NATIONAL ACADEMY OF SCIENCES.

Volume XVII.
SIXTH MEMOIR.

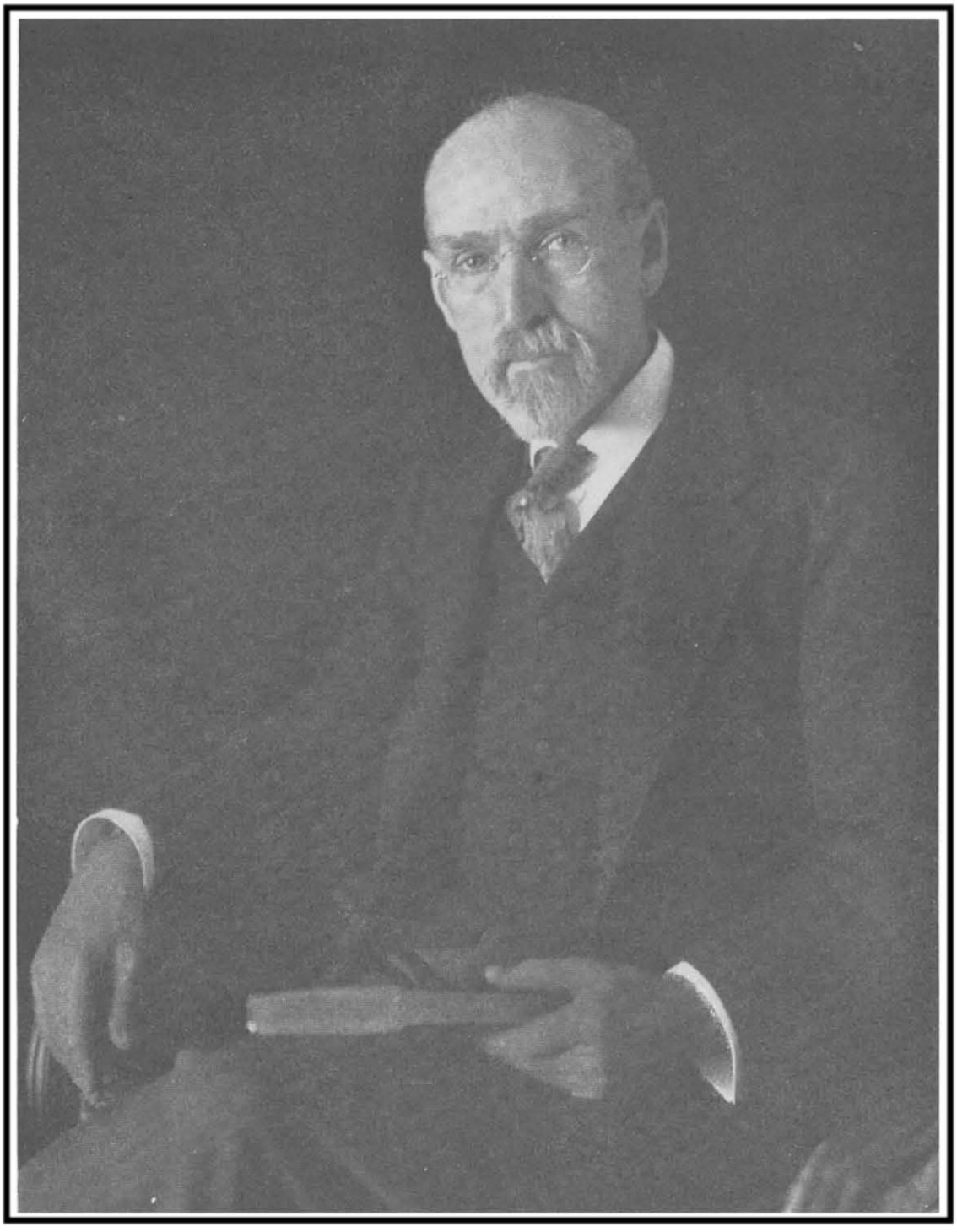
BIOGRAPHICAL MEMOIR CHARLES RICHARD VAN HISE

1857-1918.

BY

THOMAS C. CHAMBERLIN.

PRESENTED TO THE ACADEMY AT THE AUTUMN MEETING, 1919.



Charles R. Van Hise

CHARLES RICHARD VAN HISE.

1857-1918.

By T. C. CHAMBERLIN.

When the career of a leader in science happens to coincide with the rise of a new epoch in the field of research which he cultivates, it is by no means easy to apportion the work of the leader in creating the epoch and the influence of the epoch in developing the leader. But it is always comforting to reflect that whatever may be a just apportionment of the reciprocal influences, the association of a great worker with a great epoch at least bespeaks the genius of the leader in seeing the possibilities of the opportunity and making common cause with them, whether by gaining from them or contributing to them, or by both.

The beginning of the scientific career of Charles Richard Van Hise fell in rather closely with the rise and spread in America of the new art of microscopic petrology and the epoch-making science that arose from it. The new art had begun to develop somewhat in the Old World while young Van Hise was yet a student, but he was one of the first in America to recognize its epoch-making power, and aid in its development; he was quite the first I think to bring its resources to bear upon the study of the crystalline rocks of the interior. He was clearly one of the leaders in realizing the higher and broader values of the new science in the interpretation of the origin and history of the ancient metamorphic terranes. The new departure was one of much moment in the history not only of petrology, but of geology. Up to this time the means of determining the precise nature of the complex rocks formed of minutely intermixed crystals were both limited and untrustworthy. The revelations made by scrutiny under the microscope by the aid of polarized light and other appliances, formed a new epoch in this basal science. To attempt to employ it at all in that early day, when its difficulties were so little known, made demands on the courage of the young men who ventured to try it and called for the fullest resources of their training in the basal sciences involved. The first official products of the new art in America seem to have been the work of two young men—one at the east, Dr. George W. Hawes, of the State Geological Survey of New Hampshire, whose early death was a sore loss to science, and one in the interior, Dr. Charles R. Van Hise, of the Wisconsin Geological Survey, who soon rose to eminence in the development of the new science.

Dr. Van Hise's first contribution was entitled "The Crystalline Rocks of the Wisconsin Valley," and formed the body of Part VII of Volume IV of the Wisconsin Survey of 1873–1879. It was a joint report, the senior author of which was the lamented Irving, under whose guidance and inspiration young Van Hise had pursued his geological studies in the University of Wisconsin. This report indeed was a part of their joint labor as teacher and pupil. The story of the working relations of Irving, the teacher, and Van Hise, the student, as they struggled together in the laboratories of the old Science Hall of the University of Wisconsin, to bring to bear the light of the new methods on the obscure old rocks of the Wisconsin Valley, is among the most delightful reminiscences of those who were permitted to come into close touch with them at this interesting stage of their mutual development. While Van Hise was working with the microscope on these obscure old rocks he came upon what he thought was a new and diagnostic characteristic in one of the constituents under his study, and he had the insight to see that, if his impression was sustained, it would be a valuable contribution to the new petrological science as well as an aid in the practice of the new art. Naturally he was greatly elated; but the conscientious Irving, who by instinct as it were always played the rôle of the cautious and critical trainer, kept the young enthusiast's elation in curb by no end of objections while he gave special piquancy to them by that brusque humor that was peculiarly Irving's own. Still,

in the face of all this, Van Hise held his ground sturdily and after each bout with his trainer went back to his lathe and his microscope undaunted and eager to find further confirmation of his conclusions, until at length he proved his case beyond question or cavil. This early proof of his sturdiness and steadiness of purpose, supported by his clearness of insight and his firmness of induction, were true forecasts of the mental trend that ever after marked the strong scientific leader into which young Van Hise soon grew.

This earliest official work of Van Hise in connection with Irving was carried on during the closing years of the Wisconsin Geological Survey of 1873–1879. So declared was the high quality of their work that immediately on the close of the State survey, the services of both Irving and Van Hise were sought by the National Survey and the work they had so well inaugurated in Wisconsin was continued without interruption not only, but extended to the whole field of the ancient crystalline rocks in the interior of the United States.

At the time of the lamented death of Irving in 1878, their joint work on these ancient rocks had already developed into varied and comprehensive lines of research. All these now fell to the charge of Dr. Van Hise. The final report on their joint work appeared under Van Hise's editorship in an important report entitled "The Penokee Iron-Bearing Series of Michigan and Wisconsin" (Monograph XIX of the U. S. Geological Survey, 1892). The manuscript for this was transmitted in 1890, but the published volume did not appear until 1892. Besides elaborate discussions of the formations that make up this great series and critical microscopic descriptions of the constituent rocks, an important feature was the establishment of a standard section of the crystalline series of the Lake Superior region, which has been a basis of reference ever since, although naturally additions have been made to it in the progress of later study.

In 1896 Van Hise, jointly with W. S. Bayley and H. L. Smyth, transmitted to the National Government a second monographic work entitled "The Marquette Iron-Bearing District of Michigan" (Monograph XXVIII, U. S. Geological Survey, 1897). This was a natural sequel and companion work to the preceding monograph on the Penokee Iron-Bearing series. Among the important features of this report was the discovery that the Marquette series embraced two divisions, separated by unconformities. This volume also contained a fuller development of the important doctrine that the present richness of the iron ores is due in part to the purification of the original ores and in part to the concentration of the iron compounds from above downward, both processes being the work of the natural circulation of the meteorological waters. In the treatment of the Basement Complex, the oldest recognized series of rocks, the very significant fact was brought out that the schistose members of the series were originally surface deposits, largely of volcanic origin, and that the granitic and granetoidal masses of the region had been intruded into these surface formations and hence were younger. It had previously been generally supposed that the granites and the granitoidal rocks were simply cooled portions of the molten globe which was then commonly postulated as an early state of the earth. It now appeared, however, that these supposed relics of the crust were in reality later and younger than the schistose rocks which at the time formed the outer part of the earth. Furthermore, it appeared that most of these schistose terraines had in their turn been laid down on a previous surface. This significant discovery left this region barren of all direct evidence of the supposed molten globe. It is interesting to note that about the same time, as well as later, similar evidence was forthcoming from other regions of ancient rocks of like type which, as in this case, had been supposed to be parts of the original crust of the molten earth. The joint effect of these suggestive revelations was to rob the doctrine of a molten earth of practically all field evidence. These very radical determinations have been sustained by subsequent inquiries, and they thus constitute a contribution to the interpretation of an early stage of earth history of the first order of importance.

There closely followed this report on the Marquette series a monograph of like nature on "The Crystal Falls Iron-Bearing Region of Michigan," the joint work of Drs. Clements, Smyth, and Bayley, under the general supervision of Van Hise. To this Van Hise prepared an introduction in which he brought into comparison the leading features of analogous formations elsewhere in the Lake Superior region in the United States and in Canada.

Three other monographs of like nature were later prepared by colleagues under the supervision of Dr. Van Hise, viz: "The Mesabi Iron-Bearing District of Minnesota," by C. K. Leith (Monograph XLIII, U. S. Geological Survey, 1903); "The Vermillion Iron-Bearing Series of Minnesota," by J. M. Clements (Monograph XLV, U. S. Geological Survey, 1903), and "The Menominee Iron-Bearing District," by W. S. Bayley (Monograph XLVI, U. S. Geological Survey, 1904). These taken with the preceding treatises, make in all six ponderous volumes on the iron-bearing series of Lake Superior. Altogether these embrace over 3,000 quarto pages, and are illustrated by multitudes of figures and maps, making up a monumental series quite unmatched in its own line, a testimony to the invincible industry of Dr. Van Hise. It scarcely need be said that these placed Van Hise at the head of workers on the iron-bearing series of the Algonkian or Proterozoic ages.

While these studies had centered on the great iron-bearing series of Lake Superior, they had involved careful discussions of the adjacent formations of other types, and so were regional monographs as well as specific formational treatises.

There followed these regional monographic studies, in an order that was natural to the trend of an expanding mind always prone to take large views of his field, a series of papers of a broader range. Among these was a series of elaborate discussions of the correlations of the oldest known formation, the Archean, and the next following systems, which lie unconformably upon these and upon one another in due order, the Algonkian series, since grouped under the name Proterozoic. These discussions formed a part of a notable series of correlation papers published by the National Geological Survey in 1892, under the general editorship of the late Grove Karl Gilbert. They have proved very helpful to all workers in this difficult field.

In 1904 there appeared what many regard as the climacteric paper of Dr. Van Hise, "A Treatise on Metamorphism," a ponderous quarto of 1,286 pages, discussing in a masterly way and in great detail the leading modes by which the nature of rocks are changed and the agencies and conditions that take part in these changes. As all the rocks which he had been studying so diligently during the preceding two and a half decades had undergone such changes in some large measure, but yet in quite different degrees and in quite different ways, he was amply equipped for this great work by intimate personal familiarity with the phenomena. In this work Van Hise made a special effort to reduce the phenomena of metamorphic rocks to the laws of chemistry and physics. This opus magnum has had a profound influence on the progress of opinion on this important phase of geologic research. It was shortly after the completion of the manuscript of this monumental work that Dr. Van Hise was called to undertake the administration of the University of Wisconsin, and with the assumption of this great task his more active geological studies ceased.

One of his greatest contributions, however, appeared seven years later in collaboration with Dr. Leith, whose relations to Van Hise were much the same as those of Van Hise to Irving. This was a comprehensive summary work on "The Geology of the Lake Superior Region" (Monograph LII, U. S. Geological Survey, 1911). In this important work, there were gathered the mature ideas of both authors as these had gradually grown into fullness and ripeness as the result of the studies and restudies of the previous 30 years. It is a masterly endeavor to set forth, in generalized form, the characteristic features of the iron and copper bearing series, their relations to one another and to the great basement complex on which they rest, and to interpret the origin of the ores that give these formations their extraordinary economic values, while at the same time it sets forth the long and varied history of the region. It is not, of course, to be regarded as the final word on these vast themes, but it sums up a long series of intensive studies of great fruitfulness. Far from holding it as a final utterance, its authors speak of it merely as the first of a series of such monographs to be hoped for in the future, a series which shall carry forward similar comprehensive treatment to greater and greater fullness and perfection as exploitation shall reveal more and more of the hidden structure that prevents completeness now. In spite of such modest disclaimers, it stands as a really monumental work, marking a great epoch in the scientific elucidation of an intricate region of extraordinary

interest and of representative character. On the geological side, it is a climacteric work, comparable to the treatise on metamorphism on the physicochemical side.

The intensive studies of Van Hise on the iron-copper-bearing formations naturally led him to more general studies of the philosophy of ore deposits and directed him in issuing a series of special papers on ore deposits, among which "The Principles Controlling the Deposition of Ores" (Journ. Geol., Vol. VIII, 1900) and his presidential address before the American Association for the Advancement of Science, delivered at Denver in 1901, may be taken as types. In these the function of magmatic waters in the original enrichment of lodes and that of vadose waters in secondary enrichment of these were strongly set forth and assigned leading rôles.

With his acceptance of the presidency of the University of Wisconsin in 1903, Dr. Van Hise made a serious and at first confident effort to continue his geological researches in addition to his administrative duties, but he soon became so deeply engrossed in the humanistic phases of his new work that there was little time left for effective research in the old lines, and so his foremost interest shifted to new lines. The old and new interests, however, merged, in a measure, in his study of the application of natural resources to the general welfare of man, especially the conservation of natural resources, to which he made several notable contributions, among them the best book on the subject.

It was natural that he should pass from this special line of economic study to the more general aspects of current commercial and industrial questions. In these his chief interest seems soon to have centered on the coordination of effort which he held to be the key to the solution of the vexed questions that agitate this field. Most notable among his writings in this line is his book "Concentration and Control, a Solution of the Trust Problem in the United States."

The utter breakdown of the political tenets that had incited the leading industrial legislation of the United States previous to the war, just as soon as the real stress of war had brought out the realities of the case, and the precipitate rush of the Nation into practices diametrically opposed to those adopted in its previous legislation, deeply interested President Van Hise and led to his book "Conservation and Regulation in the United States During the War."

President Van Hise was profoundly interested in the war and made its probable, intellectual, ethical, and economic outcome a special subject of study. As an administrator he vigorously marshaled the resources of the institution over which he presided in support of a strenuous prosecution of the war, while personally he contributed directly to it by lectures, papers, and other service of notable value. His most conspicuous service was the aid he rendered in the conservation and allocation of our food resources. As the war drew to a close he became especially interested in the formation of a League of Nations. He prepared an address on this subject in which, with his ever-present regard for the practical and the attainable, he drew with greater definiteness than most other advocates the features which such a league should, in his judgment, embody. This was essentially his last contribution to the public welfare.

As the administrator of a great educational institution, President Van Hise naturally regarded science as the bedrock on which educational practice should be based, but he did not interpret science in any narrow or technical sense; he viewed it broadly as an expression of the carefully sifted and thoroughly proved reality disclosed in each and every field of inquiry. Research as an indispensable condition for discovering, demonstrating, and enlarging the body of science, as also for rescrutinizing and renovating that which had previously passed for science, he held absolutely essential to a true university. He went farther and regarded it as essential also to education in all grades; for the renovation, the reconstruction, and the reshaping of the subject matter taught in all the grades he held scarcely less vital to primary education and the public welfare than the addition of new subject matter on the frontiers of knowledge. Important as he held original research to be, however, he held its application to the affairs of life and its incorporation into the lives of citizens as a working, guiding, inspiring factor to be an equally important function and an equally imperative obligation of a State institution. He was fortunate in coming into the presidency of an institution whose working lines were already set in the directions he approved. With his inherited advantage he pushed the university forward in its adopted lines with great success.

Respecting what is to be regarded as a permissible function of a State university and what is to be regarded as nonpermissible or scarcely permissible in the uncertain borderland between what is accepted doctrine and what are debatable issues in political, social, and religious fields—particularly in matters where organized bodies of citizens differ—President Van Hise was rather strongly predisposed to put a distinctly broad interpretation on the functions of the university. He thought it not only the privilege but the duty of the university to give the State leadership, even in lines regarded by some others as at least debatable. While this view did not go so far as to include the precise matters that divided the organized political parties, it yet did embrace matters closely akin to these, matters felt by some others to fall within the outer borders of party policy. The more conservative policy of leaving a clear margin of safety between the conceded fields of scientific inquiry in such matters, on the one hand—in which all right-minded citizens should concur—and the fields of party conflict, on the other, seemed to him to fall short of the full duty of the university to the State. As a natural result of his vigorous advocacy of some policies held by others as debatable, friction of the milder sort arose at times and made the path of his administration less smooth than it might have been under the more conservative policy, but this never went so far as to loosen the great hold of the institution or of its president on the affections and pride of the people of the State. His administration of the university was a declared success; both he and the university under his care exercised a profound influence on the intellectual and material progress of the State.

In his scientific inquiries great pains marked every part of the research and all stages of preparation of the results. Combined with invincible industry there was a steadiness of purpose that drove the work constantly forward to completion. Virility, sturdiness, and strength of grasp were leading traits. He seems to have suffered less loss of time and energy from hesitancy or vacillation than is common to workers of less steady purpose. His intellectual tread was firm; but yet there was openness of mind, readiness for reconsideration, and suceptibility to change of view. He abandoned old views in favor of new with promptness and periodically reconsidered his conclusions with a view to revision. He persistently sought deeper and larger intellectual perspective. A notable trait was his strong desire for the significance of phenomena and the philosophy that lay in their depths. His power of generalization was pronounced and came declaredly into play in his larger conclusions relative to metamorphism, ore deposition, and the genesis of the great terranes he studied.

His home life was singularly happy, though shadowed in his last years by the death of a beloved daughter. He leaves a devoted wife and two affectionate daughters. His personal qualities were of the highest order. He was a congenial companion in the office, the laboratory, and the field. His point of view was large and liberal, always incisive, often humorous. His convictions were strong, and the courage of his convictions never seemed to fail him. He was outspoken and manly in bearing, frank, and strong in his friendships. He respected the sincere and called forth sincere respect in return.

He received a due measure of the honors his work merited. Williams, Dartmouth, Chicago, Yale, and Harvard conferred upon him their highest honorary degree. A long list of scientific societies in this country and abroad honored themselves and him with membership. He was chosen to the presidency of practically all the scientific societies to which he could be regarded as naturally eligible.

BIBLIOGRAPHY.

Crystalline rocks of the Wisconsin Valley (With R. D. Irving). Geology of Wisconsin, vol. 4, pt. 7, 1882, pp. 627–714.

On secondary enlargements of feldspar fragments in certain Keweenawan sandstones. Amer. Journ. Sci., vol. 27, 1884, pp. 399–403.

On secondary enlargements of mineral fragments in certain rocks (With R. D. Irving). Bull. U. S. Geol. Survey, No. 8, 1884. 56 pp.

Enlargements of hornblende fragments. Amer. Journ. Sci., vol. 30, 1885, pp. 231–235.

Upon the origin of the mica-schists and black mica-slates of the Penokee-Gogebic iron-bearing series. Amer. Journ. Sci., vol. 31, 1886, pp. 453–459.

Note on the enlargement of hornblendes and augites in fragmental and eruptive rocks. Amer. Journ. Sci., vol. 33, 1887, pp. 385–388.

The iron ores of the Penokee-Gogebic series of Michigan and Wisconsin. Amer. Journ. Sci., vol. 37, 1889, pp. 32–48.

Preliminary report on the Penokee iron-bearing series of Michigan and Wisconsin (With R. D. Irving). 10th Ann. Rep. U. S. Geol. Survey, 1890, pp. 203–244.

The pre-Cambrian rocks of the Black Hills. Bull. Geol. Soc. America, vol. 1, 1890, pp. 203–244.

The crystalline rocks of the Lake Superior district (with R. D. Irving and T. C. Chamberlin). Cong. Geol. Int. Compte-Rendu, 4th session, 1888, pp. 156–170; 1891.

The pre-Cambrian rocks of North America. Cong. Geol. Int. Compte-Rendu, 5th session, 1891, pp. 110–150; 1893.

Pre-Cambrian geology of the Lake Superior region. Cong. Geol. Int. Compte-Rendu, 5th session, 1891, pp. 489–512; 1893.

An attempt to harmonize some apparently conflicting views of Lake Superior stratigraphy. Amer. Journ. Sci., vol. 41, 1891, pp. 117–156.

Observations upon the structural relations of the Upper Huronian, Lower Huronian, and Basement Complex on the north shore of Lake Huron (With Raphael Pumpelly). Amer. Journ. Sci., vol. 43, 1892, pp. 224–232.

The iron ores of the Lake Superior region. Trans. Wis. Acad. Sci., Arts and Letters, vol. 8, 1892, pp. 219–228.

The iron ores of the Marquette district of Michigan. Amer. Journ. Sci., vol. 43, 1892, pp. 116–132.

Correlation papers—Archaen and Algonkian. Bull. U. S. Geol. Survey, No. 86, 1892. 549 pp.

The Penokee iron-bearing series of Michigan and Wisconsin (with R. D. Irving). Mon. U. S. Geol. Survey, No. 19, 1892. 534 pp.

An historical sketch of the Lake Superior region to Cambrian time. Journ. Geol., vol. 1, 1893, pp. 113–128.

Some dynamic phenomena shown by the Baraboo quartzite ranges of central Wisconsin. Journ. Geol., vol. 1, 1893, pp. 347–355.

The effect of deep water between the Great Lakes and the sea in developing iron and mineral resources. Proc. First Ann. Convention Int. Deep Waterways Assoc., Cleveland, 1895, pp. 71–73.

The origin of the dells of Wisconsin. Trans. Wis. Acad. Sci., Arts and Letters, vol. 10, 1895, pp. 556–560.

Preliminary report on the Marquette iron-bearing district of Michigan (With W. S. Bayley and H. L. Smyth). 15th Ann. Rept. U. S. Geol. Survey, 1895, pp. 477–650.

A central Wisconsin base level. Science, new ser., vol. 4, 1896, pp. 57–59.

A northern Michigan base level. Science, new ser., vol. 4, 1896, pp. 217–220.

Principles of North American pre-Cambrian geology (With appendix by L. M. Hoskins). 16th Ann. Rept. U. S. Geol. Survey, pt. 1, 1896, pp. 573–874.

Summaries of literature on North American pre-Cambrian geology. Journ. Geol., vol. 1, 1893, pp. 304–314, 532–541; vol. 2, 1894, pp. 109–118, 444–454; vol. 3, 1895, pp. 227–236, 709–721; vol. 4, 1896, pp. 362–372, 744–756.

Studies for students: Deformation of rocks. Journ. Geol., vol. 4, 1896, pp. 195–213, 312–353, 449–483, 593–629; vol. 5, 1897, pp. 178–193.

The relations of geology and engineering. Wisconsin Engineer, vol. 2, 1897, pp. 1–5.

The Marquette iron-bearing district of Michigan (With W. S. Bayley and H. L. Smyth). Mon. U.S. Geol. Survey, No. 28, 1897. 608 pp. With atlas of 39 plates.

Earth movements. Presidential address. Trans. Wis. Acad. Sci., Arts and Letters, vol. 11, 1898, pp. 465–516.

Estimates and causes of crustal shortening. Journ. Geol., vol. 6, 1898, pp. 10–64.

Metamorphism of rocks and rock flowage. Bull. Geol. Soc. America, vol. 9, 1898, pp. 269–328.

Preliminary report on Crystal Falls iron-bearing district of Michigan (With J. Morgan Clements, H. L. Smyth, and W. S. Bayley). Mon. U. S. Geol. Survey, No. 36, 1899. 512 pp.

The Crystal Falls iron-bearing district of Michigan (With J. Morgan Clements, H. L. Smyth, and W. S. Bayley). Mon. U. S. Geol. Survey, No. 36, 1899. 512 pp.

The naming of rocks. Jour. of Geol., vol. 7, 1899, pp. 686–699.

The Menominee iron-bearing district of Michigan (With W. S. Bayley). U. S. Geol. Survey, Geodetic Atlas of the United States, Menominee Special Folio, No. 62, 1900.

Some principles controlling the deposition of ores. Trans. Amer. Inst. Min. Engrs., vol. 30, 1901, pp. 27–177; additional discussion, vol. 31, 1902, pp. 284–302. Also reprinted by the institute in a special volume on "The Genesis of Ore Deposits," 1901; published also in Journ. Geol., vol. 8, 1900, pp. 730–770.

The iron oredeposits of the Lake Superior region. 21st Ann. Rept. U. S. Geol. Survey, 1899–1900, pt. 3, 1901, pp. 305–434.
The geology of ore deposits. Science, new ser., vol. 14, 1901, pp. 745–757, 785–793.
Discussion of "Ice Ramparts," by E. R. Buckley. Trans. Wis. Acad. Sci., Arts and Letters, vol. 13, pt. 1, 1901, pp. 158–162.
Introduction to "Preliminary report on the lead and zinc deposits of the Ozark region." (By H. F. Bain and G. I. Adams.) 22d Ann. Rept., U. S. Geol. Survey, pt. 2, 1901, pp. 33–60.
Geological excursion in Colorado. Bull. Geol. Soc. America, vol. 13, 1901, pp. 2–5.
The lead and zinc deposits of the Mississippi Valley, U. S. A. (With H. F. Bain). Trans. Federated Min. Eng., Newcastle-on-Tyne, England, vol. 23, 1902, pp. 376–434.
The training and work of a geologist. Amer. Geol., vol. 30, 1902, pp. 150–170; Science, new ser., vol. 16, 1902, pp. 321–334; Proc. Amer. Assn. Adv. Sci., 51st meeting, 1902, pp. 399–420.
Geological work in the Lake Superior region. Proc. Lake Superior Min. Inst. for 1902, vol. 8, 1903, pp. 62–69.
Powell as an explorer. Proc. Wash. Acad. Sci., vol. 5, 1903, pp. 105–112.
A treatise on metamorphism. Mon. U. S. Geol. Survey, No. 47, 1904. 1286 pp.
Report on geophysics. Yearbook of Carnegie Inst. of Wash. for 1903. No. 2, 1904, pp. 173–184.
The problems of geology. Journ. Geol., vol. 12, 1904, pp. 589–616.
Inaugural address as president of the University of Wisconsin. Science, vol. 20, 1904, pp. 193–205.
Report of the special committee for the Lake Superior region. Introductory note by C. R. Van Hise. Journ. Geol., vol. 13, 1905, pp. 89–104; 14th Rept. Ont. Bur. Mines, pt. 1, 1905, pp. 269–277; Rept. Geol. Survey Mich. for 1904, 1905, pp. 133–143.
The problem of the pre-Cambrian. Bull. Geol. Soc. America, vol. 19, 1908, pp. 1–28.
The opportunities for higher instruction and research in State universities. Jour. Proc. 6th Ann. Conf. Assn. Amer. Universities, 1905, pp. 51–57.
The attainment of success. Baccalaureate and commencement address, University of Wisconsin, 1907.
Educational tendencies in State Universities. Educational Review, N. Y., December, 1907, pp. 504–520.
Recent progress of the university and its future. Commencement address, University of Wisconsin, 1908.
The training of teachers for secondary schools. Presidential address, National Association of State Universities, November 16, 1908.
Discussion on the basis of pre-Cambrian correlation. Journ. Geol., vol. 17, 1909, pp. 118–122.
Pre-Cambrian geology of North America (With C. K. Leith). Bull. U. S. Geol. Survey, No. 360, 1909. 939 pp.
The conservation of natural resources in the United States. Macmillan Co., N. Y., 1910. 413 pp.
Principles of classification and correlation of the pre-Cambrian rocks. Journ. Geol., vol. 17, No. 2, 1909.
Central Boards of Control. National Association of State Universities, 1911.
The geology of the Lake Superior region (With C. K. Leith). Mon. U. S. Geol. Survey, No. 52, 1911. 641 pp.
The spirit of a university. Commencement address, University of Wisconsin, 1912.
A national university, a national asset; an instrumentality for advanced research. Science, new ser., vol. 36, No. 920, pp. 193–201, 1912.
The regulation of competition *versus* the regulation of monoply. The Knickerbocker Press (Putnam's Sons). The Economic Club of New York, 1912.
The influence of applied geology and the mining industry upon the economic development of the world. Internat. Geol. Cong., XI, Stockholm, 1910, Compte-Rendu, pp. 259–261; 1912.
Address to Philadelphia City Club's Expedition to Madison, 1913.
The university man in the twentieth century, Baccalaureate and commencement address, University of Wisconsin, 1913.
Big business in its relation to industrial prosperity with particular reference to mining. Proc. Amer. Min. Congress, October 20, 1913.
Concentration and control—a solution of the trust problem in the United States, Macmillan Co., N. Y., 1913. 288 pp.
Concentration of Industry in the United States, Nation's Business. 2d Ann. Meeting U. S. Chamber of Commerce, Washington, 1914.
The Federal antitrust legislation. The University Record, vol. 1, No. 1, 1915, pp. 2–13.
Business and the Federal antitrust legislation. National Economic League Quarterly, vol. 1, No. 3, 1915, pp. 24–32
Cooperation in industry. National Lumber Mfgrs. Assn., Chicago, 1916.
The place of the university in a democracy. School and Society, vol. 4, No. 81, pp. 81–86.
John Muir. Unveiling of Muir bust, University of Wisconsin, 1916.
The railroad hours of labor law. Annals of Amer. Acad. Pol. and Soc. Sci., Philadelphia, 1917, Publication No. 1104. 9 pp.
Governmental control of industries. The City Club Bulletin, Chicago, vol. 10, No. 10, 1917, pp. 205–208.
Conservation and regulation in the United States during the World War. Government Printing Office, Washington, 1917, Part I. Cantwell Printing Co., Madison, 1918, Part II.
Some economic aspects of the World War. Science, new ser., vol. 47, No. 1201 and No. 1202, 1918.
The war problem of the United States. Commencement address, University of Wisconsin, 1918.
The university extension movement. The Semicentenary Celebration of the Founding of the University of California. 1868–1918.