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ROYAL ONTARIO MUSEUM
LIFE SCIENCES
MISCELLANEOUS PUBLICATIONS

William Arthur Parks
Ph.D., LL.D., F.R.S.
1868-1936

MADELEINE A. FRITZ

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Publication date: 11 June 1971

Suggested citation: Life Sci. Misc., R. Ont. Mus.

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LIFE SCIENCES EDITORIAL BOARD, 1970

Chairman: P. C. SWANN
Director, Royal Ontario Museum

Editors: R. L. PETERSON
E. J. CROSSMAN

Cover ink portrait by Anker Odum.

PRICE: \$1.50

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100 Queen's Park, Toronto, Canada

PRINTED AT THE BRYANT PRESS LIMITED

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William Arthur Parks, founder of the palaeontological collection and Director of the Royal Ontario Museum of Palaeontology, was born in Hamilton, Ontario, December 11, 1868. He was the son of George Dyer Parks of United Empire Loyalist stock, and Mary Kate Snelgrove, who were married in the Church of the Ascension in Hamilton on May 25, 1865. Two of their six children died in infancy. Of the four surviving children, only William Arthur qualified for a professional career. Until eleven years old he lived in Hamilton where his father was a cabinet maker and where he attended elementary school. When the family moved to Bowmanville in 1879 his father worked in the piano factory in that town as a skilled craftsman. Young Parks attended high school in Bowmanville, graduating in 1886 at the age of eighteen with honours in Mathematics and Modern Languages. After a period of training in teaching at the Port Hope Model School he taught from 1886 to 1888 in the School Section No. 9 in the township of Darlington, Ontario. No record is available of the subjects he taught. The family then moved back to Hamilton where his mother died on March 20, 1902.

In 1888 he entered the University of Toronto, gaining in his first year honours in Modern Languages and Natural Sciences. He graduated with distinction in the latter course in 1892, winning the Daniel Wilson scholarship and the McMurrich silver medal. His brilliant record as a student gave promise of the success that later crowned his career. His first appointment in 1892 was as a chemist with the Canadian Copper Company at Copper Cliff, Ontario, which later developed into the International Nickel Company. In the same year he was one of the first to note the presence of gold on a portage from the Mattagami River to Nighthawk Lake, which led to the discovery of the Porcupine gold camp. The Porcupine gold area or camp, as it was referred to by geologists, now includes many gold mines among which the Hollinger and McIntyre Mines are outstanding.

During these early days when travelling was done largely by canoe with Indian guides, Parks acquired the reputation of carrying enormous loads over portages. This was due in part, no doubt, to the fact that Indian guides were reluctant to carry packages of rocks for which they could see no use. If not carefully watched they would be dumped overboard and another lot of "stones" substituted at a favourable opportunity.

In 1893 he joined the University of Toronto as a Fellow in Geology and from that time until his death on October 3, 1936, he devoted himself to the service of the University, not only as an outstanding member of the teaching staff, but also as an active participant on policy-forming committees of the Arts and Science Councils and the Senate. In 1900 he

W. A. Parks, second from right with field party of assistants, Bracebridge, Ontario, 1900.

received the degree of Doctor of Philosophy from the University of Toronto and was the first person to receive that degree in Geology in Canada. A few months prior to his death his own University awarded him *in absentia* the honorary degree of LL.D. in recognition of his outstanding service to the University and to Science over a period of 43 years.

The low salaries paid by Universities in those early years made it necessary for the younger staff to work during the summer vacations at any available employment; accordingly Parks, a large, strong, vigorous young man, welcomed the opportunity of joining geological field parties going into the wilds of northern Ontario, at first as an assistant and later in charge of a party.

His published reports from 1897 to 1905 are listed in his bibliography. To give an idea of the scope of his early work the following quotation is taken from his account of "Niven's Base Line" which was published in 1899.

"The 120th mile post of the Nipissing-Algoma boundary is situated some distance north of the height of land in the vicinity of Nighthawk

Lake. In the summer of 1899, Alexander Niven O.L.S. was dispatched under the authority of the commissioner of crown lands to run a base line from this point due west about a distance of about 120 miles to Missanabie Lake. Under instructions from Archibald Blue, director of the Bureau of Mines, I accompanied this survey to report on the geological and topographical features of the region as well as its soil, water powers, drainage, and various minor features. By taking advantage of numerous water courses crossing the country north and south a considerable area was explored and by following the Indian canoe routes between the rivers, valuable geographical knowledge was obtained. In view of the many incorrect maps now existing a more accurate description of these cross routes should prove of inestimable value.

"Accompanied by Mr. H. S. Michie of Fergus, Ontario, who acted as my assistant during the summer, the party arrived at Matagama station on the Canadian Pacific Railway early in the morning of the 6th day of June. From this point we proceeded by an excellent canoe route to Fort Mattagami and thence to our station point, the 120th mile post on the Nipissing-Algonia boundary. A description of the territory traversed by this route will form the first division of the report proper.

"The line ended a short distance from Missanabie Lake and I was able to report in Toronto on 21 September. On the map accompanying the description I am able to vouch for the accuracy of places described in the text; some other routes are shown which I believe to be substantially correct, but which I have not been able to verify by personal observation."

In 1903 he joined a small expedition sent by the Ontario Bureau of Mines into the Moose River Basin in the James Bay region where deposits of lignite had been reported. The deposits he examined on the Kwataboahagan River proved to be of no commercial value. However, he collected middle Devonian fossils from outcrops on the banks of that river; he later described them. The specimens are now located in the type collection of the Department of Invertebrate Palaeontology.

Although Dr. Parks' early field investigations dealt with economically important Precambrian rocks of northern Ontario, his real interest lay in younger fossiliferous rocks. In May 1902 he received an appointment for one month with the Ontario Bureau of Mines to examine the Palaeozoic rocks of southwest Ontario. In the short paper that followed he recorded the geological observations made in his pedestrian trip from Hamilton to Lake Huron. In addition he noted the occurrence of limestones, marls, and gypsum as possible natural resources. A considerable number of fossils were collected, all of which were added to the palaeontological collection of the University of Toronto.

His next major contribution was the study, *Building and Ornamental Stones of Canada*, a monumental work supported and published by the Canada Department of Mines. It embraced building stones from Ontario, the Maritime Provinces, Quebec, the Prairie Provinces, and British Columbia. The results of the research were published in five volumes (totalling

1277 pages). They appeared at intervals from 1912 to 1917. This was his greatest contribution to economic geology. In addition to the factual evidence accruing from this study, which required long hours of experimental laboratory work often reaching into the small hours of the morning, the end result was of great value to architects, contractors, and quarrymen. Summing up the results of his investigation in a lecture at the University of Toronto, Professor Parks stated that "Eastern Canada possesses plenty of sandstone and limestones, but unfortunately the increasing use of concrete is militating against their use. Granite is coming more and more into use with increased wealth, but although there is plenty of marble of excellent quality, and the most variegated and beautiful varieties, its use is not increasing as it ought, largely because of prejudice and lack of knowledge on the part of architects of the resources of this country in that respect." As a result architects, he pointed out, go to considerable extra expense to import marbles which are no better, and often inferior, to the native stone. He predicted a profitable industry in this class of stone as soon as its good qualities become better known. In connection with this enterprise, Dr. Parks was frequently consulted about suitable stone to be used in Toronto buildings. To cite one example, he recommended the Mottled Limestone from the Tyndall Quarries near Winnipeg for use in Eaton's College Street store in Toronto.

From the foregoing it might seem that Parks was chiefly concerned with physical geology, but such was not the case. His involvement in economic geology was more a matter of necessity than choice. Summer employment, a means of supplementing a small University salary, was more available in that field than in palaeontology in the early days. It must be emphasized that his hobby and study, from the outset, was primitive life.

In tracing his career which led, in due course, to the fulfilment of a long cherished dream of creating a Museum of Palaeontology as a separate institution, it will be necessary to go back to the days at the University of Toronto when the Department of Natural History included the study of fossils, although not as a separate discipline. From 1872 to 1874 Professor Alleyne Nicholson, an eminent palaeontologist from Edinburgh, occupied the chair of Natural History. It was during his brief sojourn in Canada that he made extensive collections of fossils from the rocks of southern Ontario, some of which he placed in the Museum of the University.

Professor E. J. Chapman was Head of the Department of Geology at the University of Toronto from 1853 to 1895. It was toward the end of Professor Chapman's term of office in 1893 that William Arthur Parks received his appointment as Fellow in Geology. He rose from rank to rank, teaching in his younger days nearly every phase of geology and mineralogy known at that time. In 1915, when through his influence Palaeontology, as an organized branch of geology, was added to the curriculum, he became Professor of Palaeontology. From that time until the end of his illustrious career he worked with enthusiasm to further the cause of the science which

he so ably pioneered in Canada. It was largely due to his foresight and untiring effort that the palaeontological collections which were to form the nucleus of the future Museum were assembled. In the beginning these ever-growing collections were housed in various University locations during the days when an actual Museum building had not yet become a reality. In 1901, when the Ontario Government decided to erect a Chemistry and Mining building on College Street, space was to be provided for a Museum of Geology with its various branches. It was not, however, until 1904 that space, a room of merely 1600 square feet, was available in that building.

During the years when Parks was pressing for a Provincial Museum he was generously supported by Mr. Byron E. Walker (later Sir Edmund Walker), that great benefactor of the University of Toronto, who as early as 1899 advocated in his presidential address to the Canadian Mining Institute the need for a provincial museum in Ontario. It is not surprising that Walker was especially interested in a palaeontological museum for, since his boyhood days in nearby Hamilton, his chief hobby had been the collection of fossils. As his interest grew he sought rare collections from many classical areas in North America. Outstanding literary works, both North American and foreign, were likewise procured. This very valuable material, together with the ever-growing University acquisitions, was to form the nucleus of the research collection if and when a museum of palaeontology became a reality.

In a paper presented at the meeting of the Canadian Mining Institute in 1905 Dr. Parks attempted to interest the members in the hope that some action might be taken toward the establishment of a Museum in the province of Ontario. He stated "the great value of a systematically arranged and properly displayed exhibit of natural products of any country is thoroughly appreciated when a great exposition is engrossing public attention. The governments of Canada and Ontario have spent considerable sums at different times to present to the eyes of the world a representative series of natural products. Why should not the same attention be directed to the preparation of permanent exhibits of the same kind?"

Although stressing natural products he went on to say that "I would not be narrow in regarding the future provincial museum, I would have it embrace the whole field of human activity and all branches of geology and biological science."

The government was slow to move and no definite action was taken until 1912 when the Royal Ontario Museum was authorized by an Act of Parliament. In that same year a Board of Trustees was named and the Royal Ontario Museum of Archaeology was established. The Board of Trustees for the Royal Ontario Museum consisted of the following members:
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University of Toronto.

At their meeting on April 3, 1913 the Board established the Royal Ontario Museum of Palaeontology, the Royal Ontario Museum of Geology, the Royal Ontario Museum of Mineralogy, and the Royal Ontario Museum of Natural History (later Zoology). The Museum became a University institution; each individual museum had its own Director who was also a Professor at the University. Professor Parks was named Director of the Royal Ontario Museum of Palaeontology. His undergraduate lectures were delivered at the Mining Building of the University, his postgraduate work and research were carried on at the Museum.

In March 1914 His Royal Highness, the Duke of Connaught, opened the Bloor Street wing of the long-hoped-for Museum. The palaeontological exhibits occupied a space of 3200 square feet in the middle third of the top floor gallery. In the remaining portion of that gallery the exhibits of mineralogy and zoology were located.

Turning to the scientific research for which he is well known, we find Professor Parks at first specializing in Invertebrate Palaeontology. Although his early studies dealt with practically every group of fossil invertebrates, it is his monographic studies on the extinct Stromatoporoidea that gained for him international recognition. These reef-building organisms, which bear little resemblance to existing forms of life and whose systematic position is debatable, cannot be identified from their external form. Thin-sections are required to determine their intricate microscopic structure which varies greatly from genus to genus and from species to species. The large collection of type specimens contained in the present Department of Invertebrate Palaeontology of the Royal Ontario Museum form a basis for present day specialists who not infrequently visit the Department to examine the collection. His first publication on this subject appeared in 1907, his last in 1936. His study over thirty years led him eventually to adopt a suggestion from Professor S. J. Hickman, zoologist at Cambridge, that the systematic position of the stromatoporoids is with certain sedentary Protozoa rather than with the Hydrozoa as proposed by Nicholson in his monograph on British Stromatoporoidea, 1886-1892. Parks presented this idea to the Paleontological Society of America in a paper published in 1935 but it was not acceptable to palaeontologists and considerable adverse

Stromatoporoid (type of *Stromatoporella distincta*, Parks, 1933). x 1-1/4.

criticism followed. Although he continued his studies while his health permitted, the fuller discussions of the affinities of these problematic fossils were never published. Present day specialists do not think sufficient evidence is as yet available to determine their systematic position.

In 1918 Professor Parks turned his attention to a study of fossil vertebrates, thus rounding out his career from the outset in physical geology to a concentration on the biological aspect of the science. A series of expeditions was begun by the University in 1918 and was carried on annually until 1935 with the exception of 1932, when the staff was engaged in moving from the original wing on Bloor Street into the Queen's Park wing. Most of these expeditions were to the Red Deer River of Alberta except that of 1925 to Saskatchewan and those of 1928 and 1929 to Wyoming and Nebraska. The latter three were to obtain Tertiary mammals. The first two expeditions were under the direct supervision of Professor Parks; all the others were conducted by Mr. Levi Sternberg, who had been trained by his father Mr. Charles H. Sternberg, a veteran private collector.

R.O.M.P. expedition 1921; left to right: two assistants, cook, G. E. Lindblad, L. Sternberg, W. A. Parks. Nat. Mus. Can. 46586.

The Red Deer River has cut a deep gorge through Cretaceous rocks; these rocks and other isolated patches which escaped erosion represent a dinosaur graveyard. The skeletal remains of this extraordinarily diverse race of animals was the much sought after prize. During the field season of 1918, Parks skilfully collected a fine skeleton of *Kritosaurus incurvimanus*, which created great public interest when exhibited in 1919.

Whereas the collecting, preparing, and mounting for display of these extinct reptiles required much labour and skill on the part of the technical staff, the work involved in their identification and description was a tremendous undertaking and fell to Parks alone. He set about this task with his usual enthusiasm, industry, and vigour and between 1920 to 1933 he regularly published descriptions of the specimens acquired over the years. These specimens constitute the major part of the present day collection. It is no exaggeration to say that the dinosaurs have always been one of the main Museum attractions. They are a fitting monument to his enterprise, energy, and ability.

Turning closer to home, he initiated a study in 1921 of the fossils found in the Ordovician rocks which underlie Toronto. These rocks hold a prolific fauna representative of many groups of invertebrate fossils. In this research he was assisted by post-graduate students W. S. Dyer and the writer. The Ontario Department of Mines published the results of the work in a series of papers from 1923 to 1925, entitled *The Stratigraphy and Palaeontology of Toronto and Vicinity*.

Kritosaurus incurvimanus, Parks. x 1/40.

In 1924, on the occasion of the meeting of the British Association for the Advancement of Science in Toronto, a local committee was set up to prepare a Handbook of Canada. Professor Parks was named Chairman. In his Preface to the volume he states: "This volume has been compiled with the object of presenting to visitors from Great Britain and elsewhere a brief outline of those institutions, industries, and sciences which are distinctly Canadian, or which have attained a position of relative importance in this country . . . . The inadequacy of the volume is fully realized but is hoped that it may, at least, draw attention to some of the outstanding features of Canadian life and achievement."

In 1931 Parks, who had been Head of the Department of Geology, University of Toronto, since the retirement of Professor A. P. Coleman in 1922, was appointed by the University to represent the Royal Ontario Museum of Palaeontology at the British Empire Exhibition in South America. This afforded him an opportunity to visit the Museums of Rio de Janeiro, Buenos Aires, and La Plata. It turned out to be a goodwill mission, resulting in his obtaining examples of characteristic South American fossils in exchange for typical Canadian forms. One significant South American fossil received was an extinct armadillo-like animal (*Glyptodon*) in exchange for the head of the horned dinosaur (*Centrosaurus*).

With the palaeontological collections steadily increasing it became apparent that additional space was essential. This urgent need was felt alike by the other four component museums. Within fifteen years, therefore, after the opening of the original wing an earnest and energetic appeal was being made to enlarge the building. In 1930 work was begun and in

Extinct rhinoceros (*Diceratherium*). x 1/20.

1933 the Museum building as now known was opened. In the new Queen's Park wing Palaeontology occupied the whole middle floor with an exhibition space of 14,400 square feet, a vast area when compared with that of earlier days. The invertebrate galleries were situated at the south end, the vertebrate galleries at the north end.

All groups of fossil invertebrates, ranging from Protozoa to Echinodermata, were systematically displayed. The arrangement, although of great interest to students of palaeontology, had little appeal for the "man in the street" who was known to turn away with the remark "oh they are just fossils!" I recall once suggesting that an exhibit which was being prepared to explain the meaning of fossils be labelled "What is a Fossil?" "But, no," Parks remarked, "that would not be in keeping with our practice. We must not treat our subject lightly." In the end the exhibit was labelled "Fossils and Fossilization"!

In the vertebrate section the dinosaurs occupied most of one gallery. One after another, specimens were mounted until, as the years went by, twenty skeletons were exhibited. These specimens constitute the greater part of the collection of the Museum to the present day.

In the adjoining gallery fossil mammals were displayed. Although the mammals are not as spectacular as the dinosaurs, one outstanding exhibit was that of an ancestral rhinoceros group (*Diceratherium*) arranged from

Tar Pit Exhibit. x 1/25.

specimens obtained during the expedition to Nebraska in 1929. Another, the Tar Pit Display assembled from materials obtained from the Los Angeles Museum, showed a sabre-tooth cat (*Smilodon*) about to spring upon a ground sloth (*Paramylodon*) which was also being stalked by dire wolves (*Canis*).

For many years it had been one of the Director's chief ambitions to see the walls of the invertebrate galleries enlivened by a series of paintings depicting successive periods of time in the geological history of the world. Funds were unfortunately not forthcoming until the year before his death, when through a grant from the Reuben Wells Leonard bequest, the project was made possible. In 1935 the celebrated mural painter, Mr. George A. Reid, R.C.A., went to work on the huge canvases which numbered in all thirty-four. In this outstanding work Mr. Reid combined the knowledge of the scientist with the vision of the artist to place on canvas in a striking and fascinating manner a record of the physical and organic world from its nebulous beginnings over four billion years ago to the epoch just prior to the Recent which pictured primitive man. This dramatic series was based upon a hypothesis accepted by many scientists in the mid-thirties. Half of the frieze may be seen in what is now the Museum library.

In this project Mr. John Monteith, now Curatorial Assistant in the Department of Invertebrate Palaeontology, showed considerable interest. Mr. Monteith had been associated for many years with Professor Parks, first as his technical assistant from 1929 to 1935 in the Department of Geology at the University, then as his secretary in the Museum. During these years he acquired considerable knowledge of the palaeontology of

Group of Alberta Dinosaurs — Mural Painting by G. A. Reid. x 1/40.

Ontario. At this time, he was attending night classes at the College of Art. He became friendly with Mr. Reid and his artist wife and spent many hours on weekends in their studio in Wychwood Park helping them in any way he could.

No account of Professor Parks' career would be complete without reference to his success as a teacher. He was a very inspiring and forceful lecturer. His classroom lectures were organized with precision and delivered with poise. In large elementary classes, where inattention might be excusable, offenders were often shown an open door. On one occasion a minor crisis developed. Reported in the *Varsity* under the heading of "Students talking annoys Professor" the story ran as follows: " 'I'll not lecture any longer,' said W. A. Parks, head of the geology department, leaving his 12 o'clock first year general science lecture yesterday at 12.45 in considerable annoyance. 'You come down and see me immediately, and I'll not hesitate to make it hard for you, to set an example, either,' was his threat to a student in the back row of the gallery, whose talking caused the interruption." Whether the culprit made an appearance afterwards history does not record.

Professor Parks had the unusual faculty of getting his special students to absorb a tremendous amount of detailed knowledge of current nomenclature, anatomy, and all related aspects of the subject. "A well-stored mind in youth," he declared, "is an asset not to be minimized when later on one is confronted with new ideas and theories which are bound to be brought forth from time to time." How true! His postgraduate instruction was informal and often took the form of seminars in which student participation was encouraged, and expected. Many graduate students studied

directly under Professor Parks. Among a few who have become distinguished in special areas of geology are:

Dr. P. S. Warren, Professor of Palaeontology, U. of Alberta (d. 1970).

Dr. Duncan R. Derry, Consulting Geologist.

Dr. J. C. Sproule of J. C. Sproule Associates Limited, Calgary, Alberta.

Dr. Sproule was the only Canadian to have been president of the American Association of Petroleum Geologists (d. May, 1970).

Dr. J. F. Caley, Civil servant, former Division Chief in the Geological Survey of Canada, who has contributed materially to the Palaeozoic geology of southern Ontario.

Dr. J. P. Nowlan, Deputy Minister of Mines, Nova Scotia.

As a popular lecturer he was in much demand. Scarcely a month passed without a press release stating that Professor Parks had addressed this club or that, or some organization either in Toronto or elsewhere. In his public lectures his clear exposition of geological subjects did much to enlighten audiences on the local geological scene, how, for instance, familiar landscapes came about and how there was a regular progression of life forms from the older to the younger rocks and that Man was the most recent development although not likely the last.

As a result of his long devotion to a subject in which the key-note is "change," we find Dr. Parks, as time went on, dwelling more and more on the philosophical aspect of geology. Quoting from his address to the British Association as far back as 1925 he says "I confidently believe that geological history teaches us that the earth, and life, and the upward tendency of life will all three reach out into the illimitable future."

Many honours came to Professor Parks. In 1925 he was President of the Geological Section of the British Association for the Advancement of Science and the following year, he became President of the Royal Society of Canada. The Paleontological Society of America elected him President in 1927; in 1928 he served as President of the Royal Canadian Institute. In 1934 he received the highest honour when he was elected a Fellow of the Royal Society of London, although it is likely that he most appreciated the honorary degree of Doctor of Laws from the University of Toronto awarded him shortly before his death.

In 1901 Professor Parks married Miss Jean McLennan of Stratford, Ontario, sister of his close college friend Professor J. C. McLennan. Dr. McLennan, later Sir John McLennan, was one time head of the Department of Physics, University of Toronto.

Professor Parks is survived by one son, Dr. Arthur E. Parks, M.R.C.P. (London) and F.R.C.P. (Canada), who is Medical Vice-President of the Canada Life Assurance Company, Toronto.

Forceful in all his undertakings, with a wide vision, and a strong sense of discipline, he possessed boundless energy and integrity. These qualities masked a very genial and kindly disposition. In paying tribute to Professor Parks a fellow scientist has said that "knowing him well and liking him were synonymous."

ABOUT THE AUTHOR:

Dr. Madeleine A. Fritz, Professor Emeritus in the Department of Geology of the University of Toronto, was a student of Professor Parks from 1922 to 1926. From 1927 to 1935 Dr. Fritz was Assistant to Professor Parks in the Royal Ontario Museum of Palaeontology.

Following Professor Parks' death in 1936, she was successively Assistant and then Associate Director of the Museum of Palaeontology, and then Curator of Invertebrate Palaeontology. In 1956, Dr. Fritz left the Museum to become Professor of Palaeontology at the University of Toronto. She retired in 1967 and is now Research Associate in the Department of Invertebrate Palaeontology in the Museum.

Professor Fritz, who began her study of Palaeozoic Bryozoa at the suggestion of Professor Parks, has published widely on this subject and is a recognized authority on the group. In 1942 she was elected Fellow in the Royal Society of Canada, the second woman in Canada to be honoured in this way.

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