known author in the Pacific province who, along with the vast army of pioneers who are developing its mineral and other economic resources, have found in Dr. Dawson's reports reliable and accurate information.

ODE TO "DR. GEORGE"

BY CAPTAIN CLIVE PHILLIPS-WOOLLEY.*

Grey and ghostly willow fringes, flame to crimson at the tips,
 Where a sun that has some heart in through the waking forest slips.
 High above us, on Mount Sicker, I can hear the blue grouse hoot ;
 Birds are calling, rivers glitter ; buds are bursting, grasses shoot.
 On the pine stump by our shanty, Dawson's tattered map lies spread,
 And my partner with his finger marks the footsteps of the dead.
 "Spring!" he says, mate, time to quit it, for the barren bands of hardfists hold.
 By this here map and the compass, their course to the northern gold,
 With a laugh and a curse at the danger, while down the Arctic slope
 Are two of the best ahead of the boys, Doctor George and Hope——
 "Hope she has fooled us often, but we follow her Spring call yet,
 And we'd risk our lives on his say so and steer the course he set,
 Down the Dease and the lonely Liard, from Yukon to Stikine ;
 There's always a point to swear by, where the little doctor's been,
 Who made no show of his learning. But, Lord ! what he didn't know
 Hadn't the worth of country rock, the substance of summer snow.
 I guess had he chosen, may be, he'd have quit the noise and fuss
 Of cities and high palavers to throw in his lot with us.
 He'd crept so close to Nature, he could hear what the Big Things say,
 Our Arctic Nights, and our Northern Lights, our winds and pines at play.
 HE loved his work and his workmates, and all as he took for wage
 Was the name his brave feet traced him on Northland's newest page——
 That, and the hearts of the hardfists, though I reckon for work well done,
 He who set the stars for guide lights, will keep him the place he won,
 Will lead him safe through the Passes and over the Last Divide,
 To the Camp of Honest Workers, of men who never lied.
 And tell him the boys he worked for, say, judging as best they can,
That in lands which try manhood hardest, he was tested and proved A Man.'

*Extract by kind permission of H. Mortimer-Lamb, Esq., from the British Columbia Mining Record for April, 1901.

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[Reprinted with addition of Bibliography from THE OTTAWA NATURALIST, Vol. XV, No. 2, pp. 43-52, May, 1901, by the OTTAWA PRINTING CO. (LIMITED), Ottawa, Canada]

