

Colorado Scientific Society Minutes – 1893- May 1904

Transcribed from original secretary's book by Beth Simmons

Attempts were made to verify names and article titles. Any cross outs are noted with changes in italics. An error in the meeting numbers was corrected two years later, so the corrector penciled in the changes and made a note at that time. Notes in the left column are from the original book or comments on the original book.

1893

p. 2	Jan. 20 th , 1893
	The 100th 99 th regular meeting of the Society was held at its rooms in the Denver High School on Monday Evening, January 2 nd . 16 persons were present. Wm. O.J. Frost, 1 st V.P. in the chair
Minutes	The minutes of the 99 th regular meeting were read and approved.
Reports O.J. Frost	The report of Mr. O.J. Frost, Treasurer for the year 1892 was read. The chair appointed an auditing committee consisting of Messrs. H.V. Pearce, R.M. Hosea and F. Guiterman to audit the accounts of the retired treasurer.
P.H. Van Diest	The librarian and Corresponding Secretary Mr. P.H. Van Diest read his annual report for 1892. He stated among other things that he was pleased to announce that the books belonging to the Society had been loaned and that a catalogue of same would be issued he hoped in the near future. He reported two new exchanges on the list, named the Proceedings of the Society of Mining Engineers of Western Pennsylvania and the Proceedings of the Academy of Science in Texas.
F. Guiterman p. 3	The Secretary read his report for 1892 showing a gratifying increase in the membership of the Society in the past year and a diversification in papers submitted which was universally satisfactory.
Balloting	Messrs. L.D. Godslace of Denver and Prof. Wm. C. Strong of Denver proposed at the previous meeting were duly elected members
Nominations	The following candidates were placed in nomination, the applications having been approved by the Ex. Committee. Mr. Edwin G. Dexter, Instructor of Natural Science at Colorado College, Colorado Springs, Colo. endorsed by Messrs. Gavin, Cannon, Bethel. Mr. Francis T. Freeland, Mining Engineer, Leadville, Colo. endorsed by Messrs. Vezin, Argall and Guiterman. Mr. Wm. D. Church chemist Globe and R Co. Denver ever endorsed by Messrs. Knight, Guiterman, P.H. van Diest Mr. L. G. Eakins, chemist asst geologist, Colorado Fuel & Iron Co, Denver, endorsed by Messrs. Guiterman, Knight and Van Diest
Communications	Wm. P. Headden read a paper on "the Production of Columbus Tungsten Oxides in forming Compounds of Iron and Tin." A number of crystalline exhibits were made and inspected under the microscope
Discussion	Discussion by Mr. Richard Pearce. Mr. Pearce wanted to know whether the oxides in question were due to the oxidizing influence of nitric acid on the

p. 4	metallic columbium and Tungsten in the iron-tin alloys, with which the later had been treated. Mr. Headden replied that he through not and that the lower oxides were rather produced from the higher ones at the expense of the metallic tin, with which they had been melted together.
Cross	Mr. R.C. Hills then read a paper by Whitman Cross "On a series of peculiar schists near Salida, Colo," which paper has been published. The meeting then adjourned on motion.
	F.Guiterman, Secy.
	The 101st 100 th regular meeting of the Society was held at its rooms in the Denver High School Building on Monday evening February 6 th . 18 persons were present. Mr. O.J. Frost 1 st vice president in the chair.
Minutes	The minutes of the previous meeting were read in the absence of the recording secretary by the corresponding secretary and approved.
Reports Balloting p. 5	The report of the Librarian was read. Messrs. Edwin G. Dexter of Colorado Springs, L.G. Eakins of Denver, Wm. D. Church of Denver and Francis T. Freeland of Leadville proposed at the previous meeting were duly elected.
Nominations	The following candidates were placed in nomination, the applications having been approved by the executive committee. S.W. Tyler Mining Engineer Denver proposed by John B. Farish, Alfred Rickard, and F. Guiterman. George L. Raymer geologist, Idaho Springs proposed by Messrs J. B. Farish, Thos. B. Sherman , and F. Guiterman. T.A. Rickard mining Engineer Denver proposed by John B. Farish, Richard Pearce, P.H. van Diest
p. 6	Max. Boehmer mining engineer, Leadville, proposed by Philip Argall, John B. Farish, and P.H. van Diest. Victor C. Heickes mineralogist, Denver, proposed by W.S. Ward, P.H. van Diest and John B. Farish Mr. P.H. van Diest reported the donations to the library of 324 bound scientific books by Mrs. Catherine Main Yorston, said books were the property of Dr. J. T. Main our lately deceased member. The books are catalogued and in each volume pasted a printed label stating the donation to the Society. Mr. van Diest moved that resolution of thanks to Mrs. Main Yorston be engrossed and presented to her, which motion was unanimously Adopted. T. W. Stanton was on motion accepted. A letter from R. Anton Eilers, requesting to be relieved from the position of President of the Society was read. Mr. von Diest proposed not to sustain any motion to accept his resignation and to table his communication, which was adopted. Mr. W.S. Ward asked to have in loan for the Worlds fair, (mining department Columbian Exposition) a set of the proceedings of the Society neatly bound. Referred to the Executive Committee.
Informal Communication	Mr. F.F. Chisholm exhibited a double acting two rubber stopper, three pipe distilling apparatus for fractional distillation called (I believe) deflecurator?, which gives a considerable increase in first distillation. No other communication coming forward, Mr. R. Pearce regretted that lack

p. 7	<p>of electric light prevented to visit the mineral collection and asked what could be done to make study of minerals possible during evenings. Mr. Cannon, Jr. mentioned that the school board would pay a bill for connecting a simple apparatus to their main converter and it was decided that the Executive Committee by the aid of Mr. Irving Hale should device some apparatus, a strong lights, 50 candle power of volts(?) connected to a wire over an automatic acting pulley enabling to bring the light to any case desired to inspect.</p> <p>The meeting then adjourned.</p> <p style="text-align: right;">P.H. van Diest, acting secretary</p>
	<p>The 102nd regular meeting of the Society was held at its rooms at the High School on Monday, Mar. 6th. 17 persons were present. Owing to the absence of the President and 1st Vice President, Mr. Geo. L. Cannon, Jr. was elected chairman pro tem.</p>
Minutes	<p>The minutes of the 101st regular meeting were read and approved.</p>
p. 8 Nominations	<p>The following candidates were placed in nomination.</p> <p>For regular membership:</p> <p>Mr. Chas. H. Moore, Mining Engineer of Leadville, Colo. proposed by Messrs. Argall, Vezin, and Guiterman</p> <p>Mr. Chas. D. Chanute, Assayer Chemist of Denver, proposed by Messrs Van F. Furman, Sadtler and Guiterman</p> <p>Mr. C.H. Macnutt, Mining Engineer of Amethyst, Colo., proposed by Messrs Mathewson, Sadtler, Guiterman,</p> <p>Mr. M.B Hock, Assayer, Colo., Sm. Co. Pueblo</p> <p>Mr. F. M. Smith, Metallurgist, Colo. Sm. Co. Pueblo proposed by Messrs. Dwight, Rahl & Jones,</p> <p>Mr. C.A. Phelps-assayer Pueblo F. & I. Co., Pueblo-Cuba endorsed by L.J. Jones, E.P. Mathewson, W.J.S. Hamilton</p> <p>Mr. F.E. Hearndon, chemist, Colo. F. & I. Co., Pueblo, Colo, endorsed L.G. Eakins, L.D. Stearn, L.Jn.. Jones</p> <p>Mr. L. L. Woods, Colo. F. & I. Co., Pueblo, Colo, endorsed by L.Jn. Jones, Mathews, and Sadtler</p> <p>Mr. Joseph K. Surls, Engineer at C.F.& I. Co., Pueblo, proposed by Messrs. Dwight, Jones, Hamilton</p> <p>Mr. W.B. Budrow, Assayer, Phila. S. & R. Co., Pueblo, proposed by Messrs. Dwight, Jones, Hamilton;</p> <p>Mr. S.A. Harsh, Post-Graduate School of Mines Golden, Colo. Proposed by Messrs Chauvenet, Sadtler, Hill</p> <p>For Associate Membership:</p> <p>Mr. A.H. Osborne, student senior class, Golden School of Mines, proposed by Messrs. Chauvenet, Sadtler, & Hill.</p> <p>Mr. W.B. Milliken, Student Senior class School of Mines, Golden, proposed by Messrs. Chauvenet, Sadtler, & Hill.</p> <p>Mr. Wallace A. Stephen, student senior class School of Mines, Golden, proposed by Mesrs. Chauvenet, Sadtler & Hill;</p>

Elections	The following gentlemen proposed at the 101 st regular meeting were duly elected to membership: Mr. Geo. Sharpe Raymer, Max Boehmer, T.A. Rickard, Victor C. Heikes, and S.W. Tyler
Reports p. 9	The Librarian reported that the resolution of thanks voted at the 101 st reg. Meeting to Mrs. Catherine Main Yorston for the donation to the Society of the late Dr. Jno. Main's library, had been engraved and delivered to her. He also stated that on approval of the Ex. Comm. He has had a set of the C.S.S. Proceedings bound and delivered to Mr. W.S. Ward for exhibit at the Columbian Worlds Fair in the Colorado Mining exhibit; he reported the receipt of a hundred to the geological reports of Pennsylvania consisting of 8 volumes; The Society's collection of eruptive rocks and its meteorite had on authority of the Ex. Com. been delivered to Mr. W.S. Ward for exhibit at the Columbian Worlds Fair.
Auditing Committee	The Auditing Committee, consisting of Messrs S. Hosea, H. Vyugan [Veizin], Pearce, and Guiterman appointed to audit the accounts of Mr. O.J. Frost retired Treasurer reported that they had inspected said accounts and had found them correct.
Electric Lights for Museum p. 10	The committee on means for providing lights for the mineral collection so that same could at any time be inspected during evening reported in the person of Mr. Irving Hale that 10 electric lights could be provided would fill the provided that an arrangement of the cases could be made. Mr. R.C. Hills, curator said that the disposition of open cases suggested could easily be effected. Mr. Hale gave the approximate cost of the necessary wiring and lamps and Mr. Cannon stated that he would at once take up the matter with the High School Board who would defray expenses.
Cannon	Mr. Geo. L. Cannon, Jr., gave a communication from the Chautauquan Association of Colorado. The noble Chautaquans asked the advice and assistance of the Society in order that their scientific work for the coming season might be carried along the most approved intellectual lines. On motion Mr. Cannon was authorized to appoint a committee to confer with the high minded and appreciative Chautauquans.
B. Sadtler	Prof. B. Sadtler then read a paper on "The Geological Economic Features of the Tin Cup Basin," after which the meeting adjourned.
	F. Guiterman, Secy.
p. 11	The 104 st 2 regular meeting of the Society was held at its rooms in the Denver High School on Monday evening April 3 rd . There were 22 persons present. Owing to the absence of the regular presiding officer, Mr. R.C. Hills was on motion elected President pro tem.
Minutes	The minutes of the 102 nd reg. Meeting were read and approved.
Election	Messrs. Phelps, Moore, Allen, Stanton, Woods, Chanute, MacNutt, Harsh, Smith, Surles, Budrow, and Hock were elected members; Messrs Osborne, Milliken, and Stephens were elected Associate members.
Reports	The Report of the Librarian was read showing receipt of the usual exchanges.
Electric Lights	Mr. Irving Hale reported the cost of wiring and placing lights for the Museum

for Museum	would be about \$22.50. The matter was referred to Mr. Geo. L. Cannon, Jr., to submit to the School Board who will remit the expense.
Communications Hale	Mr. Irving Hale read a paper entitled "The Latest Method of Electric Car Control," after which the meeting adjourned.
	F. Guiterman, Secy.
p. 12	The 102nd 103 rd regular [meeting] of the Society was held at the rooms in the Denver High School on Monday May 4 th , 1893. 22 persons were present. Owing to absence of the regular presiding officer, Mr. Richard Pearce was elected Chairman pro tem. The minutes of the 103 rd 102 nd regular meeting was read and approved.
Election Nominations	Mr. J.W. Root was elected to membership. Mr. Stuart Crossdale, chemist Holden Milling & Refining Company at Aspen, endorsed by Messrs. J. Dawson Hawkins, E.N. Hawkins, and F. Guiterman was nominated for membership. Also Mr. Edward B. Kirby, Mining Engineer of Denver, Colo. endorsed by Messrs H. van F. Furman, Dr. Geo C. Morrison and F. Guiterman
Reports	The report of the Librarian was read showing receipt of the regular exchanges. It was also mentioned that there was an increased demand for the Proceedings of the Society.
Communications	Mr. L. D. Godshall read a paper on "A Review of the Thissen Process," Discussion on the paper was participated in by Messrs. R. Pearce, Farish, Vezin, Eakins, Dwight, and Guiterman.
p. 13	Mr. Richard Pearce exhibited some highly interesting specimens of tin ore from Durango, Mexico. He stated that the ore occurred in veins in granite formation accompanied by opalinized gangue. Associated with the Cassiterite was specular iron ore and the fact that some of the Cassiterite showed itself in pseudomorphs after the specular iron was an enhanced interest to the exhibit. Ores of the specimens showed the tin ore in botryoidal mass which suggested to Mr. Pearce that this also might be a pseudomorph of Cassiterite after kidney iron ore. The meeting then adjourned.
	F. Guiterman, Secy.
Addenda	The following were also proposed for membership: Mr. Forbes Rickard, Mining Engineer, Denver Colo, endorsed by Messrs. Ph. Argall, T.A. Rickard, F. Guiterman Mr. H.L. Austin, metallurgist, Denver, Colo. endorsed by Messrs. Ph. Argall, H.A. Vezin and F. Guiterman Mr. Fred Roeser, metallurgist, Denver, Colo, endorsed by Messrs P.H. van Diest, L.G. Eakins, & F. Guiterman. Mr. Nicholai Anderson, Chemist Gold & Silver Extraction Retorting Company, Denver, Colo, endorsed by Mr. T.A. Rickard, H.A. Vezin & F. Guiterman
p. 14	The 105 th 4 regular meeting of the Society was held at the rooms in the Denver High School Bldg. On Monday June 5 th , vice president O.J. Frost presiding.

	<p>21 persons were present. The minutes of the 104th 3 regular meeting were read and approved.</p>
Elections	<p>The following gentleman proposed for membership at the 104th regular meeting were elected: Forbes Rickard, Nicholai Anderson, Frederick Roeser; and W.L. Austin</p>
<p>Communications Offer of Henry Ward of Rochester, N.Y. to cut meteorite</p> <p>p. 15</p>	<p>The Secretary submitted to the Society the correspondence received from Mr. Wm Shaw Ward relative to the offer of R. M. Henry Ward of Rochester, N.Y. to cut the meteorite belong to the Society, now on exhibition in the Colorado exhibit at the World's Fair in Chicago. The corresponding secretary submitted further communication on the same subject. The Society after due deliberation and discussion decided that for the best interest of the meteorite and the Society, that for the present no action be taken, and the Corresponding Secretary was instructed to notify Mr. Wm. Shaw Ward to that effect. It was also resolved that no future action be taken by the Society in the matter without due consultation with its curator, Mr. R.C. Hills, who was unable to be at the meeting.</p>
Outside Summer Meeting	<p>The Secretary called the attention of the Society to the advisability of holding an outside meeting during the month of July or August in one of the mining camps. The idea met with considerable favor among the members present – and Messrs P.H. van Diest, John B. Farish and F. Guiterman were appointed a Committee of Arrangements to perfect details for such a meeting. The Society then adjourned.</p>
	F. Guiterman, Secy
p. 16	<p>The 106th 5 regular meeting of the Society was held at its rooms at the High School Bldg. On Monday evening Sep. 4. 23 persons were present Owing to absence of the regular presiding officer, Mr. J.A. Porter was elected chairman pro tem</p>
Minutes	<p>Of the 105th 4 regular meeting were read and approved.</p>
Communications	<p>The Secretary stated that the committee appointed by the Society to arrange for the usual outside summer meeting had decided it best to abandon the plan owing to the distinctive condition of affairs in Colorado in the mining and milling industries.</p>
T.A. Rickard	<p>Mr. T.A. Rickard read a paper entitled “Certain Dissimilar Occurrences of Gold Bearing Quartz.”</p>
<p>Discussion</p> <p>p. 17</p>	<p>Mr. Philip Argall submitted an extended discussion on Mr. Rickard's paper, his tenants being illustrated by a series of mineral specimens from New Zealand (as Mr. Argall's discussion printed in five? And issued with the next paper, this narration deems a notice of same sufficient at this time). Among the minerals exhibited was a specimen of auriferous native arsenic. An inquiry of Mr. R.C. Hills, Mr. Argall stated that he thought he had frequently observed the association of arsenic with gold although he was not able to state that any definite minerals of gold and arsenic had been isolated. Mt. T. A. Rickard called attention to a fact that that not been incorporated in his paper, that according to his observations, the mother lode of California. Frequently became auriferous where the lode passes through black slate.</p>

p. 18	<p>The Society was honored by the presence of a guest, Mr. Niclinagu?, who had had several years experience in the mines of New Zealand at which arsenium had been discussed in the paper of Mr. Rickard.</p> <p>Mr. Nicletue observed Thus he endorsed the conditions of Mr. Rickard that theories of the genesis of ore deposits applicable to isolated districts cannot be always generalized to cover deposits of like character occurring elsewhere.</p> <p>In his opinion the ore deposits occurring in the “Thomas” Is. Mtn. in New Zealand was due to volcanic agencies, beginning with a solfataric action, succeeded by deposits from underground circulating mineral solutions. He did not agree with Mr. Rickard in ascribing to the “breccias” which characterize the “Thomas” district a sedimentary origin. He was rather inclined to believe that the observed stratification in the “breccias” was due to fissures. The sandstones which are also a marker feature of the Thomas geology he thought were in the main decomposed andesites which had been subject to pressure.</p> <p>The gold bearing veins occurs in the Thomas district within the decomposed as well as the undecomposed andesitic country rock. He had not been able to distinguish any difference in the richness of the veins. Where they occur in the decomposed country they had as a rule a strike of E&W, while in the hard, undecomposed andesite the strike of the veins of mostly N&S.</p> <p>The meeting then adjourned.</p>
	F. Guiterman, Secy.
p. 19	<p>The 107th 6 regular meeting of the Society was held at its rooms in the Denver High School on Monday Event Oct. 2nd</p> <p>V. Pres. O.J. Frost in chair.</p> <p>21 persons were present.</p>
Minutes	The Minutes of the 106 th 5 regular meeting were read and approved.
Reports Librarian	The report of the Librarian was read. It was stated that the catalogue of the Society’s library was about finished and ready for distribution.
Curation	The Curator of the mineral collection reported the donation to the Society of several specimens of the upper Miocene.
Communications P.H. van Diest	Prof. P.H. van Diest read a paper entitled: “Evidences of the Formation of Ore Deposits by Lateral Secretion in the John Jay Mine at Boulder, Colo.”
Discussion	Messrs. F. Guiterman, Richard Pearce, T.A. Rickard, R.C. Hills & Philip Argall participated in the discussion. The meeting then adjourned.
p. 20	<p>The 108th 7 regular meeting of the Society was held at its rooms in the Denver High School on Monday, Nov. 6th, 1893.</p> <p>Twenty eight persons were present.</p> <p>Vice Pres. O.J. Frost presided.</p>
Minutes	The minutes of the 107 6 regular meeting were read and approved.
Communications	Prof. Chas. S. Palmer read a paper entitled on the nature of chemical elements, being the 6 th paper presented by him on the subject. This paper limited itself to the discussion of the distribution of the atomic weight. Dr. Richard Pearce gave an account of some interesting eruptive dykes he had

	<p>observed while sojourning at the harbor of Manchester, Massachusetts. These dykes filled joints in the country rock of granite. The intrusive rock was black and the analysis showed an astonishingly low percentage of silica. The same phenomena men observed in Marble Head about 15 miles from Manchester. At this place, however, the dykes were much larger than at Manchester.</p> <p>The meeting then adjourned.</p>
	F. Guiterman, Secy.
p. 21-22 Cut from book	
p. 23	<p>The 109th 8 regular meeting of the Society was held at its rooms in the Denver High School on Monday evening Dec. 4th.</p> <p>Thirty one persons were present.</p> <p>Mr. J.B. Farish, elected presiding officer pro tem.</p>
Minutes	The minutes of the 108 th 7 regular meeting were read and approved.
Nominations	Mr. G.H. A. Koch, Mining and civil engineer, Colorado Fuel & Iron Co. was proposed for membership with the approval of the Ex. Committee. The candidate was endorsed by Messrs. R.M. Hosea, R.D. Hills and L.S. Storrs.
Nomination for officer for 1894	<p>The following members were nominated for officers of the Society for the year 1894.</p> <p>President Prof. Chas. S. Palmer 1st V. “ “ Jno. B. Farish 2nd V.” “ A.S. Dwight Secretary F. Guiterman Corres.”” & Librarian P.H. van Diest Treasurer R. M. Hosea Executive Committee Richard Pearce A.A. Blow Philip Argall H. Van F. Furman P.H. van Diest</p> <p>Balloting for these officers to take place on the 3rd Monday in December.</p>
p. 24 Communications Francis T. Freeland	<p>Communications: Mr. Francis T. Freeland read a paper on “The Solution of the Equation: $X^2+Y = 7, Y^2+X= 11$</p>
Discussion	Mr. R. M. Hosea offered a solution of this problem by a graphic method
W. L. Austin	Mr. W. L. Austin read a paper on “Nickel” the same being a historical sketch of the subject. This paper was the first of a series which will be presented by the same author and which embraces the metallurgy of the metal and its uses in the arts and manufactures.
Ph. Argall	Mr. Philip Argall read a paper on “Nickel,” the origin, occurrence and distribution of its ore deposits.
T.E. Schwarz	Mr. T.E. Schwarz described an interesting ore occurrence in the “Independence” Mine on Battle Mountain, at Cripple Creek, Colo. The ore occurs on either side of a fissure or crack in the granite near its uncton with

p. 26	<p>the overlying porphyry. The peculiar feature of the deposit was summed up by Mr. Schwarz as follows: 1st; the ... absence of any vein filling or gangue 2nd: the ore consists of a mineralized granite extending from the fissure for 2 to 5 feet on each side of it. The mica of the original granite had disappeared and had been replaced by the gold bearing minerals, the other constituents of the granite being but slightly, if at all, affected. 3rd: the presence of a porphyry dike, which is apparently a shoot from the main adjoining porphyritic mass, and which strikes into the granite. This dike follows the fissure described for a short distance and then swings off into the granite and continues parallel to the fissure and remains within 50 ft. of it. 4th: the named appear as of this ore in this property was entirely independent of any visible connection with the dyke mentioned. Except for the short distance when the latter follows the fissure. Mr. Schwarz called attention to the excellent opportunity the Independence Mine presented for a study of the extension of the intrusive dike with the ore occurrence. The presiding officers called attention to the advisability of the Annual Dinner to be given by the members of the Society. On motion of Mr. Edmund Kirby the secretary was instructed to communicate with the numbers and obtain subscriptions for a dinner who from same time in January, either on the 6th or 13th. The meeting then adjourned</p>
	F. Guiterman, Secy.
p. 27	<u>“Annual Meeting”</u>
On p. 26	<p>The annual meeting of the Society, for the purpose of electing officers and receiving the reports of officials, was held on Monday evening, Dec. 18th. 20 members were present. The attention of the Society was directed by the Secretary to the fact that on Feb. 6th a letter had been received from Mr. Anton Eilers stating that on due reflection he found it impossible to accept his election to the Presidency for 1893, and asking the Society to accept the declination. On motion of Mr. P.H. van Diest it was decided to table the declination, in the hope that Mr. Eilers might be induced to reconsider his action. However, the year had drawn to a close without any further advice from Mr. Eilers, and it became necessary for the Society to take final action. On motion of Mr. P.H. van Diest, it was moved to declare the office of President vacant for the year 1893. The report of the Secy. Corres. Secy. & Librarian and Treasurer were read and placed on file.</p>
Election p. 28	<p>As only one slate had been presented for the nominees to office for the year 1894, the Secretary, on motion, was instructed to call the ballot of the Society for such nominees. The following gentlemen were declared to be the officers of the Society for 1894 on such vote. Prest. Prof. Chas. S. Palmer 1st V. Prest John B. Farish</p>

p. 29	<p>2nd V. Prest. A.S. Dwight Secretary Franklin Guiterman Corress “ & Librarian P.H. van Diest Treas. R. M.Hosea Executive Committee Richard Pearce A. A. Blow Philip Argall H. Van F. Furman P.H. van Diest</p> <p>Mr. Jho. B. Farish, 1st V. Prest. Elect than took the chair. Mr. O. J. Frost, 1st Vice President for 1893 read a paper entitled :[blank]</p> <p>On motion of R.C. Hills, a vote of thanks was tendered by the Society to Mr. Frost for the uniform courtesy extended by him as presiding officer to all members during the past year, and also for the extreme conscientiousness with which his duties had been discharged.</p> <p>The Secretary stated that he had received in reply to invitations sent out for subscriptions to the annual dinner a sufficient number of subscribers to assure the success of the event; and on motion, the presiding officer appointed as Committee to arrange for the details of the dinner the following gentlemen: Mr. J.B. Farish P.H. van Deist Harold V. Pearce</p> <p>The meeting then adjourned.</p>
	F. Guiterman, Secy

1894

110 th Reg. Meeting	<p>The 110th 109 regular meeting of the Society was held at its rooms on Monday evening, Jan. 8th. Prest. Chas. S. Palmer in chair 38 persons were present The minutes of the 109th 108 regular meeting and of the annual meeting were read and approved.</p>
Nominations	<p>The following gentlemen were placed in nomination: For membership: Mr. Wm. H. Smiley, Supt. High School Denver, Endorsed by Chas. S. Palmer, P.H. van Diest and F. Guiterman Mr. A.F. Wuensch, Mining Engineer, Denver, endorsed by H. van F. Furman, F. Guiterman and H.E. Wood Mr. Willard D. Morse, Mill Manager, Denver, Endorsed by H.E. Wood, F. Guiterman and A. M. Campbell Mr. Chas. T. Carnahan, Leadville, endorsed by A.A. Blow, Wm. Byrant Page and F. Guiterman</p>
p. 30 Nominations	<p>Mr. E.C. Englehardt, metallurgist, Denver, endorsed by H.A. Vezin, A. Rapt and F. Guiterman Mr. Hal W. Hastings, ore buyer, Denver, endorsed by John B. Farish, F. Guiterman and J.D. Hawkins Associate membership Mr. L.C. Joshway, Prest. Ute Coal & Coke Co., Durango, Colo. endorsed by R. M. Hosea, R.C. Hill & Ernest J.H. Amy</p>
Election	<p>Mr. G.H. A. Koch, nominated at previous meeting was elected to membership.</p>
Appointment of Auditing Committee	<p>On motion the President appointed Messrs Harold V. Pearce and F. Guiterman a committee to audit the accounts of the Treasurer</p>
p. 31 Communications	<p>Dr. Richard Pearce read a paper on the nature of gold in Cripple Creek ores. His conclusions drawn from his investigations was that the gold must have originally existed in the ore as a telluride, probably in a larger degree as sylvanite ore that through the process of oxidation the gold had been set free and the tellurium oxidized wholly to tellurous acid in which state it is now found in the rock accompanying the gold, possibly associated with some base, as iron, similar to the occurrence in the mineral emmonsite.</p>
Discussion	<p>Prof. Chas S. Palmer mentioned an extremely delicate test for tellurium by means of precipitation on foil copper, when the ore is heated with this and sulphuric acid. Mr. H. van F. Furman called attention to the peculiar characteristics of the gold bullion obtained from the Wauch? Mines at Cripple Creek, which is sent to the Denver U.S. Mint. Even after refining the gold, on clipping the bar, shows a peculiar crystalline structure and is of a brittle nature. Mr. Furman stated that he had no opportunity or facilities for investigating the cause of the peculiarity, but from what Dr. Pearce had said about the nature of the ore,</p>

p. 32	<p>he should ascribe it to small quantities of tellurium in the gold, which had not been eliminated by the refining process.</p> <p>Dr. Pearce thought Mr. Furman's hypothesis not an unlikely one, and said that might be drawn to the action of minute quantities of arsenic when alloyed with gold. These are also eliminated only with the greatest difficulty and they also cause the gold to become brittle.</p> <p>Mr. T.A. Rickard said that Dr. Pearce's conclusions that the gold in Cripple Creek ores existed formerly as a telluride, and would be so found when explorations penetrated beyond the zone of oxidation, were borne out by the developments at the Anaconda Mine, in which tellurium ores were found in the deepest workings. Mr. N. Anderson presented a number of results obtained by polarizing[?] Cripple Creek ores, and assaying the different sizes obtained by screening, separately. The results, which testing as a whole to demonstrate that the finer portions of the material were richest in gold, did not as a whole enable him to formulate any positive conclusions which he could submit at this time. He would, however, take up the subject in detail at some future meeting.</p> <p>On motion the meeting then adjourned.</p>
	F. Guiterman, Secy.
p. 33	<p>The 110th regular meeting was held at the rooms of the Society on Monday evening, Feb. 5th.</p> <p>Prest. Chas. S. Palmer presiding.</p> <p>26 persons were present.</p> <p>The minutes of the 109th reg. Meeting were read and approved.</p>
Balloting	<p>The following persons nominated at the previous meeting were elected:</p> <p>For membership:</p> <p style="padding-left: 2em;">Mr. Wm. H. Smiley</p> <p style="padding-left: 2em;">A.F. Wuensch</p> <p style="padding-left: 2em;">William S. Morse</p> <p style="padding-left: 2em;">Chas. T. Carnahan</p> <p style="padding-left: 2em;">E. C. Engelhart</p> <p style="padding-left: 2em;">Hal. W. Hastings</p> <p>For Association membership:</p> <p style="padding-left: 2em;">L.C. Joshway</p>
p. 34 Nominations:	<p>The following persons approved by the Executive Committee were placed in nomination:</p> <p>For membership:</p> <p><u>William D. Hover</u>, wholesale Druggist, Denver, endorsed by Messrs O.J. Frost, T.E. Schwartz & P.H. van Diest</p> <p>George R. Hurlburt, Mining Engineer, Ouray, Colo, endorsed by Messrs. G.E. Kerzie Walter H. Bunce & T.E. Schwarz</p> <p><u>Mr. E.E. Olcott</u>, Mining Engineer, N.Y. City, endorsed by Messrs. B.B. Lawrence, J. B. Parish, & F. Guiterman</p> <p><u>Mr. John A. Church</u>, Mining Engineer, N.Y. City, endorsed by Messrs John B. Farish, T. A. Rickard and F. Guiterman.</p> <p>Associate Membership:</p>

	Mr. Jos. A. McClury, Capitalist, Denver endorsed by Messrs H. van F. Furman, J.B. Farish and F. Guiterman
Reports	<p>Mr. John B. Farish presented a report of the Committee who had charge of arrangements for the Annual Dinner of the Society which was given in January. He stated that all subscriptions had been paid, and that after meeting all expenses a small balance was left in his hands which he turned over to the Treasurer, Mr. R.M. Hosea, which he applied to any similar event which might take place in the future.</p> <p>Mr. P.H. van Diest, Corres. Secy. & Librarian reported that 2 new exchanges had been sent to him. There had also been a donation of books to the Society from Mr. S.F. Emmons.</p> <p>At Mr. van Diest's suggestion the Society passed a vote of thanks to Mr. Emmons, and Mr. van Diest was instructed to notify Mr. Emmons of the appreciation of the Society of his gift.</p>
Furman Communications	Mr. H. van F. Furman read a paper on the Refining of Gold as practiced at the U. S. Mint office, and offered a number of suggestions as to the best methods of refining impure gold bullion, based on his own experience
T.A. Rickard	Mr. T.A. Rickard discussed the geology of the metalliferous mines at Pontgihaur[?], France. The meeting then adjourned.
	F. Guiterman, Secy
p. 36	Denver, Colo. March 5 th /94
	<p>The 112th 111th regular meeting of the Society was held at its rooms in the High School Bldg. Monday evening Mch. 5th.</p> <p>Twenty persons (20) were present 2nd V.P. A. S. Dwight presiding The minutes of the 110th regular meeting were read and approved.</p>
Election	Messrs. E. E. Olcott, John A. Church, Wm. A. Hover & George R. Hurlburt proposed for membership and approved by the Ex. Committee were elected: Mr. Jas. A. McClury proposed for Associate membership and approved by the Ex. Committee was also duly elected
Nominations	Prof. H.B. Patten, Prof. Geology at the State School of Mines in Golden endorsed by Messrs Chauvenet, Kirby, & Guiterman and approved by the Ex. Committee was nominated for membership.
Report	Messrs. Diest, Pearce & F. Guiterman presented their report and stated that they had audited the accounts of the Treasurer Mr. R. M. Hosea, and had found same was correct.
p. 37	Prof. Van Diest had an invitation from the Geological Society in which the Colo. Sci. Soc. Was invited to send a representative to be present in Sand Francisco in the near future. Inquiry developed the fact that said representative was to go at his own expense, which seemed to neutralize any enthusiasm the invitation might have evoked at least no one present claimed the honors of representative of the Society.
Communications	There being no formal paper to be submitted, Mr. A.A. Blow was asked to give the Society a discourse on the Gold Belt of Leadville. Mr. Blow

p. 39	<p>although quite unprepared willingly complied with the invitation, promising to give the Society in the not far distant future a paper on the subject.</p> <p>The salient points of the lecture may be summed in</p> <p>1st: The locus of the gold ore shoots; these later are embraced in the area lying about 2 miles to the east of Leadville in a comparatively unexplored territory known as "Breece Hill"</p> <p>2nd: The tenor of the ore shoots: in regard to this question Mr. Blow called attention to the important fact that this trend was identical with that of a number of prominent ore shoots disclosed on "Iron Hills" and endorsed the opinion that the gold ore shoots would possibly be found to be continuations of the other ore shoots.</p> <p>3rd-, the character of the ore. This was highly silicious and but little silver and lead was found associated with the gold.</p> <p>4th, - the occurrence of the ore. This was not localized to any special zones. It occurred both in the limestones and in the porphyrys, (both white and gray,) or in the contact plane between the two. In connection with the gold ore deposits there occurred intrusive dykes of porphyries younger than both the white & gray porphyries characteristic in their association with the silver deposits of Leadville, which <u>younger</u> explanations seemed to be intimately connected with the gold deposits under discussion, and appear to have influenced the deposition.</p> <p>Mr. Blow suggested in conclusion of his address that developments in the gold belt of Leadville might mostly be awaited with much interest and he apprehended that a thorough study of this especial class of deposits would offer further evidence in negation of Mr. Emmon's theory that the ore deposits of Leadville owe their origin to lateral secretions which thus drew their pulateric[?] contents from the white porphyry overlying the ore bodies.</p> <p>Mr. F.C. Knight made mention of a remarkably pure specimens of Naumannite which he had lately analyzed. Unfortunately the locality from which the specimen came was unknown.</p> <p>The meeting then adjourned</p>
	F. Guiterman, Secy.
Note in pencil	F.G. You are one ahead on number of meetings and have been since 1891. P.Diest
p. 40	<p>The 112th regular meeting of the Society was held at the E. Denver High School Bldg. On Monday Apr. 2nd.</p> <p>Owing to the absence of the regular presiding officer, Dr. R. Pearce was chosen chairman pro tem.</p> <p>Twenty persons were present.</p> <p>The minutes of the previous meeting were read and approved</p>
Elections	<p>Prof. H.B. Patton of Golden, S.S.M. was elected a member.</p> <p>The Secretary informed the Society that the Executive Committee had determined that owing to the growth of the Society, its library and the collections, the determination had been reached after thorough investigation and discussion to remove from the Society's present quarters in the High School Bldg. To other location in the Boston Bldg. through the efforts of Dr.</p>

	<p>Pearce and the kindness of the Hon. H. Wolcott the rooms would be furnished to the Society at comparatively small expense.</p> <p>It was held by the Executive Committee that the removal of the Society's quarts to a location more central would be productive of entailing an interest in the Society on the fact of the public, which could not fail to benefit the Society greatly.</p> <p>It was resolved that a vote of thanks be bestowed to Dr. Pearce for his efforts in procuring the new rooms and the Corres. Secy & Librarian was instructed to present to the Board of Education and Principal Wm. H. Shirley a vote of thanks for the Society in appreciation to the many courtesies shown the Society in allowing it to place, in the past its library and collections in the E. Denver High School Bldg and to use the room for a meeting place.</p> <p>Dr. Pearce presented to the Society on behalf of Mr. G.W. Goodale of Butte Mountain, a beautiful specimen of tennantite.</p>
<p>Communications</p> <p>p. 42</p>	<p>Dr. Pearce Committed[?]a finished paper on Cripple Creek ores. Further investigations confirmed his theory advance in the former papers that the free gold in Cripple Creek ores has been chiefly derived from the oxidation of tellurides, the tellurium being present in the ore in an oxidized form as a host for the presence of tellurium in oxidized form stannous chloride was used.</p> <p>Dr. Pearce exhibited a specimen on which showed an unaltered and an oxidized portion He also showed a colored enlarged drawing of the specimen, made by Mr. Stephen Rickard.</p> <p>Analyses of both unaltered and oxidized portions of the specimens were presented, by which the chemical changes in the ore & rock due to oxidation were clearly shown. The analysis of the weathered rock indicated that the telluride mineral was sylvanite, corroborating the hypothesis brought forward in the previous paper. The conclusions reached were that the gold bearing rock which was subjected to examination was first impregnated with pyrite & sylvanite by means of highly sulphurated waters encrusting through the natural joints; at a later period surface waters promoted oxidation, effecting a change of the pyrite into basic sulphate of iron, the of the tellurium into the oxide.</p> <p>Mr. F.T. Freeland gave an informal address on the mines of Cripple Creek, after which the meeting adjourned.</p>
	<p>F. Guiterman, Secy.</p>
<p>p. 43</p>	<p>The 113th regular meeting of the Society was held at its new rooms in the Boston Bldg on Monday May 7th.</p> <p>38 persons were present.</p> <p>President Chas. S. Palmer presided.</p> <p>Prof. Palmer in an appropriate address dwelt on the new quarters which the Society now possessed.</p> <p>Dr. R. Pearce followed his opinion and moved that a vote of thanks be tendered Hon. Henry R. Wolcott for his valued assistance in helping the Society obtain its present quarters at a very moderate monthly rental. This resolution was unanimously carried.</p> <p>The minutes of the previous meeting were read and approved.</p>

	<p>The following Candidates endorsed by the Executive Committee were elected members:</p> <p>Mr. E. L. Newhouse of Denver Mr. C. W. Goodale of Butte Montana And Mr. G.R. Nichols of Durango, Colo.</p>
Communication	<p>Prof. Wm. C. Strong read a paper on the Sanitary fractions of the Artesian waters of Denver after which the meeting adjourned.</p>
	F. Guiterman, Secy.
p. 44	<p>The 114 regular meeting of the Society was held at its rooms on Monday, June 4th. 48 persons were present. President Chas. S. Palmer presided. The minutes of the previous meeting were read and approved.</p>
Elections	<p>The following gentlemen were elected members having been approved by the Ex. Committee</p> <p>Col. Wesley Brainard, M.E. of Ward, Colo Edwin E. Chase, M.E., Denver, Colo. J. T. Eskorrof, M.D. Denver, Colo H.W. McLaughlin, M.D., Denver, Colo</p> <p>Associate member: Chas. R. Dudley, Librarian, Chamber Commerce Library, Denver, Colo</p> <p>President Chas. S. Palmer proposed the name of Mr. Edwin G. Dexter of Colorado Springs, Colo. The Secretary informed him that said Dexter had once before been elected but had failed to qualify. President Palmer stated that notice of such election had failed to reach Mr. Dexter.</p> <p>The Executive Committee had stated made the circumstances the previous election stood and it would be sufficient if the Secretary notified Mr. Dexter again.</p>
p. 45	
Reports	<p>The curator Mr. R.C. Hills exhibited some mineral specimens of gypsum presented to the Society by Mr. W.S. Ward and also some fossils given the Society by Dr. Wm. P. Headden.</p> <p>He also brought up the matter of a fossil plant collection which he had undertaken a ... with the late Prof. Newberry of Columbia College, N.Y. This collection belonged to Mr. Hills personally, part to the Society and part to Prof. Newberry. A portion of the Society's then was in possession of Prof. Newberry when he died. Mr. Hills said he had corresponded with the Trustees of Columbia College regarding this Collection and had learned that Prof. Newberry's main collections had been left to the college, and that it was impossible to ... for the Society and him over which that portion of the fossil plant collection which belonged to it. The Columbia College Trustees were willing to enter from the Society that portion of the collection already in its possession and pay for same an adequate monetary consideration. Mr. Hills suggested that in as much as the partial collection was of little use to the Society the exchange be made, and he was informed by the Ex. Committee to take what action he might deem best.</p>
p. 46	

	<p>Mr. W. S. Ward on behalf of Prof. Henry Ward of Rochester, N.Y. made a proposition to the Society to cut from the meteorite a piece averaging from 5 to 8 pounds, polish the face when cut, and pay for the portion cut off in the sum of \$200.00 dollars.</p> <p>The Executive Committee accepted the proposition and the curator, Mr. R.C. Hills was empowered to attend to the transaction.</p>
Communications	<p>The Secretary read a paper by C. Whitman Cross on the Geology of the Cripple Creek Colo. District.</p> <p>Discussion by: Messrs. Guiterman, Argall, Palmer, Van Diest, Moore, Hills, Freeland & Richard R. Pearce. The Secretary also read a paper by Prof. R. F. Penrose on the "Values[?] of the Ore Deposits of Cripple Creek," after which the meeting adjourned.</p>
	F. Guiterman, Secy.
p. 47	<p>The 115th regular meeting of the Society was held in its rooms on Monday evening, July 2nd.</p> <p>Nineteen persons were present. Prof. Chas. S. Palmer presided. The minutes of the previous meeting were read and approved.</p>
Nominations	<p>The following persons were nominated for membership and associate membership.</p> <p>For member – John K. McKenzie, Chemist, Rookery Bros. Chicago, Ills. The application was endorsed by Messrs. Farish, van Diest, Guiterman. R. W. Dicksman, Mining Eng. & Chemist, Cleveland, O, endorsed by Messrs. Farish, van Diest, & Guiterman. Mr. H. Shields, M.E. & Met. Denver, endorsed by Messrs. Guiterman, Farish, & van Diest</p> <p>For associate member: Mr. Franklin Ballou, Leadville, Colo., endorsed by Messrs. Wuensch, Argall & Guiterman</p> <p>All of above named candidates were approved by the Ex. Committee.</p> <p>The Secretary presented to the Society in writing the following amendment to sections 10 & 13 ByLaws of the Society –</p> <p>Amendment to Sec. 10 – read "The Executive Committee shall have the final control of all expenditures of the Society, shall appoint the necessary curators; <u>shall elect members and associate members</u>; etc., etc., the remaining portion of the section being left unaltered.</p> <p>Amendment to Sec. 13 By Laws "Members and assoc. members shall be elected by the Ex. Committee, two negative votes being sufficient to prevent an election, etc., etc. Succeeding portion of the section being left unaltered.</p> <p>These amendments were proposed by Messrs. F. Guiterman, Chas. S. Palmer, & R.C. Hills</p>
p. 48 Amendment to Sec. 10 & 13 Bylaws	
Communications	<p>Prof. Chas. S. Palmer read a paper on the differentiation of silver, the article presented being only an exposition of the veins on which the research was being conducted, with a number of the preliminary results which had been</p>

	reached. The full paper was promised in the near future. On motion the meeting then adjourned.
	F. Guiterman, Secy
p. 49	The 116 th regular meeting of the Society was held at its rooms on Monday August 6 th Mr. Jno. B. Farish, 1 st V. Prest. In the Chair 25 members were present. The minutes of the previous meeting were read and approved.
Adoption of Amendments of By Laws to Sec. 10 & 13	The amendments to the By-Laws Sections 10 & 13 were adopted.
Communications	Mr. R.C. Hills read a paper on the Mercur Mine of Camp Floyd District, Utah. Mr. E. Kirby gave a description of some quartzite veins in Utah. (Written communication promised.) Mr. J.B. Farish gave a description of a bog in Bingham Canyon, Utah, which was copper bearing. This copper deposit was formed by copper bearing solutions from some of the neighboring mines flowing into the bog, the copper being precipitated as metallic copper by the organic material in the bog. Mr. P. H. van Diest read a paper on the "State resources of Colorado." On motion the meeting then adjourned.
	F. Guiterman, Secy.
p. 50	The 117 th regular meeting of the Society was held at its rooms on Monday, Sept. 3 rd . 25 persons were present. Prest. Chas. W. Palmer presided. The secretary announced the election of Messrs John K. McKenzie, R.M. Dickman as members and Franklin Bascom[?] as associate members by the Ex. Committee
Communications	Prof. Chas S. Palmer gave an informal communication on a visit to Long's Peak, Colo. Mr. L.D. Godshall gave an informal communication on pyritic smelting as conducted by him at Rico. Discussion participation by Messrs. Richard Pearce and Dwight.
p. 51	Prof. Palmer called attention to a article in an English paper of a possibly new element (Akton[? Argon]) closely associated with the nitrogen of the atmosphere. He commented on the physical properties of the supposed element as described and the atomic might assigned to it, and stated that these run irreconcilable with the period law as formulated by Mundilioff[?], which law had been demonstrated to be without exception. Dr. Palmer also delivered a few remarks on the death of Dr. Williams, Prof. of Geology at Johns Hopkins University. Although Dr. Williams was not a member of the Society, still he was known to not a few of its members, and had accepted such a prominent place as a geologist in the scientific world,

	<p>that a tribute to his work was tendered. On motion the meeting was adjourned.</p>
	F. Guiterman, Secy.
	<p>The 118th regular meeting of the Society was held at its rooms on Monday Oct. 1st 1st V.P. Jno. B. Farish in the Chair 47 persons were present. The minutes of the previous meeting were read and approved.</p>
<p>Reception to Chas. A. Walcott Donation U.S. Geo Survey p. 52</p> <p>p. 53</p>	<p>The Secretary stated that the Director of the U.S. Geol. Survey had during the previous month paid a visit to Denver on his way west, and had expressed a desire to meet the representative mining men and those interested in the work of the Survey. The Society had tendered Mr. Walcott an informal reception to which a number of Denver's most prominent citizens had been invited. The time for the arranging of such reception being so very brief, owing to Mr. Walcott's short stay in Denver, no formal announcement of the meeting could be made to the members through the regular channels and recourse was had to publication in the newspapers. The meeting was well attended over 50 persons being present. Mr. Walcott took occasion to outline the nature of the work now being conducted by the Survey and to define the means on which he would be conducted in the future. He explained he expressed himself as highly gratified at the interest shown by the Society in the Survey and trusted the same would always be so conducted as to merit the ardent support of the organization. The Secretary announced the election of the following persons to membership and associate membership. Membership: W.F. Patrick; A. Chanute; Chas. J. Ling; D.G. Miller, all of Denver; A. F. Pierson, Jr. of Chicago Associate membership: Dennis Shutz of Denver; Seymour Coleman, Chicago</p>
<p>Communications</p> <p>p. 54</p>	<p>Mr. Francis T. Freeland read a communication on Mining Litigation in which certain suggestions were offered as the modification of the present U.S. Mining law under that the complex features surrounding the location of claims and application the validity of title and the ... with veins might be overcome. The Communication had been submitted to and printed by an Eastern journal, but the subject was of such great importance that Mr. Furman thought the Society might most properly discuss it and perhaps take action upon it. The discussion followed in which the following gentlemen participated: Jno. B. Farish; P.H. van Diest; E.H. B. Kirby; T. E. Schwarz; F. Guiterman & George Moore, S. Hallet: After discussion had closed the Secretary summed that the chair appoint a Committee of 5 of whom he should be one to draw a set of resolutions concerning such amendments to the present mining law which would in their opinion prove of benefit to the mining community; the resolutions were</p>

	<p>subsequently to be presented to the Society for approval, for their amendment or rejection. In case final resolutions were adopted by the Society they have to be presented to Colorado's representative in Congress as a suggestion for the improvement to the mining law.</p> <p>The motion was seconded by Mr. E.B. Kirby and passed.</p> <p>The chair announced the appointment of the following committee: Francis T. Freeland Philip Argall Wm. Bryon Page Jno. B. Farish.</p>
Communications F.C. Knight	<p>Mr. F.C. Knight then read a paper entitled: "A suspected new Mineral at Cripple Creek," after which the meeting adjourned.</p>
	Unsigned
p. 55	<p>The 119th regular meeting of the Society was held on Monday Nov. 5th, 94. 14 persons were present.</p> <p>Owing to the absence of the Pres. and 1st & 2nd Vice Presidents, Mr. F.C. Knight was chosen Chairman pro tem.</p> <p>The minutes of the previous meeting were read and approved.</p> <p>The Secretary announced the election by the Ex. Committee of the following persons: Membership: Mr. Frank C. Lewis Smith, M.E. Rapid City, So Dakota Membership: Mr. Louis Pilatan, Mining Eng. & Met: Denver, Colo. Mr. Fabrizio Clerici, Met., Denver, Colo Associate Membership: Judge Morris Hurlett, Denver Geo. W. Pierce, Denver</p>
Nominations p. 56	<p>The following gentlemen were placed in nomination for officers for the Society for the year 1895, all nominators being duly recorded: President: A S. Dwight Jno. B. Farish 1st Vice President: Harry Hall Philip Argall F.C. Knight 2nd Vice Prest. A. Ralh Rec. Secretary F. Guiterman Corres. Scy & Librarian P.H. van Diest Treas. R.M. Hosea Ex. Committee Chas. S. Palmer</p>

	<p>Richard Pearce Jno. B. Gannier W.L. Austin E.B. Kirby Wm. Shiry Harry S. Hall H.van F. Furnman P.H. van Diest R.C. Hills</p>
Communications E.C. & P.H. van Diest	Mr. P. H. van Diest read a paper entitled: Notes on the Geology of the Western Slope of the Sangre de Cristo Range in Costillo County, Colo., after which the meeting adjourned
	F. Guiterman, Secy.
p. 57	Dec. 3 rd 1894
	<p>The regular meeting the 120th of the Society was held at the rooms on Monday evening, Dec. 3rd. There were 32 persons present. Owing to the absence of the regular presiding officer, Mr. O.J. Frost was chosen Chairman pro tem. The minutes of the previous meeting were read and approved. The Secretary announced the election of the following gentlemen by the Executive Committee: Membership: W.R. Tryares[?] – New York Thos. Heithens- Denver Prof. G.H. Rowe – Boulder Benjamin L. Cress – Red Cliff E.A. Schneider – Denver Associate membership: James V. Dexter – Denver</p>
Balloting for officers for 1895 p. 58	<p>The Chair appointed Messrs. Jones & Charlton to act as tellers in the election for officers for the Society for 1895. The ballots were duly cast , secured by the tellers, who after counting same announced the election of the following gentlemen: President: A.S. Dwight – Pueblo 1st Vice President – Philip Argall – Denver 2nd Vice President – A. Rahl – Pueblo Recording Secretary – F. Guiterman Corres. Secy & Librarian – P.H. van Diest Treasurer – R.M. Hosea <u>Executive Committee</u> Richard Pearce P.H. van Diest Irving Hale H.van F. Furman R.C. Hills</p>

Communications E.B. Kirby	Following the election Mr. E. B. Kirby read a paper entitled: "The Sampling & Measurement of ore bodies in mine examinations," after which the meeting adjourned.
	F. Guiterman, Secy.
p. 59	<u>Annual Meeting</u>
	Dec. 17 th , 1894
	The annual meeting of the Society was held at its room, on Monday, Dec. 17 th . There were 18 members present. The newly elected President for 1895 was duly installed and the retiring President, Prof. Chas. A. Palmer read an address entitled: "The Recent History and the Present Status of Chemistry," after which the meeting adjourned.
	F. Guiterman, Secy.

1895

p. 60	Jan. 7 th , 1895
	<p>The 121st regular meeting of the Society was held at its rooms on Monday, Jan 7th, 8 pm 1st V.P. Philip Argall in chair. 14 persons were present. The minutes of the previous meetings were read and approved.</p>
<p>Annual Reports of Secy, Treas & Librarian</p> <p>p. 61</p>	<p>The Society read the Annual Reports of the Secy. And owing to Mr. Hosea's absence the report of the Treasurer. The Corres Secy. Librarian, Mr. P.H. van Diest read his annual report. The Secretary announced the election of the following gentlemen by the Executive Committee: Membership: D.W. Brunton, G.M. Taylor, Golden, Colo., W. E. Newberry, Colorado Springs, Colo., Karl Eilers, Pueblo, Colo. Alton L. Dickenson, Colorado Springs, Co., Franz Cazin, Denver, Dr. L. E. Lunen, Denver, Prof. James H. Baker, University of Colorado, Boulder, Colo. Associate membership: Mr. J. S. Higgins – Leadville Jno. L McNeil – all of Denver W. H. James C.B. Kountze J.H. Thatcher Chas. H. Tace The Secretary then read the following amendment & additions to the Constitution and Amendments to the By-Laws, same having been proposed in writing and endorsed by Messrs. H. Argall, F. Guiterman, & P.H. van Diest</p>
<p>Amendments to Const. & By Laws</p> <p>p. 62</p>	<p>Amendment to Const. Art. IV Reading: Persons of recognized attainments in some branch of natural or applied science shall be eligible for admission as members of the Society. Addition in Const. Proposed Art. VII: Honorary Members Persons of great attainment in some branch of natural or applied science who has contributed to the Proceedings of the Society, or such of great public prominence who may have aided the Society in the promotion of its object may be made 'Honorary Members' Proposed Art. IX: Life-members and Life-Associates. Members and Associates may become Life members or Life-Associates in accordance with the provision specified in the By-Laws.</p> <p>Amendment to By-Laws</p>

p. 63	<p>Sec. 12 Proposals for admission to the Society shall be endorsed by at least 3 members who shall certify that the Candidate is worthy of acceptance the proposal shall contain a statement of the candidate's evidence[?] and the particular branch of natural or applied science in which he is especially interested.</p> <p>The applications for membership or associate membership must be accompanied by the amount of entrance fee or annual dues for the current year which amount shall be held by the Treasurer. In event of the non-election of the candidate, the same shall be returned to the applicant.</p> <p>Sc. 14 The amount of entrance fee and annual dues shall be determined by the Executive Committee. The annual dues shall be payable before May 1st of each year. All members or associates whose annual dues are unpaid May 1st, shall be officially notified by the Treasurer in writing.</p> <p>Members and Associates whose annual dues are unpaid Sept. 1st, shall cease to receive the publications of the Society. Should the dues be still unpaid Dec. 31st, then such delinquents shall be dropped from the rolls of the Society, provided however, that the Executive Committee may re-instate such persons upon application & payment of them of all unpaid dues.</p> <p>Members and Associates not in arrears may become Life-members and Life-Associates upon payment into the Treasury of the sum of \$100.00, one hundred dollars, and such life members & life Associates shall be exempt from the further payment of annual dues.</p> <p>The above amendments were approved by a majority of those present.</p>
p. 64 Communication R.C. Hills Costilla meteorite	The Secy then read a paper by Mr. R.C. Hill on the Costilla Meteorite, after which the meeting adjourned.
	F. Guiterman, Secy.
p. 65	Feb. 4 th , 1895
	<p>The regular meeting [122 penciled in] of the Society was held at its rooms on Monday evening Feb. 4th.</p> <p>30 persons were present.</p> <p>Owing to the absence of the Regular presiding officer, Mr. R. Pearce was chosen President pro tem.</p> <p>The minutes of the previous meeting were read and approved.</p> <p>The Secretary announced the election of Mr. J. W. Stearns, Jr. of Denver, for membership, and Mr. Simon Guggenheim of Denver for Associate membership.</p> <p>The Secretary then called the attention of the chair to the custom of the Society to appoint every ear a committee to audit the accounts of the Treasurer for accordance with the suggestion, the Chair appointed the following gentlemen as auditing Committee for such purpose.</p> <p>Harold V. Pearce P.H. van Diest</p>

	F. Guiterman
Communications p. 66	Mr. P.H. van Diest stated that acting under instructions from the Executive Committee he had subscribed for current scientific & technical journals for the Library of the Society, to the extent of about \$100.000 for annum. The list read by Mr. van Diest embraced the leading journals of the day covering Geological, Mineralogical, Chemical, electrical, and engineering subjects.
Rickard, T.A.	Mr. T.A. Rickard read a paper on "The Vein Structure on Newman Hill, Rico, Colo." Discussion by Messrs. R. Pearce, Regis Chauvenet, H. Williams, and F. Guiterman
Eakins, L.G.	The Secretary read a paper by Mr. L.G. Eakins on the determination of Bismuth in refined lead and base bullion. On motion the meeting then adjourned.
	F. Guiterman, Secy.
p. 67	The regular meeting [123 penciled in] of the Society was held at the rooms on Monday evening March 4 th . First vice president Philip Argall in the chair. 24 persons were present. The minutes of the previous meeting were read and approved.
Communications	The corresponding secretary, as member of the auditing committee reported progress and stated that the report of the committee will be presented next meeting. The corr. Secretary also mentioned that not a sufficient number of votes was received to cash the ballot on the adoption of changes and additions in the Constitution and bylaws of the Society. He urged members having neglected to send in their dues to do so before next meeting, as 2/3 of the votes of all the members are necessary for adoption.
Papers Prof. Strong p. 68	Prof. W.C. Strong read a paper or rather gave a lecture on Early remains of man in relation to his place in nature. He mentioned in his able lecture particularly the recent find of a skull, tooth, and bones of a Paleolithic man or the so-called missing link found at Java, Asia[?], in Pleistocene beds. Discussion by Messrs. Austin, Argall, Withers, Kirby, and Van Diest.
Nicolai Anderson	Mr. Nicolai Anderson read a paper on the precipitation of gold by zinc from cyanide solutions. On motion the meeting then adjourned.
	P.H. van Diest, Acting Recording Secretary
	Apl. 1 st , 1895
p. 69	The Regular meeting (124 penciled in) of the Society at the rooms on Monday evening, Apl. 1 st . President A.S. Dwight in the Chair. There were 16 persons present. The minutes of the previous meeting were read and approved.
Elections	The Secretary announced the election of the following gentlemen: Membership Ed. M. Rogers, Manager Aspen Mine, Aspen, Colo. Associate Membership: Thos. J. Pulling, Denver, Colo. Jas L. Jerome, Denver, Colo.
Amendments to	The Secretary announced that he had received 166 ballots for and against

<p>Constitution and Bylaws</p>	<p>the proposed amendments to the Constitution and Bylaws (see p. 61) The vote stood as follows:</p> <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Favor Amendment</th> <th style="text-align: right;">Against Amendment</th> </tr> </thead> <tbody> <tr> <td>“A” 116</td> <td style="text-align: right;">----</td> </tr> <tr> <td>“B” 115</td> <td style="text-align: right;">1</td> </tr> <tr> <td>“C” 116</td> <td style="text-align: right;">-----</td> </tr> <tr> <td>“D” 110</td> <td style="text-align: right;">6</td> </tr> <tr> <td>“E” 114</td> <td style="text-align: right;">3</td> </tr> </tbody> </table> <p>Affirmative vote necessary to carry – 90. All amendments now in consequence adopted.</p>	Favor Amendment	Against Amendment	“A” 116	----	“B” 115	1	“C” 116	-----	“D” 110	6	“E” 114	3
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<p>p. 70 Communications</p>	<p>Mr. Nicholai Anderson read a paper entitled: “The Precipitation of Gold from Cyanide solutions by Metallic Zinc.” The paper dealt with the Chemical reactions involved and offered the explanation which the zinc contents of the cyanide solutions do not interfere [?] with the continued precipitation of gold from solutions which are used over and over again.</p>												
<p>Informal Communications</p> <p>p. 71</p> <p>p. 72</p>	<p>Dr. Richard Pearce called the attention of the Society to some investigations he has recently been making on the gold ores of South Dakota. He has been struck by the physical analogy between these ores and those of Cripple Cree3k. The samples had been sent by Mr. Frank Thomas[?] Smith. The South Dakota ores occurred in the Potsdam Sandstones of the region. Microscopic examination demonstrated that the gold bearing rock was eruptive. Dr. Pearce mentioned his opinion that it was an ancient “phonolite.” Dr. Whitman Cross of the U.S. Geological Survey had stated that outside of Cripple Creek, Colo., South Dakota was the only locality known in the United States where phonolite occurred. The samples were of two kinds, the blue ore as it was called, and a reddish brown ore. The “Blue ore” consisted of a hard jaspery material of bluish caste and color, sprinkled here and there with pyrite and containing also fluorite. The reddish brown variety was essentially the same except that the pyrite and other metal minerals present had been oxidized. In neither of these ores could free gold be detected by the miner’s test of panning. An examination with the lens showed in the reddish brown ore small cavities lined with reddish-yellowish tufts. It was the appearance of these tufts that had led him to suspect the presence of tellurium in an oxidized form. A chemical test on the ores verified the suspicion. Dr. Pearce also stated that he had been investigating the behavior of tellurium ores in roasting. Much to his surprise he had found that in ores free from pyrites there was but a very small amount of tellurium lost in roasting; while in the presence of pyrite, the loss was somewhat greater. In neither case, however, was the volatilization any where near as great as he had been led to believe it would be from the current published statements. In roasting tellurium ores of gold and silver, associated with silica and pyrite, he has found that the tellurium remained behind in the oxidized form of</p>												

	<p>TeO₂ either free or combined with ferric oxides. Dr. Pearce had come to the conclusion in view of the preceding investigations that the loss of au [Au=gold] in roasting tellurium ore was not a matter of such first importance as every one had been led to believe from all previous statements.</p> <p>He professed to continue his investigations and trusted in due time to be able to lay before the Society the results of his researches.</p> <p>On Motion the meeting then adjourned.</p>
	F. Guiterman, Secy
p. 73	The 125 th regular meeting of the Society was held in the rooms, May 6 th , 1895. President A.S. Dwight in the chair. 12 persons were present.
Informal Communications	<p>Mr. van Diest showed a selection of fossils found in a railway cut about 10 miles west of Pueblo consisting principally of imprints of ostreae and Inoceramea shells and shark teeth in Niobrara formation which contained also in nodules marcasite.</p> <p>Mr. Richard Pearce gave the results of further investigations with Telluride ores as a sequence tot hose presented in the previous meeting. He showed some crystals of pyrite beautifully covered with gold crystals. Mr. Pearce obtained them in the following manner.</p> <p>He took a crushed sample of rich ore from Cripple Creek which carried 1100 ounces of gold per ton, and digested it in a very weak solution of chloride of sodium and sesquisulphate of iron and very much diluted sulphuric acid making the solution correspond as near as practicable to the material found in nature. The ore and solution was kept in a glass having a temperature little less than boiling water for about six weeks, when all the gold except one ounce per ton was found to have gone into solution.</p> <p>The auriferous solution brought in contact with carbonaceous shale gave precipitation of gold on the edges of the shale. In the gold solution were placed a few small crystals of pyrite and gold began to precipitate on those pyrite crystals which contained some zinc, galena, and other extraneous associations. The crystals of pyrite which were free of much ingredients received no or but a very slight gold precipitation.</p> <p>On motion the meeting then adjourned</p>
p. 74	
	P.H. van Diest Acting recording secretary
p. 75	<p>The 126th regular meeting of the Society was held in its rooms June 3rd, 1895.</p> <p>Mr. Irving Hale in the chair president and vice president being absent. 18 persons were present.</p> <p>The minutes of the previous meeting were read and approved.</p>
Elections	<p>Election of Mr. Curtis Irving Andrews, chemist Denver, was announced. The librarian made his report and mentioned the donation of a work on Chemistry by Prof. Palmer to the library. It was announced that the executive committee had resolved to have the next meeting in Cripple Creek and after some discussion it was decided that the meeting was to be held on Monday July 1st in said place.</p>
Communications	Mr. C.I. Andrews read a paper on the eruptive rocks of Alum Hill, Boulder,

<p>p. 78</p>	<p>The 127th regular meeting met by special arrangement held in Cripple Creek, El Paso Co., July 1st, 1895. The meeting was held in the Masonic Hall in the town of Cripple Creek and called to order 7:30 P.M. with Mr. Philip Argall, 1st Vice President in the chair.</p> <p>34 members were present, 40 other mine managers and leading citizens were present.</p> <p>The minutes of the previous meeting were read and approved.</p> <p>The election of Mr. John W. Nesmith president of the Colo. Iron works and of Nelson Franklin, Mining Engineer, were announced.</p>
<p>Communications</p> <p>Page cut out, but dialogue is continuous</p> <p>p. 81</p> <p>p. 82</p>	<p>Mr. Francis T. Freeland addressed the meeting on the subject of the Bull Hill mine and was followed by Mr. Charles J. Moore on the characteristics of the District in general and of Battle Mountain in particular. He gave also a description of special matters of interest to be observed the next day.</p> <p>A general discussion followed, participated in by Profs. Palmer, Strong, Headden, van Diest and others.</p> <p>Mr. J. Dawson [?] Hawkins followed with an address on chlorination at the Gilette mill. This was to be followed by a paper on the cyanide process sin use at the Metallic Extraction Company Mill at Florence by Philip Argall, but the hour being late, this was postponed and the meeting adjourned after which there was an examination of various rocks and ore samples by the members and their friends.</p> <p>On the next morning the members of the Society and friends were divided into two parties. The one going south, the other north, each party however visiting the same mines and mills, but to accelerate matters, in such a sway, that the first mine examined by the North section was visited the last by the South Section.</p> <p>The South Section was first shown through the Brodie Cyanide mill, thence through the Hartzell concentration Stamp mill, a stop was made at the Anaconda double track tunnel which has pierced Gold Hill over 1200 ft. The vein at depth of 500 ft is 30 ft. wide. The next mines visited were the Elkton, Catherine and Raven. The Elkton mine being opened at the 100 ft. level for 1400 ft. The cross cut at the 100 ft. level East separating[?] a dike parallel to the vein was visited, the rock forming this dike is now know as nepheline basalt. Attention was given to a much altered phonolite dike crossing at right angles the Catherine vein in the 215 ft. level. The Raven dike in the tunnel of the Raven mine was also examined. The Home Run on the South Slope of Squaw Mountain was next visited. This mine is in granite and so far as known not associated with dikes. The Portland on Battle mountain was the next stop, where at noon both sections met and partook of excellent refreshments supplied by the Portland Mining Co. The next property visited was the Ann Lee which has the deepest shaft in the camp 700 feet. The shaft follows a chimney of ore or rather an old geiser [geyser]. 90 ft long and from 20 to 40 ft wide beyond which the ground has no value. The ore is a pudding stone the cementing substance being ore and lime. The Portland mine was next visited, thence the Independence where the large stope at the 300 feet attracted the most attention, where a few men</p>

p. 83	<p>break daily about \$5000 worth of ore. From Independence the South party drove to Bull Hill, visiting the Rubie, Lucky Grass, the Zenobia, the Pharmacists, the Victor, & the Buena Vista.</p> <p>On Globe Hill the Londonderry and climax, the Deerhorn and Summit received a passing notice.</p> <p>For the evening the members attended an elaborate banquet tendered them by the citizens at which 130 covers [?] were laid.. Several appropriate toasts were proposed and responded to and at the close, resolutions of the most appreciative character were passed, thanking the mine owners and citizens of the District for their courtesy and liberality and the freedom with which all mines were thrown open for inspection.</p> <p>July 3rd the members visited special mines each where the most desired to go and in the afternoon on the return to Denver a special train took them to Gillette where they examined the chlorination plant and process in the El Paso Reduction works.</p>
	P.H. van Diest, Corresponding secy/acting recording secy
p. 84 There is a meeting missing (August 1895) from the book, but the page numbers are sequential. (This pattern continues through the years)	<p>The 128th regular meeting of the Society was held in its rooms Wept. 9th, 1895. President A.S. Dwight in the chair.</p> <p>16 members were present.</p> <p>The minutes of the previous meeting were read and approved.</p>
Elections	<p>The secretary announced that the Executive committee had elected Messrs. G. Lavagnino and Victor G. Hills both of Cripple Creek as members and Mr. A. R. Wilfley of Denver as associate Member.</p>
p. 85 Communications	<p>Mr. Richard Pearce gave some notes on the occurrence of Uraninite in Colorado. He described its discovery in the dump of the Wood lode in Leavenworth Gulch near Central City, the formation of the country rock in which this vein occurs, the gangue matter and the form of the body of uranium ore occupied in the vein. He told the history of the mining and shipment of this rare mineral and the price it obtained in 1872 in London. He mentioned also how leasers by deeper sinking and drifting had discovered last year another lenticular deposit of this mineral and how much the price of this mineral had gone down since 1872.</p> <p>Mr. Pearce related that he had sent a quantity of this mineral to our ex-member and president W.F. Hillebrand for the purpose of determining the quantity of helium this mineral may contain. He read a letter received from Mr. Hillebrand, wherein is stated that Prof. Ramsay admits that Hillebrand was right in claiming to have found nitrogen in Uraninite of Colorado ore, though, the larger bulk of the gas was helium, the nitrogen masking very greatly the helium spectrum.</p> <p>Mr. Pearce deposited selected specimens of this uraninite commonly called</p>

p. 86	<p>pitchblende as well from the first as of the last find, also a specimen of ore containing uranium ochre from Cripple Creek.</p> <p>The details of this interesting communication will appear later on in the proceedings volume V.</p> <p>Mr. Pearce shared also a specimen of slag from the Argo Smelting works, very beautifully crystallized, which beside the crystalline form are interesting as containing free arsenous acid, orpiment or operment, As_2O_3 to an extent of 7.28 per cent. The analysis of the slag is as follows: Si 14.%, Cu_2O 5.%, CuO 47%, As_2O_3 7.28, Fe_2O_3 20.42, Al_2O_3 2.%, Be_2O_3 1.65, PbO 1.93%.</p> <p>Mr. A. Eilers called the attention to an auriferous Pyrrhotite found in Trail Creek, British Columbia. Mr. Pearce mentioned that he knew of another instance of gold associated with pyrrhotite but had the impression that the gold was derived from a telluride.</p> <p>Mr. van Diest deposited for the mineral cabinet two specimens of gold ore from the 100 ft. level Strong Mine, Cripple Creek, as characteristic of the occurrence of gold in said district, showing the crystalline telluride of gold and near to it, the finely divided gold, the result of the decomposition of such telluride as a yellowish brown powder which by rubbing obtains the gold luster and color.</p> <p>On motion the meeting then adjourned.</p>
	P. H. van Diest, corr. Secretary
p. 87	<p>The 129th regular meeting of the Society was held in its rooms Oct. 7, 1895. President A.S. Dwight in the chair.</p> <p>26 members and 2 guests present.</p> <p>The minutes of the previous meeting were read and approved.</p>
Elections	<p>The secretary announced that the Executive Committee had elected as member Mr. W. Weston E.M. now at Cripple Creek</p> <p>The president announced that the Executive Committee had with great pleasure accepted a cordial invitation of the members residing in Golden to hold the next regular meeting at the State School of Mines. Prof. Chauvenet outlined a programme for the meeting and indicated the time and mode of reaching Golden and means for returning.</p>
Papers	<p>Prof. Chas. S. Palmer read a paper on the Dyke in the Columbia Vein in Ward, being one of the series of papers on the eruptive rocks of Boulder County, Colo. Discussions by Prof. Chauvenet and Mr. T.A. Rickard,. Mr. T.A. Rickard then followed with a paper on the walls of fissure veins, illustrated with numerous diagrams from sketches taken underground in different mines in Colo and elsewhere. Discussion by Messrs. Dwight, Porter, Ihlseng, Hills, Dr. Jensey [?] & Van Diest. Both papers will be printed as soon as possible.</p> <p>On motion the meeting then adjourned.</p>
	P.H. van Diest, Secy
p. 88	<p>The 130th regular meeting was held Nov. 4th, 1895 in Golden, Jefferson Co., Colo. Several members had taken the 3 O'clock train and were entertained by the local committee, visiting the grounds and buildings of the School of</p>

p. 89	<p>Mines and looking over the so well arranged mineral and geological collections. More members arrived with the 7 O'clock train and all to a number of 40 members sat down to a repast offered by Mrs. Chauvenet. At 8:15 the meeting was called to order in the auditorium room of the School of Mines by Vice President Philip Argall</p> <p>The minutes of the previous meeting were read and approved.</p> <p>The vice president then called Prof. Chauvenet to the chair who opened the exercise with an address of welcome to the visiting members responded to by the Secretary. Prof. H[orace] Patton read a paper on concretions of chalcedony and opal in obsidian and rhyolite in Colorado, followed by a description of peculiar formation at the head waters of the Rio Grande in Colorado illustrated by stereopticon views. Both papers and illustrations are in the hands of the printer and engraver and will be soon issued in pamphlet form. Prof. Geo. Tilden read some of his notes taken during the summer on a mining trip in different states and territories.</p> <p>After a note of thanks to the local committee the meeting adjourned.</p>												
	P.H. van Diest, Secy.												
p. 90	<p>The 131st regular meeting of the Society was held at its rooms Monday evening Dec. 2nd.</p> <p>President S.A. Dwight in the chair</p> <p>The minutes of the previous meeting were read and approved.</p> <p>The following gentlemen were placed in nomination for officers for the Society for the year 1896. All nominations being duly recorded and accepted.</p> <table> <tr> <td>President</td> <td>Regis Chauvenet</td> </tr> <tr> <td>1st Vice President</td> <td>T.A. Rickard</td> </tr> <tr> <td>2nd Vice President</td> <td>Francis T. Freeland</td> </tr> <tr> <td>Recording secretary</td> <td>H. van F. Furman</td> </tr> <tr> <td>Corr. Secretary & Librarian</td> <td>P.H. van Diest</td> </tr> <tr> <td>Treasurer</td> <td>R. M. Hoseae</td> </tr> </table> <p>Executive committee Richard Pearce, P.H. van Diest, Irving Hale, Wm. H. Tensley, R.C. Hills, J.A. Porter, John B. Farish, Geo. C. Munson, J.W. Nesmith, H.A. Vezin.</p> <p>The propitiousness of holding an annual dinner was discussed and a motion by Mr. van Diest adopted that he president appoint a committee of three on annual dinner with power to select the day and place, to make further necessary arrangements and report at the annual meeting to be held Dec. 16.</p> <p>The president appointed as committeemen B.B. Lawrence, Irvin Hale, and P.H. van Diest</p>	President	Regis Chauvenet	1 st Vice President	T.A. Rickard	2 nd Vice President	Francis T. Freeland	Recording secretary	H. van F. Furman	Corr. Secretary & Librarian	P.H. van Diest	Treasurer	R. M. Hoseae
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Recording secretary	H. van F. Furman												
Corr. Secretary & Librarian	P.H. van Diest												
Treasurer	R. M. Hoseae												
Informal Communication	<p>Pres. Dwight showed pieces of a so-called meteorite found at Marks above Salida, Colo., and gave his opinion that it is not a meteorite but a mixture of magnetic iron and a zeolithe (wandite?) occurring else where in eruptive rocks.</p> <p>He showed also arsenous acid in beautiful crystals on copperspies[?] drawn from a reverbatory furnace in Pueblo. The analysis corresponds to the one given by Mr. Pearce in the meeting of September for a specimen of slag</p>												

	<p>from the Argo smelting works. Mr. van Diest gave an account of a peculiar vein formation observed in the Silent friend adit, Dumont Clear Creek Co., Colo.</p> <p>On motion the meeting then adjourned.</p>																		
	P..H. van Diest, Corr & acting recording secre																		
p. 92	Annual Meeting																		
	<p>The annual meeting of the society was held at its rooms Dec. 16th, 1895, sixteen members being present.</p> <p>The President announced the election of the following officers:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">President</td> <td style="width: 33%;">Regis Chauvenet</td> <td style="width: 33%;">Golden</td> </tr> <tr> <td>1st Vice President</td> <td>T. A. Rickard</td> <td>Denver</td> </tr> <tr> <td>2nd “ “</td> <td>Francis T. Freeland</td> <td>Cripple Creek</td> </tr> <tr> <td>Recording Secretary</td> <td>H. Van F. Furman</td> <td></td> </tr> <tr> <td>Corres. Sec’y & Librarian</td> <td>P.H. van Diest</td> <td></td> </tr> <tr> <td>Treasurer</td> <td>R. M. Hosea</td> <td></td> </tr> </table> <p style="text-align: center;"><u>Executive Committee</u></p> <p style="text-align: center;">Richard Pearce P.H. van Diest J.A. Porter R.C. Hills John B. Farish</p> <p>After the installation of the new officers Prof. Chauvenet made a few well chosen remarks which were followed by the reading of President Dwight’s retiring address.</p> <p>Upon motion of Mr. Argall, which was duly seconded and carried the retiring President was tendered a vote of thanks for his address and services.</p> <p>A general discussion followed on the appointment of a publication committee after which the meeting adjourned.</p>	President	Regis Chauvenet	Golden	1 st Vice President	T. A. Rickard	Denver	2 nd “ “	Francis T. Freeland	Cripple Creek	Recording Secretary	H. Van F. Furman		Corres. Sec’y & Librarian	P.H. van Diest		Treasurer	R. M. Hosea	
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Treasurer	R. M. Hosea																		
p. 93	H. Van F. Furman, Sec’y.																		

1897

<p>p. 108 Apparent initiation of a monthly Bulletin mailed to members Issues 1& 2 missing</p>	<p>The 142nd meeting of the Society was held at its rooms Monday Jan. 4th 1897. Thirteen members being present, Dr. W. Austin presided The minutes of the last regular meeting were read and approved as were also the annual reports of the retiring secretary Prof. Furman, and treasurer, Mr. Hosea, and the corresponding secretary and librarian, Prof. P.H. van Diest.</p> <p>On the motion of Prof. Palmer seconded by Mr. R.C. Hills a vote of thanks was tendered, the retiring secretary for his work during the past year. Prof. Patton acknowledged the receipt for the minerals sent to the State School of Mines for exchange. Prof. Palmer then read a very interesting paper on the authority of the Periodic Sequence as challenged by Argon and Helium, which was followed by a short discussion, in which Profs. Chauvenet, van Diest, and Dr. Austin took part. The meeting then adjourned.</p>
	L.J. W. Jones Secry
<p>p. 109</p>	<p>The 143rd meeting of the Society was held at its rooms Monday Feb 1st 1897. Twelve members were present. The minutes of the previous meeting have been read and approved, Messrs. Van Diest, Austin and Jones submitted in writing the following proposed amendments to the By-Laws:</p> <p>...As it appears that the first Monday in the month is a busy day for many members, preventing their attendance at the meetings, and as Saturday would be more convenient to many be it resolved: That in Section 1 of the by-laws Saturday be substituted for Monday, the amended by law to read The regular meetings of the Society shall be held on the first Saturday of each month. When this day falls on an official holiday, the meeting shall be held on the next following Saturday.</p> <p>Mt. G. M. Gouyard then read a paper on the Magnetic Separation of Sulphide Ore, in which he drew attention to the affinity the lead seemed to have in the artificially produced magnetic oxide of iron, so that a magnetic concentration of the iron, concentrated the lead also in a very perfect manner. After a short discussion by Messrs. Hills and Rutherberg, the meeting adjourned.</p>
	L.J. W Jones, Secy.

p. 110
Typed,
printed
notes
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into book,
issue #3 of
Bulletin

The one hundred and forty-fourth regular meeting of the Society was held in its rooms
Monday, March 1, 1897. *(H. Furman & W. S. Ward present)*

Dr. W. L. Austin, President, in the Chair.

The minutes of the previous meeting having been read and approved, the proposed amendment to the by-laws, notice of which was given in a recent circular, was submitted to the vote of the meeting. Messrs. Titsworth and Ward were appointed tellers to distribute the ballots and collect the votes. They reported the amendment carried with one dissenting vote, and the result was announced by the Chairman. The future meetings of the Society will therefore be held on the first Saturday in every month, instead of the first Monday, as has been the custom heretofore.

The advisability of holding a *Conversazione* at the next meeting, Saturday, April 3, was then discussed, and upon motion of Prof. Van Furman, seconded by Mr. W. S. Ward, it was decided to carry out the suggested programme. The following committee was then appointed to arrange the necessary details: Messrs. Furman, Vezin, and Ward.

The intention is to have an informal collation, in the rooms of the Society, the cost to be about \$1 per plate. Those intending to participate in the entertainment are requested to advise Mr. H. A. Vezin, Treasurer, Boston Building, Denver, accompanying their letters of advice with a check for \$1. It is hoped that a large number of the members will attend and help to make the evening enjoyable.

The business of the meeting having been completed, Professor H. B. Patton then read a paper on Crater Lake, Oregon, which proved to be an exceedingly interesting lecture, plentifully illustrated by stereoptican views.

The following is a very brief abstract of Professor Patton's remarks.

CRATER LAKE, OREGON.

This lake is situated about a hundred miles north of the California boundary line, and seventy-five miles east of Medford, the nearest railway station in the Rogue River Valley. It is reached by taking the train to Medford, or Ashland, and then by wagon road, the road continuing right up to the rim of the crater. This road is partly a government road, and while the latter portion is rough and steep, traveling is fairly comfortable for a mountain road. The distance from Medford is about seventy-five miles, from Ashland ninety-five miles.

Few maps show the location of this lake, its existence having been scarcely known up to about ten years ago. The United States Geological Survey published a special Crater Lake map which has a brief printed description of the lake and its geology on the back. This may be purchased for five cents.

The crater is situated in a well timbered (mainly hemlock) region, about twenty-five miles from the Klamath Lakes. It is a characteristically volcanic region, abounding in basalts, andesites, rhyolites, and tufas of the same. The rim of the crater is 8,000 feet above the level of the sea, the surface of the lake being about 6,000 feet, and the bottom of the lake 4,000 feet above the same level. The bottom of the lake is 100 to 200 feet below the level of the great Klamath Marshes, on the east base of the Cascade range. The crater itself lies in the midst of

a mountain recently christened Mt. Mazama, which rises about 2,000 feet above the level of the Cascade plateau.

It is a strikingly beautiful and impressive sheet of water, being completely surrounded by almost perpendicular walls from 1,000 to 2,000 feet high. The color of the water is an intense ultramarine, more brilliant and of a deeper shade than the renowned blue of the Mediterranean. The surface temperature at mid-day in the last half of August was found to be 60° F., falling to less than 40° F. as a depth of several hundred feet is gained, the temperature again rising to 46 or 48 in the lower depths. While the lake abounds in the lower forms of life it is absolutely devoid of fish of any kind.

One peculiar and surprising feature is the difficulty experienced (owing to the customary absence of ripples on the surface), in focussing the eye upon the surface of the water lying so deep below, a boat floating on the lake appearing to be suspended in space. The tourist with difficulty appreciates the great size of this sheet of water which is from five to six miles in diameter, nor does he at first realize the great height of the walls of the crater which rise abruptly 2,000 feet above the surface of the lake. The shore of the lake is quite inaccessible except at a very few points, and even there the climb is exceedingly steep.

Wizard Island is a small volcanic cone rising out of the lake to a height of 800 feet, with a beautiful hopper-shaped crater on the summit. It is about a quarter of a mile from rim to rim of the crater, and the island is itself about a mile in diameter.

Altogether this wonderful lake presents one of the most remarkable natural phenomena in North America, and would well repay a journey across the continent.

DISCUSSION.

A discussion ensued relative to the causes which led to the disappearance of the upper part of the mountain which is now only represented by the crater. Professor Patton stated, that, according to the opinions of the experts on the U. S. geological survey, the disappearance was due to the subsidence of the summit into the crater. The evidence in favor of this view was in part, that there are no large blocks of rock scattered around the adjoining country, such as would presumably be present if an explosion had taken place; and, secondly, a flow of lava had apparently been stopped in the act of flowing over the present edge of the crater, the last portions of said flow having trickled back into the crater.

Dr. Austin suggested that this might be a parallel case to that of Mount Bandasan in Japan, where several ~~thousand~~ ^{hundred} feet of the mountain had in recent times been blown off, covering villages some 50 feet deep in ashes and spreading debris over a large extent of territory.

Mr. R. C. Hills cited Trapper's Lake in Colorado as another example of a crater lake, evidently of volcanic origin, being surrounded by lava flows. Like Crater Lake in Oregon, its sides are very steep, and about 2,000 feet high. The lake is of great depth, one mile long by a mile and a half wide, the water being of a deep emerald-green color, due probably, as in the case of Crater Lake, to its great depth and purity.

Professor Patton, referring to his previous paper on spherulites, stated, that he was preparing a short paper treating on the subject. He made some additional remarks on this topic, illustrating them by a fine collection of specimens of all sizes from that of a marble up to that of a man's head. This paper will be shortly printed in full.

L. J. W. JONES,

Secretary.

9 members present

The one hundred and forty-fifth regular meeting of the Society was held in its rooms, April 3, 1897.

Dr. W. L. Austin, President, in the Chair.

In consequence of the amendment to the by-laws, voted on at the last meeting, this meeting was held on Saturday, and as suggested in last month's bulletin, was of a social character. The members upon arriving at the rooms, found their usual appearance temporarily changed.

Down the middle of the large room used for meetings, tables were arranged, with seats on each side for thirty or more persons. The tables presented quite a festive appearance, laden as they were with tempting delicacies.

After a short time spent in a social manner, the President called the meeting to order, the minutes of the previous meeting were read and approved, and an interesting paper followed on "A Recent Gold Balance," by Mr. L. S. Austin. This paper will be published in full, and mailed to the members in a few days.

A short discussion ensued in which Messrs. Collins and Jones took part. Attention was more particularly drawn to the large error possible in weighing small amounts of gold, due to alterations in temperature.

The effect of direct sunlight, changing constantly in direction, and therefore causing unequal expansion of the arms of the balance, was mentioned by Professor Jones. The effect of such a small unequal increment of temperature as one-ninth of a degree, which, according to Mr. Austin's figures causes a deflection of one hundredth of a milligram, may bring about serious errors if not guarded against.

Whenever possible a northern aspect, sheltered from direct sunlight, should be chosen for gold balances.

Mr. Collins was of the opinion that such extremely delicate work could be avoided by using larger quantities of material, more particularly in assaying mill tailings; but while it was admitted that such could be readily done in mill work, the rapidity required from assayers at smelters and sampling mills, and the great variety and refractory nature of the ores to be assayed, necessitates smaller quantities being used, and therefore scorification assays have to be relied upon mostly.

Mr. R. C. Hills then read a brief paper on the "Oscura" meteorite, which will be shortly published in full.

This meteorite was found in the Oscura Mountains, Socorro County, N. M., December 10th, 1895, by Phillipe Montoyo, a Mexican sheep herder living at Three Rivers. It consists of three irregular shaped pieces weighing respectively three and a half, three and a quarter, and one and a quarter pounds, which have the following composition:

Fe.....	90.79
Ni.....	7.66
Co.....	.57
P.....	.27
C.....	.07
	<hr/>
	99.36

Polished and etched sections were exhibited, clearly showing the Widmannstaetten lines and many particles of graphite.

The business of the meeting having been concluded, and appetites sharpened by the tempting display of comestibles, the remainder of the evening was given over to the general discussion of scientific and allied subjects, in a more conversational manner.

The members before leaving expressed a hope that this new departure might be followed by other meetings of a similar nature.

L. J. W. JONES,
Secretary.

The one hundred and forty-sixth regular meeting of the Society was held at its rooms, Saturday evening, May 1, 1897.

Dr. W. L. Austin, President, in the Chair.

The minutes of the last meeting having been approved, the President called upon Mr. B. B. Lawrence to read his paper on the history, development and operation of the "Pelican" mine, situated near Georgetown, Clear Creek County, Colorado.

Mr. Lawrence narrated in an exceedingly interesting manner the early history of the mine, bringing in personal recollections and anecdotes which made the time pass very rapidly.

Maps showing the workings of the mine at different stages of its development, and a number of interesting documents — among which were patents dating back to 1872, one signed by President Grant — were exhibited. Also specimens of ore, country rock, porphyry dike, etc., were shown, and Mr. Lawrence's clear exposition of the difficulties encountered in first finding ore, and keeping out of litigation, demonstrated the well-known fact that a mining engineer must be a good deal more than an abstract scientist.

The following is a brief resumé of the paper:

The first authentic discovery of silver ore in Colorado seems to have been in the vicinity of Georgetown in 1864. Ex-Governor Steele, who was then the Territorial Executive, prospected McClellan Mountain about that time and located the "Belmont" claim.

The "Pelican" mine was discovered in 1868, and located by Messrs. Streeter and McNiff. The law of 1866, under which these locations were made, restricted the size of the claims to a length of 3,000 feet and a width of 50 feet; but these narrow claims, failing to cover the apices of the lodes, gave rise to interminable law-suits, which in turn led to a modification of the laws governing size of claims.

The "Pelican-Dives" properties were located under this law, and the strife between the various owners of these claims was long and bitter. While this litigation was going on shipments from the mine were occasionally made, but the greater part of the ore was stolen. The "Pelican" was guarded by armed men, and in order to avoid attachments, shipments were made on Sundays. One shipment which is on record was made soon after midnight one Saturday and amounted to \$60,000. Some of the ore went to England. There was a great deal of ore taken out in the early history of the property. Between 1869 and 1872 about one and a half million dollars worth were shipped, and from 1872 to 1876 there is said to have been \$5,000,000 taken from the property, the ore running between 500 and 600 ounces per ton.

Among the attorneys employed in the litigation over these claims we find the well-known names of Belford, Teller, Orahod, Morrison, etc.

The question of apex rights was then, as now, the bone of contention, and to avoid the trouble arising from this cause the "Pelican" was consolidated with the "Dives," an adjoining claim. The death of one of the "Pelican" owners, Snyder, at the hands of Jack Bishop, a desperado, brought matters to a climax, and W. A. Hamill finally arranged a compromise, and in 1882 placed the property in New York for \$600,000. Dr. Norvin Green, President of the Western Union Telegraph Company, was one of the purchasers. The New York investors put a civil engineer named Rice in charge. Mr. Rice was a man of considerable ability as an engineer but had had no experience in mining. He proceeded to develop the mine by sinking an inclined shaft 12 ft. by 8 ft. which cost the company in the neighborhood of \$85,000. After expending \$100,000 without results, the New Yorkers became discouraged and nothing further was done by this company. Later the property was given over to lessees who mined considerable ore in the old workings.

In 1887 a Miss Tuttle, who had been a telegraph operator at Georgetown, was made local

agent for the company, and she appears to have been very successful as a business manager. The mine was now known as the "Pelican-Dives," and Miss Tuttle, acting for the company, received all moneys and made all settlements with lessees.

A statement of the ore shipped from the property between January 1, 1872, and November 1, 1878, shows a total out-put of \$3,000,000; but this is probably less than the actual amount. The average value of the ore varied from 300 to 500 ounces silver per ton.

In 1889 Mr. Lawrence took charge of the "Pelican" and found the mine in a very dilapidated condition. Only the "two and a half" tunnel was available for work. The fine shaft sunk by Mr. Rice had fallen into decay, the timbers having rotted or been blown out by the lessees in their search for ore. Mr. Lawrence has developed the mine by tunnels, from which the ore-bodies were reached by cross-cuts at intervals of about 100 feet. There are now seven of these tunnels piercing the mountain at irregular intervals, the lowest cutting it at a vertical depth of 1,800 feet. The total length of the tunnels and drifts in the mine is about thirteen miles. The vein—or ore-zone as Mr. Lawrence terms the mineralized porphyry dike—is devoid of true walls. It is about 300 feet in width and can be traced across the country for a mile and a half. There is of course great difficulty in defining locations fifty feet in width on such a wide ore-zone, and the absurdity of the law of the apex is apparent. Mr. Lawrence has protected the company against litigation by locating many claims on each side of the dike, the "Pelican-Dives" property now consisting of 115 claims. The result of his foresight is that he has not had a single law suit on this score since taking over the property.

There are two general classes of deposits in Clear Creek County which are commonly known in miners' parlance as "hard" and "soft-ground" veins. To the first class, which is the best developed, belong the segregated veins in the granite. They have no walls, only general direction. The so-called "7.30" claim serves as a good illustration of these segregated veins or "stockwerks." The ore streak is from four to twenty inches in width, exceedingly rich, and, in the case of the "7.30" averages 250 ounces of silver per ton. To the second class belong the dikes, which are also the most important. The "Colorado Central" is a type of this class of deposit. This mine has had a remarkable history, having been in the courts almost since its discovery. The "Pelican-Dives" is another example of this class. The streaks of valuable minerals occurring in the dike make up an ore-zone, or mineralized territory, running through the country rock with a general direction of N. 15° E. The "Pelican-Dives" mines are opened up for a distance of 5,200 feet along one of these dikes, and in connection with the adjoining properties show a continuous line of openings for a mile and a half. The country rock is altered for 100 feet or more on either side of this dike. An interesting feature observed by Mr. Lawrence in Clear Creek County is that there is no enrichment of the veins at points of intersection. In the "Pelican-Dives" mines the best ore-bodies have been found at a depth of 300 feet, but rich ore has also been uncovered at a depth of 1,800 feet. The silver bearing minerals are polybasite, argentite, and pyrargyrite, former predominating; but there is no tetrahedrite. The average value of the ore shipped during the last year was \$75 per ton, the contents being 150 ounces silver, 0.1 ounce gold, 14 per cent. lead, 20 per cent. zinc, and the remainder silica and iron.

Between the years 1890 and 1897 the mine has yielded a net value of \$1,350,000; the total amount shipped since the property was discovered being about \$7,000,000.

All attempts at concentrating the ore of these mines have proven financial failures up to date, due to the fact that the silver bearing minerals pass off in the slimes, while the blende increases to such an extent in the concentrates as to make the smelting charges prohibitive. Experiments in amalgamation have been likewise unsuccessful.

Mr. Lawrence's paper contained many details of economic value to the engineer, apart from its historic and scientific interest. The advantages of the leasing system under which the property is being operated, were explained in detail. Blank forms and terms of contract, with costs of running levels, etc., were laid before the members for their inspection. The system of time keeping, distribution of supplies, and all the minutiae incidental to this method of handling labor were patiently gone over.

Messrs. Argall, Chauvenet, Hills, Vezin, and others participated in the ensuing discussion. Owing to the lateness of the hour at which Mr. Lawrence concluded his interesting and instructive lecture, it was thought advisable to postpone the second paper on the program of the evening until the next meeting.

L. J. W. JONES, Secretary.

(23 present)

The one hundred and forty seventh meeting of the Society was held at its rooms, Saturday evening, June 5, 1897. Twenty three persons were present.

Dr. W.L. Austin presided.

	<p>The minutes of the last meeting having been read and approved the President called upon Prof. Jones to read his paper on "The Action of Ferric Sulphate on Metals and in Corrosion Mine Waters."</p> <p>This paper was ably discussed by Mr. Le Neve Foster, Prof. E. B. Kirby, & Mr. Philip Argall.</p> <p>A paper on "A Laboratory Jig" was then read by Mr. Henry A. Vezin, which was discussed by Profs. Kirby & Furman.</p> <p>This was followed by a paper on the Bandai-san Crater, by Dr. W.L. Austin which was discussed by Prof. Patton.</p> <p>A meeting of the Executive Committee had been called for 7:30, at which Mr. Henry E. Wood volunteered to inquire into the feasibility of a trip in a special train to the San Juans. He was thereupon appointed a committee of one.</p> <p>At the close of Dr. Austin's paper, the meeting adjourned until Sept. 5th, 1897</p>
	L.J. W. Jones, Secretary
	<p>Abstracts of the above meeting including papers and discussions were presented in Bulletin No. 6 & sent to each member</p>

Bulletin
#6 bound
into book

Special attention is called to the announcement on the last sheet.

BULLETIN NO. 6
OF THE
COLORADO SCIENTIFIC SOCIETY.

The one hundred and forty-seventh regular meeting of the Society was held at its rooms, Saturday evening, June 5, 1897.

Dr. W. L. Austin, President, in the Chair.

The minutes of the last meeting having been read and approved, the reading of the first of the three papers of the evening was proceeded with. This was a paper on "The Action of Ferric Sulphate on Metals and in Corrosive Mine Waters," which had been postponed from the last meeting. The paper will be published in full, so that only a brief abstract appears in this bulletin.

ABSTRACT OF PROF. JONES' PAPER.

Prof. Jones having occasion to investigate the corrosive action of the water in the Stanley Mine at Idaho Springs, and having made a complete analysis, came to the conclusion that the corrosive action was due partly to cupric sulphate, but that the most corrosive agent was ferric sulphate, and that contrary to the generally accepted opinion free sulphuric acid was not the direct cause. From the results of the analysis it was shown that this particular water did not contain free sulphuric acid. Now it is well known that sulphuric acid when dilute has no action on pure copper, while this water had a very strong action on copper, and on all the alloys which are commonly used for pipe columns.

He then briefly sketched the various means which had been tried at the Stanley Mine to obtain a pipe column which would last even a reasonable time. These included the use of wooden, iron, brass, lead-lined, and lastly bronze pipe.

The last mentioned material has withstood the action for over two years while the ordinary wrought iron pipe—especially when the steam was exhausted into the sump—only lasted about a week.

At the present time compressed air is being used in the place of steam, thereby avoiding not only the heating of the water, but effecting a very notable economy as the air is compressed by water power.

DISCUSSION.

Mr. Le Neve Foster gave his experience with the water of the Saratoga Mine, Gilpin County, which is also very corrosive. Mr. Foster attributed the action of that water to free sulphuric acid, and had had the same experience with the increased corrosive effects occasioned by exhausting into the sump, but had overcome this by using a Cornish pump. His experience was that a cast iron pipe answered very well with cold water and seemed to resist the action much better than wrought iron.

Prof. E. B. Kirby stated that at the Buell Mine, iron pipes lined with wooden staves were used and seemed to answer the purpose admirably.

Mr. Phillip Argall said that he had seen such pipe in use in Ireland thirty years ago, the lining being made at first of $\frac{1}{2}$ -inch pine strips, these were coated with coal tar and the outside of the pipe wrapped with cloth soaked in the same material.

These pipes were used for pumping water which was so strong that if allowed to fall upon the hand it would almost instantly crystallize, being so nearly saturated with cupric sulphate.

Very many other points of great practical interest and value were mentioned, which it is hoped members who participated in the discussion will add to the completed paper.

ABSTRACT OF PROF. VEZIN'S PAPER.

Mr. Henry A. Vezin then read a paper on a laboratory jig used for testing ore for determining its concentrating qualities. He explained that the usual gold pan and vanner are unsatisfactory in testing ores for concentration, since they only show whether a sufficiently high extraction can be made, and are not sufficient guides as to the best method of treating the ore, nor do they give the relative

amounts of coarse and fine, both of which qualities of materials must be considered in designing works for this purpose. Trials with a small hand sieve 3 or 4 inches square, proved unsatisfactory, not only on account of the operation being exceedingly tedious, but because working by hand in a bucket or tub was not sufficiently delicate to separate particles, the falling velocities of which were not far apart. By this method quartz and pyrites could be separated, but he was unable to make even an approximately close division between galena and pyrites. With the jig this was quite easy, and any handy man who would faithfully obey instructions, could be taught to operate the jig in the course of two hours, provided he had a steady hand. The machine is geared 3 to 1, so that without moving the hand very quickly the speed of from 200 to 240 revolutions could be attained. The stroke of the plunger can be varied from 0 to $1\frac{1}{2}$ inches. A screen of 3 by 4 inches and a plunger of the same size had been adopted so as to be able to test small quantities of ore, say, a sample of a total weight of 50 lbs. Samples of headings, middlings, and tailings were shown, which had been obtained in treating different sizes of crushed ore, varying from $\frac{1}{4}$ -inch in diameter down to material that would pass through 30 mesh and be retained on 40 mesh. The pulp that is finer than 40 mesh was tried by the vanuing shovel. The results were very satisfactory and could be used in determining exactly how coarse the ore could be treated, how much machinery of each kind had to be provided, and how much material has to be recrushed for the purpose of obtaining the included grains of valuable material. He also showed a jig with a bed 6 by 12 inches, having six times the capacity of the smaller one, and being also arranged for hand power, though it was found best to use a 2-inch belt and power for driving it. This was designed for larger samples of ore. Mr. Vezin expressed his preference for the smaller machine, because the work could be done just as closely and just as delicately as with the larger, and because handling small quantities of ore in a laboratory is very much easier, especially if they have to be rehandled on account of first treatment not being satisfactory. The smaller jig can, of course, be driven by power if convenient.

DISCUSSION.

Professor E. B. Kirby said every one who has to do with laboratory concentration tests will appreciate the value of such an appliance as Mr. Vezin has exhibited to the Society. With regard to the comparative value of tests upon a small scale and those more nearly approaching working conditions, much depends upon the object in view.

If that object is merely to give confidence to a client by showing him the actual production of concentrates from his ore, the large jig will be of special service; but if the results are those required by the metallurgical engineer himself, small scale tests are really more convenient and accurate, and he agreed with Mr. Vezin in his preference for the smaller machine.

It is well understood that it is impossible to make any concentration tests in the laboratory which will correspond to the work of a complete mill.

Even with jigs like those before the Society, as precise results cannot be secured as those which are obtained from mill jigs where each sieve has the particular bedding and movement required for the size or class of grains fed to it.

With sands and slimes the case is even more unsatisfactory. In any test there are a number of classes and sizes from this material, each of which requires special treatment, and in the laboratory there seems to be no other way than to carefully van or pan by hand each of these classes of grains. The Professor stated that he used a pan for this work and found that on very fine slimes, too fine for sieves, it is best to first divide into classes by a rough hydraulic sorting, effected by decanting the slimes from one vessel into another.

After all is done, however, no working results are obtained, nor, in fact, is this expected. What an engineer really wishes to ascertain is, first, the percentage which will be saved, together with the ratio of concentration, and second, the data necessary to design the mill for this ore.

The chemical analysis will furnish the exact percentage of each mineral, and therefore fixes the limit for perfect work. The afore-said laboratory tests then give actual figures of separation which are generally somewhat better than the work of a mill.

Aided by these two sets of figures the probable mill work is then fixed by judgment.

In order to design a mill, however, a mass of experimental data is necessary which is of no use to any one but the engineer himself.

The Professor was of the opinion that in every case these facts can be derived more conveniently and accurately from tests on small quantities.

Professor H. Van F. Furman said that he had listened to the paper of Mr. Vezin with a great deal of interest and hoped that it would be published in detail, together with drawings of the smaller jig. He would like to have one of these machines made for use in the laboratory of the State School of Mines. Just such an apparatus has long been needed for laboratory tests on comparatively coarse sizes.

He could not altogether agree with Professor Kirby as he believed that with the aid of this jig, together with a spitzlutte (such as Professor Richard's), and a vanning plaque for the finer sizes, results might be obtained which would agree closely with actual mill work on a commercial scale. Tests carefully made with this apparatus should give the engineer all the data necessary to intelligently plan a mill for the treatment of any ore suited to concentration.

Professor Jones stated that he had used for concentration tests a trough made of sheet copper about 7 feet long by 6 inches wide, looking very much like an ordinary house trough. The bottom of this trough was corrugated (like ordinary corrugated iron) the undulations being smooth. One end of the trough was closed, the other open.

To operate this for testing an ore, the apparatus is supported on two blocks, one being slightly lower than the other, so that it is on a slight incline. The finely crushed ore (from 40 mesh up) is fed in at the closed end (which is the higher) and a gentle stream of water allowed to flow down the trough, which is pushed backwards and forwards in a direction at right angles to its length. This enables one to make a separation into any degree of purity required, as the products are separated in a long line, which can be cut at any desired point and washed out with a wash-bottle into a pan, drained, dried and weighed. This he found far supe-

rior to a pan and much easier of manipulation, besides having the advantage of being able to obtain with it any degree of concentration desired, and any of the waste products, such as middlings and tailings.

Mr. Vezin declared that he could not agree with Prof. Kirby in the opinion that the results obtained by the jig and the vanner in combination could only be of use in a general way, and that the probable mill work must be fixed by judgment. He said that he had made ten or more tests, some of which had to be repeated, as the oxidized condition of the ore rendered it difficult to decide the first time exactly where the division should be made. But the machine would give exactly the same results as those attained on a large scale, that is to say, in a mill, except that in the final screening there might be a slight admixture of tailings in the headings or vice versa, and the work would therefore not be absolutely as clean as that in the mill. A skilful vanner could attain exactly the same results with the vanning shovel as the best work done on a frue vanner.

It is expected that Mr. Vezin's paper will be published in full at an early date.

The President then requested Mr. Irving Hale, First Vice-President, to take the chair, and proceeded to read a paper on "The Explosion of Bandai-san," the data used being compiled from Japanese press reports which appeared at the time. All exaggerated or questionable statements were eliminated from descriptions of the event, and only those facts were brought out which appeared to be amply substantiated.

ABSTRACT OF DR. AUSTIN'S PAPER.

Bandai-san is the name given to a group of peaks in Central Japan, situated on the shores of Lake Inawashiro. The highest of these peaks is 5,800 feet above sea-level. On the morning of July 15th, 1888, a portion of the group was blown off by an explosion, a crater being formed on the spot where a peak had formerly stood. In this crater a small cone subsequently made its appearance.

The nature of the "eruptive" matter was interesting. It consisted for the greater part of a very fluid mud which moved with incredible rapidity down the mountain and out onto the plains. A

large amount of dust was thrown into the air by the force of the explosion, which gradually settled down over the surrounding country. There was no ejection of lava, and apparently only a comparatively small number of boulders of rock was found amongst the ejectamenta. Fourteen square miles of country are said to have been covered by the debris from the mountain, damage being done as far off as ten miles from the scene of the disturbance.

The explosion occurred almost without warning and was accompanied by terrific winds.

Dr. Austin pointed out that this was a case of a crater being formed in modern times, under our very eyes as it were—by explosive action. And also, the nature of the ejectamenta was such, that in the course of a few centuries it will practically all be removed by the action of rains, or at least, the crater, and the gently sloping declivities from it to the plains below, will be the only remaining evidences of the catastrophe.

As another instance of a crater being formed by explosive action in historic times, the blowing off of a volcanic cone called Papandayang, in the island of Java, was mentioned. In a single night 30,000,000,000 cubic feet of materials were thrown into the atmosphere. By this explosion the mountain was reduced from 9,000 to 5,000 feet in height, with the production of a vast crater in its midst.

The great circular lakes of Bolsena and Bracciano, in Central Italy, were given as illustrations of lakes now occupying the craters of former volcanic mountains which had been destroyed by explosion. The Lago di Bracciano is six and one half miles in diameter, and is surrounded by hills, which at their highest point rise 1,486 feet above the sea. The Lago di Bolsena is ten and one quarter miles long by nine miles broad, and is surrounded by hills composed of volcanic matter, the highest points of which are 780 and 985 feet above the waters of the lake.

Professor J. W. Judd, F.R.S., of the Royal School of Mines, London, says in regard to these and other crater lakes: "The vast circular spaces enclosed by them, the gradual outer slope of the ring, and the inner precipices which bound the lake, all afford evidence of the explosive action to which they owe their origin."

DISCUSSION.

In the discussion which followed, Dr. Austin pointed out the similarity of the crater lakes mentioned with Crater Lake in Oregon—so interestingly described by Prof. Patton at the meeting of March 1. He stated, that as craters of large dimensions have been formed in modern times by explosive action, and as most, if not all, of the crater lakes of the globe, which have been examined, were considered to owe their origin to explosive action, it might be possible to ascribe the formation of the Oregon lake to the same cause.

Prof. Patton maintained, that, as the sides of the present mountain showed thorough glaciation from the rim to the base, and as the moraines were not covered by débris such as would have resulted from an explosion; and, moreover, as some of the lava ejected from the former peak had actually trickled back into the crater, apparently after the upper portion of the mountain had disappeared, the presumption was, that the peak had fallen into what is the present crater, which is the conclusion arrived at by the U. S. Geological Survey who have carefully investigated the Crater Lake region.

Dr. Austin replied, that, as he had not visited the crater lake in question he could not express any decided opinion as to its formation but it was difficult to understand how a cavity "several square miles in extent" could have been excavated directly under a volcanic mountain of the class to which the former peak must have belonged; and that, if lavas of the consistency of basalt (45 to 55% SiO_2), andesite (50 to 65% SiO_2), and rhyolite (65 to 80% SiO_2), rising—as they probably did—from considerable depths within the earth, still retained sufficient solvent power to dissolve out of the cold, siliceous crust a cavity of such enormous dimensions—and so convenient for the mountain to drop into—the proofs of such an occurrence would be of the greatest interest in connection with the science of volcanology.

It is quite conceivable, however, that a lofty cone—composed of lapilli and scoriaceous materials, with more or less lava—could be blown off by an explosion, or series of explosions, such as occur at the present day, and that the force of an explosion of this kind might throw the material of which the peak was composed to a

considerable distance. Nor would it be necessary that *all* the moraines at the base of the mountain should be covered by the débris. If the explosion occurred during an eruption of lava, a portion of the latter—interrupted in its flow—might even have trickled back into the new crater.

Conclusive evidence of the falling of a lofty volcanic peak into a hole several square miles in extent excavated under its base, will be awaited with interest.

GENERAL REMARKS.

As discussions on papers presented to the Society add very much to their value, it is earnestly requested that non-resident members will communicate to the Secretary as soon as possible after receipt of the monthly bulletins, the results of their experience, or anything of interest relating to the subjects under discussion, so that their contributions may be added to the papers when printed in full. The Secretary hopes that this course will be adopted by members in the case of all papers read before the Society. This method will enable our members who are non-residents to take an active part in the work of the Society. The abstracts are largely intended for this purpose and they are made as full and complete as possible, with this object in view.

SUMMER MEETING.

It has not been the custom of the Society to hold regular monthly meetings through the hot summer months, and in accordance with this custom the next regular meeting will not be held until September 5, 1897.

During past years a summer trip has been taken to some mining camp of interest, the last one being to Cripple Creek.

The only district of importance which has not yet been visited is the San Juan, and it has been suggested that our next excursion should be to that rich and interesting mining country.

Mr. Henry E. Wood, acting as a committee of one, has obtained the following proposition from the Denver & Rio Grande Railway.

They will furnish the Society with a special train, to consist of baggage car, dining car, and three Pullmans, to be placed at the disposal of the members for seven days, stopping when and where

	<p style="text-align: center;">10</p> <p style="text-align: center;">BULLETIN NO. 6.</p> <p>they wish. The cost of the train will be \$2500; that is, fifty people at \$50 each. This is a remarkably low figure when it is considered that the above amount covers practically all expenses, including sleeper and meals.</p> <p>As it is hardly probable that fifty members will be able to absent themselves from their business for this length of time, it has been deemed advisable to allow such outsiders as may be personally known to members of the Society, to join in this trip with their wives or other lady friends.</p> <p>No date for the excursion has yet been decided upon, but July 3 would probably be the most convenient one, thus including the holiday of the 4th.</p> <p>Members, or others, desirous of taking this trip, will please notify the secretary as soon as possible, and not later in any event than June 24th, so that the necessary arrangements may be made.</p> <p style="text-align: center;">L. J. W. JONES, Secretary.</p>
<p>p. 117 Sept. 5th might have been a vacation day?</p> <p>Van Diest Honorary</p> <p>p. 118</p> <p>Section in italics missing from</p>	<p>8 present</p> <p>The one hundred and forty eighth meeting of the Society was held at its rooms Saturday evening Sep. 11th, 1897. 8 persons were present.</p> <p>Dr. W.L. Austin presided.</p> <p>The minutes of the last meeting were read and approved and the failure of the excursion to the San Juan commented upon by the president.</p> <p>The President then announced the election of Prof. P.H. van Diest as an Honorary member by the Executive Committee.</p> <p>The Executive committee submitted an amendment to Sec. 14 to he bylaws to be voted on at the next meeting as follows (the emendation is underlined)</p> <p>“The amount of entrance fee and annual dues shall be determined by the Executive Committee.</p> <p>The annual dues are payable before May 1st of each year. All members or associates whose annual dues are unpaid May 1st shall be officially notified by the Treasurer in writing.</p> <p>Members and associates whose annual dues are unpaid Sep 1st shall cease to receive the publications of the Society, <u>and their names shall be posted n the Society’s rooms</u>. Should the dues be still unpaid Dec 31st then such delinquents shall be dropped from the rolls of the Society.</p> <p>Provided however that the Executive Committee may reinstate such persons upon application and payment by them of all unpaid dues.</p> <p>Members and associates not in arrears may become life members and life associates upon payment into the Treasury of the sum of 100 dollars and such life members and associates shall be exempt from the future payment of annual dues.</p> <p>Dr. Richard Pearce being unexpectedly prevented from attending the meeting, <i>but it is hoped that he will present his paper, “Notes on a Peculiar Occurrence of Tellurium with Vanadium in an Australian Mineral,” at the meeting of October 2.</i></p>

<p>secretary's book, but in Bulletin 7, p. 2</p>	<p>The Secretary presented the following question for discussion in an informal way In blast furnace smelting for lead, why does lead pass into the matte, why is not the matte a pure iron sulphide (and copper sulphide when copper is present)? And since lead is always found in the mattes formed in such furnaces, what conditions regulate the percentage of the metal in these mattes? It is well known that some mattes are quite low in lead while in other cases the percentage is quite high.</p> <p>A discussion followed in which Dr. Austin * Mr. Argall took part, but owing to the lack of specific data, it was decided to discuss the question at some future meeting.</p> <p>Mr. Henry A. Vezin then gave an informal talk on a somewhat unique method of concentration in use in a mill at Empire, in which with very imperfect and inexpensive machinery, remarkable results were obtained.</p> <p>In the discussion which followed Dr. Austin described the cheapest concentration process of plant which he had ever seen, practiced on copper ores in Japan, in which ore containing 1% copper was profitably handled.</p> <p>On the motion of Mr. Argall, seconded by Mr. RC. Hills, the meeting was adjourned.</p>
	<p>L.J. W. Jones Secretary</p>

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BULLETIN [NUMBER 7 of 1897.]
OF THE
COLORADO SCIENTIFIC SOCIETY.

The one hundred and forty-eighth regular meeting of the Society was held at its rooms, Saturday evening, September 11, 1897.

Dr. W. L. Austin, President, in the Chair.

The minutes of the last meeting were read and approved.

The proposed excursion to the San Juan, mention of which was made in the last bulletin, did not come off, as the subscribers to the trip were not in sufficient number to obtain the necessary low rate.

The election by the Executive Board of the following gentlemen to membership was announced:

Mr. William Francis Tindall, chemist of the Metallic Extraction Company, Cyanide, Colo.

Mr. Robert S. Stockton, Assistant Professor of Mathematics, State School of Mines, Golden, Colo.

Mr. Frederick Horace Minard, chemist of the G. & S. Recovery Company, Denver, Colo.

In consideration of long and valuable services rendered to the Society since its organization, Professor P. H. van Diest was elected an honorary member.

The enclosed amendment to Section 14 of the By-laws was

submitted to the meeting in writing, and members are requested to mail their votes to the Secretary at as early a date as possible.

As a revised list of the names of the members will appear in the forth-coming volume of the Proceedings of the Society, members are specially requested to supply their correct addresses.

Dr. Richard Pearce was unexpectedly prevented from attending the meeting, but it is hoped that he will present his paper, "Notes on a Peculiar Occurrence of Tellurium with Vanadium in an Australian Mineral," at the meeting of October 2.

Professor L. J. W. Jones proposed the following questions for discussion in an informal way :

In blast-furnace smelting for lead, why does that metal pass into the matte; why is not the matte purely an iron sulphide, or, when copper is present, an iron-copper sulphide?

Since lead is always found in mattes formed in this process, what conditions govern the percentage of this metal in these mattes, it being well-known that some mattes are quite low in lead, while others carry a high percentage?

Mr. Argall mentioned the case of the La Plata dump in Leadville as having yielded matte running high in lead, but did not offer any explanation for this occurrence.

Dr. Austin stated that the subject had received considerable attention from European metallurgists, especially in the early part of the present century, with the result, that mattes were generally considered to be combinations of sulpho-salts.

The disposition of one or the other metal to enter a matte might therefore be due to the presence of other sulpho-salt building elements. Antimony, for instance, has a tendency to form sulpho-salts with lead, silver and gold. Arsenic, with nickel, cobalt and iron. If pyrite is present in considerable amounts in the charge (10 to 11 per cent.), double compounds are very apt to be formed with lead sulphide. The difficulty of separating sulphide of lead from sulphide of iron, or what is equivalent, the weakening of the precipitating effect of iron on sulphide of lead

when sulphide of iron is present, has long been known. Fournet's law with regard to the relative affinities of the metals for sulphur, is subject to modifications when arsenic or antimony are present.

It is probable also that furnace conditions largely influence the metals in entering the matte. The composition of the slag, the proportion of fuel, and even the dimensions and shape of the furnace, are factors in the problem.

As this may prove an instructive subject for discussion, he proposed that the matter should be brought up at some future meeting, and, in the meantime, any members wishing to contribute their experience to the discussion, are requested to address the Secretary, and, if possible, to prepare papers on the subject.

Mr. Henry A. Vezin, in speaking of ore-dressing, called the attention of the Society to the use of the jig for the purpose of avoiding very fine screening.

The first instance of the kind which he has observed in the West was at the Conqueror Mine, North Empire, in this State. At these works a jig is employed as an intermediary machine in the transition from sizing by screen to water-sizing. The finest screen used is eight mesh. That passing through the screen goes to a jig which takes out all the pyrites down to $\frac{1}{16}$ " in diameter, the coarsest pieces being about $\frac{1}{2}$ ". This is contrary to the usual practice, where the material passing through the screen is subjected to further sizing. The tailings from the jig are elevated to the two Huntington mills, and crushed finer, before being passed to the pointed boxes over the Frue vanners. By this arrangement the coarser particles of pyrites, passing through the eight-mesh screen, are prevented from being crushed in the Huntington mills, without the intervention of any fine screen. He spoke of some cases in the West, where, for the purpose of attaining the same end, screens as fine as sixty mesh—that is to say, with holes $\frac{1}{16}$ " in diameter—have been used. This is objectionable, both on account of the low capacity of the screen and the cost in wear and tear. Of course, the arrangement at the Conqueror mill allows particles less than $\frac{1}{16}$ " to pass into the Huntingtons, but, owing to

the agitation of the water in these, it is probable that they are discharged without being crushed much finer.

The best arrangement would consist in having a small V box immediately in front of the jig, say, not over 6" in depth. This would take out all the coarse gangue containing included grains, together with all the coarse pyrites which would go to the jig, and the overflow of the V box would carry off gangue of, say, $\frac{1}{16}$ ", together with pyrites of $\frac{1}{16}$ " diameter, to be distributed over the vanners. The discharge from the tail-end of the jig would then contain nothing but gangue requiring finer crushing for the purpose of liberating included grains.

A jig inserted in this same way can serve another very useful purpose, by enabling the ore dresser to take out all the coarser gangue which requires still finer crushing, without the use of a fine screen. Let us assume that the ore is crushed by stamps to pass a 10-mesh screen, or that the material is $\frac{1}{16}$ " in diameter, and that, for the purpose of liberating included grains in the coarser particles, it is necessary to crush them to 40-mesh, or, say, $\frac{1}{32}$ " in diameter. It can be done as just suggested, by a short V box placed immediately in front of the jig, with a straight downward discharge and a proper pressure of fresh water, to prevent the fine slimes from going out with the coarse particles. The straight discharge is essential, as the elbows in ordinary V boxes are apt to clog. The very fine sands and slimes—40-mesh and less—pass on to the other water sizers, and the discharge of the jig goes to the crushing machines—rolls or Chilian mill—to be crushed to 40-mesh. In this way water sizing can be used for taking out the gangue that needs finer crushing, without subjecting the pyrites already free to any further comminution, which latter would be the case if a fine screen is used and *no* jig.

Mr. R. C. Hills suggested that the re-crushing of tailings often involved more expense than was justified by the additional saving.

Mr. Vezin replied, that, in this particular case, the additional saving was probably from \$1.20 to \$1.40 per ton,—the value of the original ore being \$12.67—and the total saving 96 per cent. He added that, with ore from the southwestern part of the State, jigging was commenced with particles $\frac{1}{8}$ " in diameter, and carried down to $\frac{1}{16}$ ". There were saved in the jigs, 21½ per cent.: from

the fines below $\frac{1}{16}$ " in diameter, $23\frac{1}{2}$ per cent.; and from re-crushing the tailings of the jigs down to $\frac{1}{16}$ ", $22\frac{1}{2}$ per cent.

Mr. Vezin further stated that his attention had been first called to the method described, by Mr. Schell in 1878. This gentleman was foreman of the great works at Clausthal in the Hartz Mountains, and is also the inventor of the syphon discharge for jigs. At these works, all the material from the finest screen, which had holes of about $\frac{1}{8}$ " in diameter, was passed over a jig, for the purpose of taking out all the galena of from $\frac{1}{8}$ " down to $\frac{1}{16}$ " in diameter, before allowing the material to pass to the water sizers, his object being to prevent the coarser galena from clogging up the elbows in the pipes of the V boxes. The product from this jig in headings was very great.

It is with much regret that the announcement is made of the resignation of Professor L. J. W. Jones as Secretary of the Society. Professor Jones has been called to fill an important position in the Omaha & Grant Smelting & Refining Company's works at Omaha.

The Society loses a valuable active member for the time being, as well as an efficient, hard-working secretary; but it is expected that Professor Jones will continue to contribute both to the Proceedings, and to the discussions which arise at the meetings.

The office of Secretary is at present vacant, and the Executive Committee would be pleased to receive suggestions from the members relative to filling this important position.

S. P. T.

(Please detach this sheet, and return it, duly filled out, to the Secretary.)

PROPOSED AMENDMENT TO THE BY-LAWS.

Section 14 of the by-laws shall be amended to read as follows:
The amounts of entrance fee, and annual dues, shall be determined by the Executive Committee.

The annual dues are payable before May 1st of each year.

All members, or associates, whose annual dues are unpaid May 1st, shall be officially notified by the Treasurer in writing.

Members and associates whose annual dues are unpaid September 1st shall cease to receive the publications of the Society, and their names shall be posted in the Society's rooms. Should the dues be still unpaid December 31st, then such delinquents shall be dropped from the rolls of the Society.

Provided, however, that the Executive Committee may exercise the power (if sufficient cause is shown for so doing) of reinstating such persons upon application, and payment by them of all unpaid dues.

Members and associates, not in arrears, may become life-members and life-associates, upon payment into the treasury of the Society the sum of 100 dollars, and such life-members and life-associates shall be exempt from the future payment of annual dues.

I vote for, (or against) this amendment.

(Signature) _____

My permanent mailing address is

(Date) _____

p. 119

The one hundred and forty-ninth meeting of the Society was held at its rooms, Saturday evening Oct. 2nd 1897. Eleven persons were present.
Ex. President Chauvenet presided.
The minutes of the last meeting were read and approved.
The acting secretary announced the election of Mr. James Underhill as member by the Executive Committee.

p. 120	<p>Dr. Richard Pearce then read a paper entitled “Notes on a peculiar Occurrence of Tellurium with Vanadium in a gold ore from the “Great Boulder Main Reef Mine,” Western Australia. The paper was illustrated by a remarkable specimen which Dr. Pearce presented to the Society. This specimen showed the presence of tellurium in the unaltered and the oxidized state. It also shows the presence of the Vanadium mineral which Dr. Pearce, from his analyses, considered to be the mineral Roscoelite. Dr. Pearce was of the opinion that the rock was a highly metamorphosed Schist and that the ore occurred in impregnated beds in the schist.</p> <p>Dr. N. Olof Holst, of Stockholm, Sweden, was present as guest of the Society and discussed the paper of Dr. Pearce. He state that he had recently visited the Great Boulder Main Reef Mine and confirmed Dr. Pearce’s opinion as to the occurrence and origin of these ore deposits.</p> <p>After the meeting adjourned Mr. H.A. Vezin exhibited an improved form of laboratory jig which he had designed for the State School of Mines at Golden, Colo.</p>
	H. Van F. Furman, Acting Sec’y.
p. 121	<p>The one-hundred and fiftieth meeting of the Society was held in its rooms, Saturday evening, November 6th, 1897. Fourteen persons were present.</p> <p>Ex-president Palmer presided.</p> <p>The minutes of the last meeting were read and approved.</p> <p>The acting secretary announced the election to membership by the Executive committee of</p> <p style="padding-left: 40px;">Prof. Charles W. Comstock of Denver</p> <p style="padding-left: 40px;">Mr. Milton C. Whitaker of Boulder.</p> <p>The Chairman read a letter from Prof. P.H. van Diest expressing his gratitude at the hone conferred upon him by his election as an honorary member.</p> <p>Dr. Wm. P. Headden then read a paper entitled “Some Products found in the hearth of an old furnace upon the dismantling of the Trethellan Tin Works, Truro, Cornwall. This paper was illustrated by a number of specimens and was discussed by Dr. Richard Pearce, Mr. J.A. Porter and others.</p> <p>The meeting then adjourned.</p>
	H. Van F. Furman, Acting Sec’y.
p. 122	<p>The one-hundred and fifty-first regular meeting of the Society was held in its rooms, Saturday Evening December 4th 1897. Sixteen members were present.</p> <p>President Austin in the chair.</p> <p>The minutes of the last meeting were read and approved.</p> <p>The acting secretary announced the election to membership by the Executive Committee of:</p> <p style="padding-left: 40px;">Mr. F. C. Knight of Denver</p> <p style="padding-left: 40px;">Mr. Charles Prettz[?] of La Plata, Colo.</p> <p>Nominations for officers of the Society for the ensuing year were made as follows:</p> <p style="padding-left: 40px;">For President..... W. L. Austin</p> <p style="padding-left: 40px;">For 1st Vice-president B. B. Lawrence</p> <p style="padding-left: 40px;">“ 2nd “ “ E. Le Neve Foster</p> <p style="padding-left: 40px;">“ Recording Secretary Chas. W. Comstock</p> <p style="padding-left: 40px;">“ Corres. Secy & Librarian ... P.H. van Diest</p> <p style="padding-left: 40px;">“ Treasurer.....Henry A. Vezin</p> <p style="padding-left: 40px;">“ Curator.....R.C. Hills</p>

p. 123	<p>For members of the Executive Committee:</p> <p>W. Byrd Page J.A. Porter T. E. Schwarz W.S. Ward Henry E. Wood H. Van F. Furman C. H. Livingstone E. B. Kirby R. C. Hills</p> <p>Mr. Lawrence moved that a committee on Ways and Means to promote interest in the Society be appointed by the President. This motion was discussed by Messrs: Austin, Chauvenet, Ward, Furman, Kirby and others. The chair appointed as members of this committee: Messrs. Pearce (chairman), Lawrence; Chauvenet; Wood and Ward. The President announced that the Society would have a dinner this year, and appointed Messrs Lawrence, Hale and Furman as the Committee on annual dinner. There being no other regular business the reading of the Dr. Austin’s paper entitled “Notes on Some Telluride Veins of the La Plata Mountains, Colorado,” was proceeded with. This paper was discussed by Messrs. Argall, Chauvenet, Ward, and Kirby.</p>
	H. Van F. Furman, Acting Secretary
p. 124	<i>Annual Meeting</i>
p. 125	<p>The annual meeting of the Society was held at its rooms in the Boston Building, Dec. 20th, 1897 Eleven members were present. President Austin in the Chair. The minutes of the last annual meeting were read and approved. The acting secretary announced the election to membership by the executive committee of Mr. T.L. Wilkinson of Denver. The acting secretary read the report of the committee on ways and means for the advancement of the interests of the Society, appointed by the President at the meeting of Dec. 4th, 1897. The report was discussed by several members. The treasurer read his preliminary report and the chair appointed Mr. H. E. Wood and Mr. C.H. Livingstone as committee to audit the treasurer’s accounts and submit their report at the next regular meeting. The acting secretary read the report of the acting recording secretary (the regularly elected secretary having resign) of the Corresponding secretary and librarian , who was absent Upon report of the tellers appointed by the President to canvas the ballots, the President announced the election of these gentlemen as officers of the Society for the year 1898.</p> <p>President - W. L. Austin 1st Vie “ - B.B. Livingstone 2nd “ “ - E. Le Neve Foster Recording Secretary – C. W. Comstock Cor’d Sec’y & Librarian – P.H. van Diest Treasurer - Henry A. Vezin Curator - R. C. Hills</p>

	<p style="text-align: center;"><u>Executive Committee</u> H. Van F. Furman Richard Pearce Henry E. Wood C. Byrd Page J.A. Porter</p> <p>The President, Mr. W. L. Austin then gave a description of some interesting copper deposits which he had recently visited. On motion the meeting adjourned.</p>
	<p>H. Van F. Furman, per C. N. C Acting Sec'y.</p>

1898

p. 126 blank p. 127	<p>The one hundred and fifty-second regular meeting of the Society was held in its rooms in the Boston Building, Monday evening, January 3, 1898. Mr. W.L. Austin, President, in the chair. Seventeen members were present. The minutes of the preceding monthly meeting were read and approved.</p> <p>The Secretary announced the election to membership, by the Executive Committee, of Mr. F. S. Watkins of Denver, Mr. C.W. Davis of Colorado Springs, and Mr. W.B. Stoddard of Golden.</p> <p>The committee appointed at the Annual Meeting to audit the Treasurer's accounts reported that its work was not yet complete.</p>
p. 128	<p>The President read a letter from Mr. D.W. Brunton of Aspen, promising to submit at an early date a paper on an interesting subject connected with mine ventilation.</p> <p>A letter from the Society of Colonial Wars submitting a proposition to share the rooms of this Society at a rental of \$15.00 per month, was read, with the recommendation of the Executive Committee that a counter-proposition be made, asking \$25.00 per month, of which \$10.00 should be added to the salary of the Assistant Librarian. After some discussion it was voted that the recommendation of the Executive Committee be adopted and the Secretary was instructed to communicate with the Society of Colonial Wars to this effect.</p> <p>It was unanimously voted that the Secretary be instructed to write to the University Club of Denver, thanking the officers and members of that organization for their courtesy in throwing open their house to this Society on the occasion of its annual banquet December 29, 1897.</p>
p. 129	<p>The President then appointed the following committees:</p> <p>On Publications: Mr. R.C. Hills, Mr. Henry A. Vezin, Mr. H. Van F. Furman, the President, ex-officio, the Secretary, ex-officio.</p> <p>On Entertainment: Mr. Regis Chauvenet, Mr. B.B. Lawrence, Mr. Irving Hale</p> <p>On Papers: Mr. Philip Argall, Mr. Henry E. Wood, Mr. C.A. Livingstone.</p> <p>On Ways and Means: Mr. J.A. Porter, Mr. E.B. Kirby, Mr. T.L. Wilkinson, Mr. Henry Fulton, Mr. C.S. Palmer, Mr. B.B. Lawrence, Mr. D.W. Brunton</p> <p>The topic announced for discussion at this meeting was "The Sampling of Ores." It was thought best to subdivide the subject, and the discussion for the evening was confined to "Sampling of Ore in Place." Those taking part in the discussion were Mr. J.A. Porter, Mr. W.L. Austin, Mr. Henry E. Wood, Mr. E. Le Neve Foster, Mr. Henry A. Vezin, Mr. J.A. McClurg, Mr. G.M. Gouyard and Mr. E.C. van Diest.</p> <p>Following, Mr. Richard Pearce read some interesting "Notes on the Occurrence of Rhodocrosite in the 'Original Mine,' Butte, Montana." Mr. Pearce presented a very fine specimen of this mineral to the Society. His remarks were discussed briefly by several members.</p> <p>On motion, the meeting adjourned.</p>

	Charles W. Comstock, Secretary
p. 130	January 3, 1898
This is the first time a secretary presented notes from an Executive Committee meeting, albeit one page after the regular meeting rather than before.	<p>Meeting of Executive Committee of Colorado Scientific Society. Present: W.L. Austin, J.A. Porter, W. Byrd Page, H. Van F. Furman, Henry E. Wood, Charles W. Comstock</p> <p>The president read a letter from the Society of Colonial Wars asking to share the rooms of this Society at a rental of \$15.000 per month. It was voted to refer this letter to the Society with the Committee's recommendation that \$25.00 per month be asked, of which \$10.00 should go to the Assistant Librarian.</p> <p>The following gentlemen were elected to membership: Frederic S. Watkins of Denver, W.B. Stoddard of Golden, C.W. Davis of Colorado Springs.</p> <p>The committee then adjourned.</p> <p style="text-align: right;">Charles W. Comstock, Secretary</p>
p. 131	<p>The one hundred and fifty-third regular meeting of the Society was held in its rooms in the Boston Building, Saturday evening, February 5, 1898. Mr. W. L. Austin, President, in the chair. Ten members were present. The minutes of the preceding meeting were read and approved. The report of the auditing committee was called for but the members of this committee were not present. Mr. Milton C. Whitaker read a paper entitled "An Olivinite Dike of the Magnolia District and the Associated Picrotitanite." Mr. Whitaker presented to the Society a number of specimens illustrating this paper. An informal discussion ensued in which nearly all present took part. Mr. Arthur L. Collins then read a paper on "Note on the Occurrence of Carbonic Acid Gas in Certain Veins of Gilpin County, Colorado." This paper was discussed informally but at some length by Mr. E. Le Neve Foster, Mr. L. C. Hill and Mr. W.L. Austin. On motion the meeting adjourned.</p>
	Charles W. Comstock, Secretary.
p. 132	March 5, 1898
	<p>By order of the President, a meeting of the Executive Committee of the Colorado Scientific Society was called for this day at 7:15 p.m. There were present W.L. Austin and C.W. Comstock. As these did not constitute a quorum, no business could be transacted.</p> <p style="text-align: right;">Charles W. Comstock, Secretary</p>
p. 133	<p>The one hundred and fifty-fourth regular meeting of the Colorado Scientific Society was held in its rooms in the Boston Building Saturday evening, March 5, 1898. Mr. W. L. Austin, President, in the Chair. Nineteen persons were present. The minutes of the last meeting were read and approved. Mr. Thomas L. Wilkinson read a paper entitled "Gas and Oil Engines."</p>

	<p>This paper was discussed at some length by Mr. Henry A. Vezin, Mr. W.L. Austin, Mr. L. C. Hill, and others. The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 134	<p style="text-align: center;">March 31, 1898</p> <p>By order of the President, a meeting of the Executive Committee of the Colorado Scientific Society was called for this day at 8:00 p.m. There were present J.A. Porter and C.W. Comstock. As a quorum was not present, no business could be transacted.</p>
	Charles W. Comstock, Secretary
p. 134	<p style="text-align: center;">April 2, 1898</p> <p>Notices were issued for the regular monthly meeting of the Society to take place on this date. In the absence of a quorum and of the president and both vice-presidents, no meeting was held.</p>
	Charles W. Comstock, Secretary
p. 135	<p style="text-align: center;">April 23, 1898</p> <p>Meeting of the Executive Committee of the Colorado Scientific Society. Present – W.L. Austin, Richard Pearce, Wm. Byrd Page, Henry E. Wood, C. W. Comstock.</p> <p>An application for Corresponding Membership in the Society from Dr. Antonio Gordon of Havana, Cuba, was considered. As the application lacked the endorsements of three members, as required by the by-laws, it was rejected.</p> <p>Applications for membership from Mr. Carleton Macy and Mr. J. M. Callow were considered and the applicants elected.</p> <p>A communication from Mr. E.C. Engelhardt, a former member of the Society, asserting his right to receive Vol. V of the Proceedings now in press was read. It was decided that Mr. Engelhardt was not entitled to receive this volume.</p> <p>An exchange of Vols. II and III of the Proceedings of this Society for the publications of the University Geological Survey of Kansas was authorized.</p> <p>The President appointed Mr. Henry A. Vezin a member of the Ways and Means Committee.</p> <p>The Executive Committee then adjourned.</p>
	Charles W. Comstock, Secretary
p. 136	<p>Saturday, May 7th 1898</p> <p>The one hundred and fifty fifth regular meeting of the Society was held at its rooms in the Boston Building, Sat. evening May 7th 1898. 2nd Vice-President E. Le Neve Foster in the chair. Present- eight members and three guests. The minutes of the preceding meeting were read and approved. Prof. Chas. S. Palmer proposed Messrs. F.P. Wood and J.Stahl for membership, seconded by M.C. Whitaker & H.A. V. In the absence of P.H. van Diest his paper entitled: “A Mineralogical Mistake” was read by the acting secretary. The author proved the non-occurrence of tin ore on Greenhorn mountain, Colorado. The paper was discussed by Professors Palmer & E.C. Kirby and by Messrs. R. C. Hills & E. Le Neve Foster.</p>

<p>Reference made to Bulletin 1, 1898. p. 137</p> <p>Noted below:</p> <p>p. 138</p>	<p>Mr. Henry A. Vezin presented a communication in discussion on Mr. Wilkinson's paper on gas and oil Engines, in answer to remarks by Mr. Hill and Mr. Wilkinson. The meeting then adjourned. After adjournment Mr. Vezin described & showed to those interested in mine sampling the convenient devices alluded to in his remarks in Bulletin No. 1/1898, on sampling ore in mines. They consisted of screens made of milk pans with 1" – ¼" round holes punched in the bottoms which are used for separating the coarse pieces that need finer crushing, a compact riffle divider and pan for cutting down samples, and a small jaw crusher with a receiving capacity of 1" X 3". This crusher which weighs 20 lbs is the design of W.C. Davis, a member of the Society. The upper and lower ends of the moveable jaw have projections extending into the sides of the frame and carrying friction wheels running on guides. By changing the position of these latter the motion of the jaw can be varied from a vertical one to one at an angle of say 45° or 50°. Mr. V. had found the machine very convenient in crushing samples down to 16 or 20 mesh if necessary. For this latter size the lower guides are set vertical so that the jaws act as graining or nibbing surfaces.</p> <p>Mr. Vezin also showed a set of 6 screens and two pans for sizing ore preparatory to being treated on a laboratory jig. When nested for transportation the package is but 1 in. higher than one screen; when the order of the screens is reversed they fit dust tight in each other with a space of 1" between the surfaces.</p> <p>Mr. Hills in speaking of when it was necessary to employ many men sampling a large mine gave the method employed to present the possibility of having hi samples "salted," without his being able to discover it.</p>
	<p>Henry A. Vezin, for C.W. Comstock, Secretary</p>
<p>Unsigned, but in Vezin's handwriting</p>	<p>Meeting of the Executive Committee at 7:30 P.M. June 6th/ 98 Messrs. F.P. Wood and J.H. Stahl were elected members. The question as to, where to hold the summer meeting was discussed but no decision reached. The choice lay between Aspen and Omaha, and it was decided to leave the matter to the members.</p>
<p>p. 139</p>	<p>The one hundred and fifty sixth regular meeting of the Society was held at its rooms in the Boston Building, Monday evening, June 6th/98. J.A. Porter, Past President, in the Chair. Fourteen persons were present. The minutes of the last meeting were read and approved. The Chairman announced the election to membership by the Executive Committee of Mr. F.P. Wood and Mr. J.N. Stahl, both of Boulder. Messrs. Henry E. Wood, Henry A. Vezin, W.L. Austin and B.B. Lawrence were appointed a committee to investigate the matter of a summer excursion. Mr. Richard Pearce read "Notes on the Occurrence of Selenium with Pyrite Rich in Gold and Silver" and "Remarks on a Gold Nugget from Montana." Mr. Pearce also presented to the Society a specimen of Hübnerite from the Gagnon Mine, Butte, Montana. The specimen came from the stope over the 1000-foot level and was associated with zinc blende, bornite, and pyrite. The occurrence was described as somewhat unusual. After a brief discussion of these subjects Mr. Pearce called to the attention</p>

p. 140	<p>of the Society to a monograph by Mr. Dow, "The Impregnation of the Rocks Adjoining the Veins in New Zealand which appeared about three months since, and suggested that it be taken up for discussion.</p> <p>Mr. J.A. Porter presented some specimens of gold taken from the Smuggler Union mine.</p> <p>The meeting then adjourned.</p>
	Henry A. Vezin, Acting Secretary
p. 141 There is no discussion as to what happened to Sept. meeting	<p>The one hundred and fifty-seventh monthly meeting of the Society was held in its rooms in the Boston Building, Saturday evening, October 1, 1898.</p> <p>Mr. W. L. Austin, President, in the chair.</p> <p>Eleven persons were present.</p> <p>The reading of the minutes of the preceding meeting was postponed.</p>
Com.	<p>Mr. C.W. Comstock read "Note on the Resistance of Materials Subjected to Compressed Stress." This was discussed briefly by Mr. F.S. Watkins.</p> <p>Mr. Richard Pearce presented to the Society a specimen of mineral broken from the surface rock near the summit of Sierra Blanca and sent to him by Mr. P.H. van Diest. Mr. Pearce gave the results of his examination of this mineral and expressed his belief that it was a species not heretofore observed.</p> <p>Mr. P.H. van Diest, in answer to some questions, described the occurrence of this mineral and illustrated it by blackboard sketches.</p> <p>Mr. Pearce presented to the Society two specimens of Sylvanite, one from Clear Creek and one from Gilpin County, and a specimen of Turquoise from the Last Chance mine at Creede.</p>
p. 142	<p>Mr. W.L. Austin mentioned an instance which had recently come under his observation. Of a dike of diorite which carried about \$4 in gold.</p>
	Charles W. Comstock, Secretary
p. 143 Added on and arrowed up to proper place	<p>The one hundred and fifty-eight monthly meeting of the Society was held in its rooms in the Boston Building Saturday evening, Nov. 5, 1898.</p> <p>Mr. W.L. Austin, President in the chair.</p> <p>Nine persons were present.</p> <p>The minutes of the June and October meetings were read and approved.</p> <p>Mr. Vezin called attention to the fact that the Society had not followed the programme of subjects laid down by the committee for that purpose.</p> <p>Mr. L.S. Austin described the construction and operation of a matte smelting plant under his supervision at Buena Vista, Colo.</p> <p>This paper was discussed at length by Messrs. Kirby, W.L. Austin, Livingstone and Vezin.</p> <p>The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 144	<p>The one hundred and fifty-ninth monthly meeting of the Society was held in its rooms in the Boston Building, Saturday evening, December 3, 1898.</p> <p>Mr. E. Le Neve Foster, 2nd Vice-President, in the Chair.</p> <p>Eleven person were present.</p> <p>The minutes of the preceding meeting were read and approved.</p>

<p>Mention of “circular” p. 145</p>	<p>The following nominations for officers for the year 1899 were made:</p> <table border="0"> <tr> <td>President</td> <td>E. Le Neve Foster</td> </tr> <tr> <td>1st Vice Pres.</td> <td>J.A. Porter</td> </tr> <tr> <td>2nd “ “</td> <td>E.B. Kirby</td> </tr> <tr> <td>Secretary</td> <td>C.W. Comstock</td> </tr> <tr> <td>Cor. Sec’y & Librarian</td> <td>P.H. van Diest</td> </tr> <tr> <td>Treasurer</td> <td>H.A. Vezin</td> </tr> </table> <p>Members of Executive Committee</p> <p style="text-align: center;">W.L. Austin Regis Chauvenet R.C. Hills Richard Pearce F.S. Watkins</p> <p>Moved by E.B. Kirby and seconded by H.A. Vezin that the Society have an annual dinner, that the Chairman appoint a committee to arrange for it and that the Secretary be instructed to send out circulars to the members notifying them of this action of the Society. Carried.</p> <p>The Chairman then appointed the following committee on Annual Dinner</p> <p style="text-align: center;">B.B. Lawrence H.V. Pearce Harry A. lee T.L. Wilkinson</p> <p>The meeting then adjourned.</p>	President	E. Le Neve Foster	1 st Vice Pres.	J.A. Porter	2 nd “ “	E.B. Kirby	Secretary	C.W. Comstock	Cor. Sec’y & Librarian	P.H. van Diest	Treasurer	H.A. Vezin
President	E. Le Neve Foster												
1 st Vice Pres.	J.A. Porter												
2 nd “ “	E.B. Kirby												
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Cor. Sec’y & Librarian	P.H. van Diest												
Treasurer	H.A. Vezin												
	<p>Charles W. Comstock, Secretary</p>												
<p>p. 146</p>	<p>The annual meeting of the Society was held in its rooms in the Boston Building, Saturday evening, December 17, 1898.</p> <p>E. Le Neve Foster, 2nd Vice-President, in the Chair, Nine persons were present.</p> <p>The minutes of the annual meeting of 1897 were read and approved.</p> <p>In the absence of the Corresponding Sec’y, his report was read by the Recording Secretary. This was followed by the report of the Recording Secretary and a preliminary report of the Treasurer.</p> <p>The Chairman then appointed W.H. Pearce and Harry A. Lee tellers to canvass the ballots for officers. Upon their report the following were declared elected for the year 1899:</p> <table border="0"> <tr> <td>President</td> <td>E. Le Neve Foster</td> </tr> <tr> <td>1st Vice-Pres.</td> <td>J.A. Porter</td> </tr> <tr> <td>2nd “ “</td> <td>E.B. Kirby</td> </tr> <tr> <td>Secretary</td> <td>C. W. Comstock</td> </tr> <tr> <td>Cor. Sec’y and Librarian</td> <td>P.H. van Diest</td> </tr> <tr> <td>Treasurer</td> <td>H. A. Vezin</td> </tr> </table> <p>Executive Committee</p> <p style="text-align: center;">W.L. Austin Regis Chauvenet R.C. Hills Richard Pearce</p>	President	E. Le Neve Foster	1 st Vice-Pres.	J.A. Porter	2 nd “ “	E.B. Kirby	Secretary	C. W. Comstock	Cor. Sec’y and Librarian	P.H. van Diest	Treasurer	H. A. Vezin
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Cor. Sec’y and Librarian	P.H. van Diest												
Treasurer	H. A. Vezin												

	F.S. Watkins
Written report pasted along one edge into book, originally on van Diest letterhead, scratched out	<i>Colorado Scientific Society</i> <i>Report of the Librarian for the year 1898</i>
	<p>The amount of standard works in the library was not increased during the year by donation nor by purchase.</p> <p>The number of periodicals subscribed for remained the same, but the number of exchanges increased with one.</p> <p>Lack of room had for a long time prevented the classification and filing of many periodicals received in the previous and during the current year. The placing of additional shelves in some of the bookcases has remedied this defect.</p> <p style="text-align: right;">P.H. van Diest Librarian</p>
p. 147	A report of the dinner committee was called for, but the committee was not ready to report. After some discussion of the dinner question the meeting adjourned.
	Charles W. Comstock, Secretary
	<i>Report of the Secretary for the year 1898</i>
Another mention of monthly bulletins for 1898 p. 148	<p>The total membership of the Society is 147, of which 3 are Honorary and 13 Associate members. The membership at the date of the preceding annual meeting was 145. During 1898 5 members have resigned and 7 persons have been elected to membership.</p> <p>Of the 147 members, 30 reside outside of Colorado, 62 reside in Denver and 55 in other places in the state.</p> <p>During the year just past there have been 8 meetings. The average attendance at these meetings was 13 with a maximum of 19 and a minimum of 9.</p> <p>There have been 8 papers presented during the year. All of these have been printed and distributed, the more elaborate ones in the form of separate pamphlets. The others, together with the informal communications and discussions in the monthly bulletins.</p> <p>In addition to these papers and bulletins, the Society has published Vol 5 of its Proceedings, covering the years 1894-5-6.</p> <p style="text-align: right;">Charles W. Comstock, Secretary</p>

By-Laws
ballot
attached in
book, dated
1897, Harry
A. Lee;
same as
glued in
ballot from
1897

(Please detach this sheet, and return it, duly filled out, to the Secretary.)

PROPOSED AMENDMENT TO THE BY-LAWS.

Section 14 of the by-laws shall be amended to read as follows:
The amounts of entrance fee, and annual dues, shall be determined by the Executive Committee.

The annual dues are payable before May 1st of each year.

All members, or associates, whose annual dues are unpaid May 1st, shall be officially notified by the Treasurer in writing.

Members and associates whose annual dues are unpaid September 1st shall cease to receive the publications of the Society, and their names shall be posted in the Society's rooms. Should the dues be still unpaid December 31st, then such delinquents shall be dropped from the rolls of the Society.

Provided, however, that the Executive Committee may exercise the power (if sufficient cause is shown for so doing) of reinstating such persons upon application, and payment by them of all unpaid dues.

Members and associates, not in arrears, may become life-members and life-associates, upon payment into the treasury of the Society the sum of 100 dollars, and such life-members and life-associates shall be exempt from the future payment of annual dues.

I vote for, (or against) this amendment.

(Signature) _____

My permanent mailing address is

(Date) _____

1899

p. 149	<p>The one hundred and sixtieth regular meeting of the Society was held in its rooms in the Boston Building, Saturday evening, January 14, 1899.</p> <p>E. Le Neve Foster, President, in the chair.</p> <p>Seven persons were present.</p> <p>The minutes of the December meeting were read and approved.</p> <p>The Chair appointed Mr. C.H. Livingstone and Mr. Henry E. Wood a committee to audit the Treasurer's accounts for 1897 and 1898.</p> <p>Mr. B. B. Lawrence introduced a resolution that the Society petition the Senators and Representatives of the State of Colorado in the United States Congress to support the bill providing for a division of mines and mining in the United States Geological Survey. The resolution was adopted.</p>
Com – p. 150	<p>Mr. L.S. Austin described and showed to the members present a very fine balance made in Denver by Smith & Thompson and used for checking weights. This balance is said to be sensitive to 1/1000 of a milligramme.</p> <p>Mr. R. C. Hills called the attention of the members to a very fine collection of mineral recently presented to the Society by Mr. J.A. Porter and to a number of choice specimens presented by Messrs. A. Raht, J.L. Jerome and Phillip Rearden.</p> <p>Mr. Hills presented a specimen of Uranoclase, a pseudomorph of native copper after azurite, and a specimen of byerite from Middle Park. He described the occurrence of the byerite and gave the results of several analyses by different persons.</p> <p>A vote of thanks to these gentlemen for their donations to the Society was proposed and passed.</p> <p>The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 150	<p style="text-align: center;">January 14, 1899</p> <p>Meeting of the Executive Committee of Colorado Scientific Society. Present Messrs. Foster, Hills, Watkins, and Comstock</p> <p>An application for Associate Membership from Mr. Henry T. Rogers of Denver was presented.</p> <p>Mr. Rogers was elected.</p> <p style="text-align: right;">Charles W. Comstock, Secretary.</p>
p. 151	<p style="text-align: center;">Saturday, February 4, 1899</p> <p>A meeting of the Society was called for this date but there was no quorum and nothing was done.</p>
	Charles W. Comstock, Secretary
p. 151	<p style="text-align: center;">Saturday, March 4, 1899</p> <p>Meeting of the Executive Committee of the Colorado Scientific Society.</p> <p>Present, Messrs. Foster, Hills, and Comstock.</p> <p>Mr. Barry Hogarty elected a member of the Society.</p> <p style="text-align: right;">Charles W. Comstock, Secretary</p>
p. 152	<p>The one hundred and sixty-first regular meeting of the Society was held in its rooms in the Boston Building, Saturday evening, March 4, 1899.</p>

	<p>E. Le Neve Foster, President, in the chair. Eight persons were present. The minutes of the January meeting were read and approved. The Secretary announced the election by the Executive Committee of Mr. Barry Hogarty of Boulder, Colo., as member, and Mr. Henry T. Rogers, of Denver, as associate member.</p>
Comm.	<p>Mr. Barry Hogarty read a paper on "The Andesite of Mount Sugar Loaf, Boulder County, Colorado." This paper was discussed briefly by Messrs. R.C. Hills and E.B. Kirby The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 153 Mention of a "circular" regarding meeting time	<p>The one hundred and sixty-second regular meeting of the Society was held in its rooms in the Boston Building, Saturday evening, April 1, 1899. E. Le Neve Foster, President, in the Chair. Ten persons were present. The minutes of the preceding meeting were read and approved. A communication from Mr. B. B. Lawrence suggesting that the meetings of the Society be held in the afternoons rather than in the evenings, was read. After some discussion the Secretary was instructed to prepare a circular to be sent to the members, calling for an expression of opinion on this question.</p>
Com.	<p>Mr. E.B. Kirby read a paper on "Testing and Sampling Placer Deposits." This paper was discussed by Messrs. Regis Chauvenet, R.C. Hills, E. Le Neve Foster and Henry A Vezin. Mr. R. C. Hills called attention to the fact hat there had at one time been a committee of the Society whose duty was to prepare a report on the technical estimation of zinc, and thought it advisable that a similar plan be followed with respect to other metals. The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 154	<p>The one hundred and sixty-third regular meeting of the Society was held in its rooms in the Boston Building, Saturday evening, May 6, 1899. E. Le Neve Foster, President, in the chair. Eight persons were present. The minutes of the preceding meeting were read and approved. Owing to the small number of replies to the circular relating to the proposed change in the time of meeting, this question was laid on the table.</p>
Com.	<p>Mr. T.L. Wilkinson read a paper entitled "The Self-Cooling Condenser." This paper was discussed briefly and informally by Messrs. Philip Argall, Henry A. Vezin and H. Van F. Furman. The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 155	October 28, 1899, 3 ³⁰ p.m.

	<p>microscope and believed that it was not a single mineral but a mixture of two. Mr. Hills further stated that the sandstone in question is the La Plata sandstone occurring near the base of the Jurassic. In the San Juan the Jurassic is unconformable on the Triassic and is thus comparatively easy to identify. Further, this is the only place in the Rocky Mountains where fossils have been found in the upper Triassic.</p> <p>Following these remarks there was a brief discussion on Uranium and Vanadium minerals and their market values by Messrs. Chauvenet, Headden, Hills and Lee.</p> <p>Mr. Lee then showed a specimen of coal containing bornite from New Annan, Colchester CO., Nova Scotia. Its analysis is</p> <p style="padding-left: 40px;">Cu 34.6%</p> <p style="padding-left: 40px;">Au \$3.90 per ton</p> <p style="padding-left: 40px;">Ag 9 oz. “ “</p> <p>It occurs in quite large kidneys between a limestone and a shale but there is not enough of it to make a mine.</p> <p>The meeting then adjourned.</p>																								
	Charles W. Comstock, Secretary																								
p. 159	<p>The one hundred and sixty-fifth monthly meeting of the Society was held in Room 222 Boston Building, Denver, Saturday evening, Dec. 2, 1899. E. Le Neve Foster, President, in the Chair.</p> <p>Six persons were present.</p> <p>In the absence of a quorum no business was transacted except the nomination of officers for the ensuing year. The following nominations were made:</p> <table style="width: 100%; border: none;"> <tr> <td style="padding-right: 40px;">For President</td> <td>E. Le Neve Foster</td> </tr> <tr> <td>For 1st Vice-President</td> <td>Frederic Knight</td> </tr> <tr> <td>“ 2nd “ “</td> <td>A.L. Collins</td> </tr> <tr> <td>“ Treasurer</td> <td>Henry A. Vezin</td> </tr> <tr> <td>“ Secretary</td> <td>C. W. Comstock</td> </tr> <tr> <td>“ Corres. Sec. & Librarian</td> <td>T. L. Wilkinson</td> </tr> <tr> <td>“ Members of the Executive Committee</td> <td></td> </tr> <tr> <td></td> <td style="padding-left: 40px;">G. L. Cannon</td> </tr> <tr> <td></td> <td style="padding-left: 40px;">Regis Chauvenet</td> </tr> <tr> <td></td> <td style="padding-left: 40px;">R.C. Hills</td> </tr> <tr> <td></td> <td style="padding-left: 40px;">Harry A. Lee</td> </tr> <tr> <td></td> <td style="padding-left: 40px;">Richard Pearce</td> </tr> </table> <p>The meeting then adjourned.</p>	For President	E. Le Neve Foster	For 1 st Vice-President	Frederic Knight	“ 2 nd “ “	A.L. Collins	“ Treasurer	Henry A. Vezin	“ Secretary	C. W. Comstock	“ Corres. Sec. & Librarian	T. L. Wilkinson	“ Members of the Executive Committee			G. L. Cannon		Regis Chauvenet		R.C. Hills		Harry A. Lee		Richard Pearce
For President	E. Le Neve Foster																								
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	Richard Pearce																								
	Charles W. Comstock, Secretary																								

1900

p. 160	January 6, 1900												
	<p>Meeting of the Executive Committee of the Colorado Scientific Society Present Messrs. Foster, Chauvenet, Pearce and Comstock. Mr. Louis B. Carr, of Ouray, was elected a member of the Society. The meeting then adjourned.</p> <p style="text-align: right;">Charles W. Comstock, Secretary</p>												
p. 161	<p>The one hundred and sixty sixth monthly meeting of the Society monthly meeting of the Society was held in Room 222 Boston Bldg., Denver, Saturday evening, Jan. 6, 1900.</p> <p>E. Le Neve Foster, President, in the Chair. Eleven persons were present. The minutes of the preceding meeting were read and approved. The Chair appointed Messrs. D. W. Campbell and L.S. Austin tellers to count the ballots for officers for the year 1900. Upon their report, the following were declared unanimously elected:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">President</td> <td>Ernest Le Neve Foster</td> </tr> <tr> <td>1st Vice-President</td> <td>Frederic Knight</td> </tr> <tr> <td>2nd “ “</td> <td>A.L. Collins</td> </tr> <tr> <td>Treasurer</td> <td>Henry A. Vezin</td> </tr> <tr> <td>Secretary</td> <td>C.W. Comstock</td> </tr> <tr> <td>Cor. Sec. & Librarian</td> <td>T. L. Wilkinson</td> </tr> </table> <p>Members of the Executive Committee</p> <p style="text-align: center;">G.L. Cannon Regis Chauvenet R.C. Hills Harry A. Lee Richard Pearce.</p> <p>The Secretary announced the election to membership by the Executive Committee of Louis B. Carr, of Ouray.</p>	President	Ernest Le Neve Foster	1 st Vice-President	Frederic Knight	2 nd “ “	A.L. Collins	Treasurer	Henry A. Vezin	Secretary	C.W. Comstock	Cor. Sec. & Librarian	T. L. Wilkinson
President	Ernest Le Neve Foster												
1 st Vice-President	Frederic Knight												
2 nd “ “	A.L. Collins												
Treasurer	Henry A. Vezin												
Secretary	C.W. Comstock												
Cor. Sec. & Librarian	T. L. Wilkinson												
Com. p. 162	<p>Mr. H. Van F. Furman then read a paper entitled “Notes on Mining and Smelting in the state of Durango, Mexico.” This paper was discussed informally by everyone present.</p> <p>The meeting then adjourned.</p> <p style="text-align: right;">Charles W. Comstock, Secretary</p>												
p. 163	<p>The one hundred and sixty-seventh regular meeting of the Society was held in Room 222, Boston Building, Denver, Saturday evening, Feb. 3, 1900.</p> <p>W.L. Austin, Past President in the Chair. Thirteen persons were present. The minutes of the preceding meeting were read and approved.</p>												
Com.	<p>Mr. Charles S. Palmer read a paper entitled “Outline of the Theoretical Chemistry of Copper.”</p> <p>This paper was discussed by nearly everyone present. In the course of the discussion <u>Mr. W.L. Austin</u> asked whether anything is known of the process of hardening copper which some ancient races are said to have used.</p> <p><u>Mr. C. S. Palmer</u> – I know of no process except that hammering. It is well</p>												

p. 164	<p>known that hammering hardens copper and the Mexicans of the present day make in this way hard copper implements which they sell to foreigners visiting their country. They are said to use wooden mallets.</p> <p><u>Mr. W. L. Austin</u> – I have recently visited the remains of some Aztec temples which were decorated with very fine carvings. The rock is very hard and tough. It is certain that these people had no iron but they had copper in great abundance. Copper wire has been found imbedded in their masonry with the obvious purpose of improving the bond. Copper was at one time worshipped by them as a god.</p> <p><u>Mr. D.W. Brunton</u> – Referring to Dr. Palmer's statement that the original ore of copper is probably in nearly all cases Cu_2S, I would say that the most careful investigations at Butte, Montana, have led to the conclusion that in the deposits there the original ore was chalcopyrite and that the Cu_2S is a derivative from this.</p> <p><u>Mr. W. L. Austin</u> – The old formula for chalcopyrite was $Cu_2S + Fe_2S_3$.</p> <p><u>Mr. C.S. Palmer</u> – Has anyone here ever known of the occurrence of cupric sulphide as an ore of copper?</p> <p>There was no affirmative to this question.</p> <p><u>Mr. W. L. Austin</u> referred to the alkaline sulphide process for separating copper and nickel. In this process the mixture of metallic sulphides is fused with salt cake. The sulphide of nickel settles to the bottom leaving other sulphides on top.</p> <p><u>Mr. D.W. Brunton</u> referred to the deposition of metallic nickel from a gas known as nickel carbonyl, a process which is now being experimented upon by the Sudbury Copper Co., in Canada.</p> <p>There was some further informal discussion by members.</p> <p>A vote of thanks to Mr. Palmer for his interesting and instructive paper was proposed and carried.</p> <p>On motion the meeting adjourned.</p>
p. 165	Charles W. Comstock, Sec'y.
p. 166	<p>The one hundred and sixty-eighth regular meeting of the Society was held in Room 222 Boston Bldg., Denver, Saturday evening, March 3, 1900.</p> <p>E. Le Neve Foster, President, in the chair.</p> <p>Twelve persons were present.</p> <p>The minutes of the preceding meeting were read and approved.</p> <p><u>Mr. Richard Pearce</u> exhibited some specimens of gold ore illustrating the genesis of gold nuggets and made a few remarks relating to this subject. These remarks were a continuation of a previous note by Mr. Pearce on the same subject.</p> <p><u>Mr. Pearce</u> also read an account of his investigation of some arsenical minerals brought from Mexico by H. Van F. Furman. The analyses of these minerals were made by Mr. Frederick Knight.</p> <p><u>Mr. Furman</u> thanked Dr. Pearce and Mr. Knight for their investigation and added that it had been very difficult to obtain pure specimens of this mineral.</p> <p><u>Mr. Regis Chauvenet</u> asked whether native arsenic had been found.</p> <p><u>Mr. Furman</u> – No.</p> <p><u>Mr. W.L. Austin</u> – Isn't this Mexican mineral simply a limestone containing arsenate of lead and copper?</p>
p. 167	<p><u>Mr. Furman</u> – the lime seems to be a part of the mineral.</p>

Mr. Pearce exhibited a specimen of high grade matte showing on its surface a crystallized alloy of gold and silver. This came from the hearth of a furnace making a 40% matter. He thought that it was the result of accidental bessemerizing by air blowing through a crack in the hearth. The grade of the specimen was about 75% Cu.

Mr. G.L. Cannon spoke at some length on a proposed union of the scientific societies of the state He proposed an organization in sections.

Mr. R.C. Hills spoke in favor of this plan.

Mr. F. S. Watkins through that the engineers of the city and state would be glad to take advantage of such an opportunity to organize an engineering section.

It was moved and seconded that a committee be appointed to communicate with other societies. Carried. The Chair appointed Messrs. F.S. Watkins, G.L. Cannon and D.W. Campbell as members of this committee.

The meeting then adjourned

p. 168

Charles W. Comstock, Secretary

The book includes three handwritten pages, bound into the book with a brass split brad, of Knight's analysis of the Mexican mineral (p. 1 of included pages) and Richard Pearce's discussion of the gold nugget

560.7
 8

Baldonite

As ₂ O ₅	31.76	
CuO	30.88	
PbO	30.13	
H ₂ O	4.58	
		2.65
		100.00

"Conichalcite"

Utah.

As ₂ O ₅	39.94	
P ₂ O ₅	0.14	
CuO	28.68	
CaO	19.79	
FeO	2.86	
H ₂ O	5.52	
		1.20
		98.13

(Fe₂O₃ 0.36 MgO 0.54 .29.03)

"Erinite"

As ₂ O ₅	33.53	
CuO	57.67	
FeO	1.06	
H ₂ O	7.22	

"Mexican Mineral" analysis by Mr. F.C. Knight

As ₂ O ₅	31.49	34.89
CuO	22.28	24.68
PbO	8.67	9.49
CaO	23.80	26.35
		2.52
Al ₂ O ₃	4.68	
SiO ₂	3.04	
H ₂ O	4.00	4.43
		99.84
		99.97

~~4(As₂O₅) + 12(CuO) + PbO, 4(As₂O₅) + 6H₂O~~
 8(CuO) + 12(CaO) + PbO, 4(As₂O₅) + 6H₂O

Pearce's handwriting p. 2 of included pages

At one of our Society meetings more than a year ago I referred in an informal way to an interesting specimen of a gold nugget found in a cavity in the bed rock at Bear Gulch Montana. In some remarks which I made at the time, I ventured to suggest a theory & account in some means for the genesis of nuggets.

I have recently had placed in my care another specimen from the same locality, which I think illustrates in a more marked degree, the theory which I had formerly advanced. It will be seen, on a careful examination of the specimen that the surface shows in many places included patches of bright polished gold, in the form of hardly

<p>p. 3 of included pages</p>	<p>flattened nuggets attached to the water worn rock.</p> <p>The gold everywhere on the surface of the rock shows evidence of hammering, or what might be called rock pounding, in lieu of a better word.</p> <p>The auriferous boulder which I now describe is a rounded water worn pebble? Rock about 4 ½ inches long by 3 ½ inches wide. It consists of what appears to be Limonite and Quartz, the latter occurring in spots having somewhat a porphyritic appearance, and there every indication, like the former nugget which I have described, of its having been detached from a vein of auriferous rock in the vicinity of the gulch in which it was found.</p> <p>In my former investigations I discovered that the Limonite in the first nugget contained some two per cent of Tellurium in an oxidized form, which would indicate that the specimen must at one time have contained telluride of gold in some form, and that in the course of time, the mineral had become oxidized the oxide of Tellurium combining with the Iron oxide, the latter in all probability being derived from associated Pyrite, and the gold separating out in a free finely divided form, as shown in Cripple Creek and other Tellurium districts.</p> <p>The specimen under consideration shows I think this change, for on breaking into the Limonite for the purpose of obtaining a sample for analysis, the finely divided brown gold is distinctly recognized.</p> <p>Analysis of Limonite matrix.</p> <p>It is quite within the bounds of possibility I think to assume, that the finely divided free gold, which has been formed by the oxidation & alteration of Tellurides, may, by a process of welding, be made to unite to form nuggets of some considerable size.</p> <table border="0"> <tr> <td>Fe₂O₃.....</td> <td>52.57</td> </tr> <tr> <td>Unsol. Residue (SiO₂ . Al₂O₃, etc.).....</td> <td>36.96</td> </tr> <tr> <td>H₂O.....</td> <td>6.44</td> </tr> <tr> <td>Te. 1-3g = TeO₂.....</td> <td>1.73</td> </tr> <tr> <td>Au.....</td> <td>2.63 (Au = 883 fine = 760 ozs per ton</td> </tr> <tr> <td>Ag.....</td> <td>.35 (AG = 101.8 “ “</td> </tr> </table> <p style="text-align: center;">Ratio Te:Au:: 1: 1.89</p>	Fe ₂ O ₃	52.57	Unsol. Residue (SiO ₂ . Al ₂ O ₃ , etc.).....	36.96	H ₂ O.....	6.44	Te. 1-3g = TeO ₂	1.73	Au.....	2.63 (Au = 883 fine = 760 ozs per ton	Ag.....	.35 (AG = 101.8 “ “
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<p>p. 169 Beginnings of Denver Engineering Society</p>	<p>An informal meeting of members of the Colorado Scientific Society was held in Room 222 Boston Bldg., Denver, Monday evening, March 19, 1900. Six persons were present.</p> <p>The meeting was called to order by Geo. L. Cannon, Jr., Past Pres., who explained that the purpose of the meeting was to organize a section of the Society devoted to Mechanical Science and Engineering.</p> <p>After some discussion, a temporary organization was effected with Mr. F.S. Watkins as Chairman and Mr. C.W. Comstock as Secretary.</p> <p>It was moved that the regular meeting of the Section be held on the third Saturday of each month. Carried.</p> <p>The meeting then adjourned subject to call.</p> <p style="text-align: right;">Charles W. Comstock, Secretary</p>												
<p>p. 170</p>	<p>The one hundred and sixty-ninth regular meeting of the Society was held in Room 421 Tabor Opera House Bldg, Denver, Saturday evening, April 13, 1900. E. Le Neve Foster, President, in the chair.</p>												

	<p>Seven persons were present. The minutes of two preceding meetings were read and approved. Mr. Cannon reported progress in the work of the Committee appointed to confer with other scientific societies on the subject of consolidation. There was an informal discussion of sever subjects. The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 171	<p>The one hundred and seventieth regular meeting of the Society was held in Room 421 Tabor opera House Bldg., Saturday evening, May 5, 1900. Regis Chauvenet, Past President, in the chair. Eleven persons were present. The minutes of the preceding meeting were read and approved. Mr. Richard Pearce presented to the Society two specimens of covellite, one from San Juan County and one from Montrose County, Colorado. It is a rare mineral in this state. <u>Mr. W.L. Austin</u> asked whether Covellite occurs in considerable quantities at any place in the world. <u>Mr. Pearce</u> – No</p>
Com. p. 172	<p><u>Mr. F. R. Carpenter</u> read a paper on “Matte Smelting in the Black Hills.” This was discussed by Messrs. Regis Chauvenet, Richard Pearce, and W.L. Austin. <u>Mr. Pearce</u> stated as a result of his experience that pure iron matte exercised no solvent power on gold, but the presence of a small amount of silver or copper in the matte imparted the solvent power to it. <u>Mr. Carpenter</u> stated that his matte always contained some silver, though for five years it contained no copper. Mr. Pearce stated that he had for many years treated ores in the manner described in Mr. Carpenter’s paper. <u>Mr. Austin</u> asked what percentage of sulphur was contained in Mr. Carpenter’s matte. <u>Mr. Carpenter</u> – About 30% Messrs. Austin and Carpenter agreed that the formation of ores was favorable to the production of clean slags. <u>Mr. Pearce</u> asked how much gold was contained in Mr. Carpenter’s slags. <u>Mr. Carpenter</u> – from 20 to 40 cts. Per ton when we had copper. From 50 cts. To \$1⁰⁰ per ton when we had no copper. We made no speises [?]. Mr. Carpenter exhibited photographs and drawings of the Deadwood and Delaware Smelter. The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 173	<p>The one hundred and seventy-first regular meeting of the Society was held in Room 421 Tabor Opera House Bldg., Saturday evening, Sept. 1st, 1900. E. Le Neve Foster, President, in the Chair. Sixteen persons were present. The minutes of the preceding meeting were read and approved.</p>
Com.	<p>Mr. W.L. Austin read a paper entitled “Notes on Some Mexican Copper</p>

p. 174	<p>Deposits”</p> <p>This was discussed by Messrs. R.C. Hills, Philip Argall, A. F. Wuensch, J. B Farish, Richard Pearce, and E. Le Neve Foster.</p> <p><u>Mr. Pearce</u> spoke of a copper deposit in Sonora, Mexico. The country rock is gneiss, partly kaolinized. A dike of porphyry varying from 15 to 20 to 40 or 50 feet in width cuts across this rock. There are indications of copper in various portions of the dyke out crop. Specimens of the porphyry impregnated with copper minerals were presented to the Society. These pieces were said to contain from 10% to 12% copper. Some experiments in concentration had been made and the concentration were found to contain baryta? This is somewhat unusual.</p> <p>The porphyry is somewhat broken and disturbed. The mineralizing solutions probably came through these cracks and breaks. Mother mineral was probably chalcopyrite, but it has been altered through the whole series of copper sulphides. However, the rock is not stained with iron as would be likely to be the case in the oxidation of the copper pyrites.</p> <p><u>Mr. Hills</u> suggested that if the mineralizing solutions had contained insufficient iron some copper glance would have been deposited with the chalcopyrite.</p> <p><u>Mr. Pearce</u> replied that at the greater depths there is no mineral except chalcopyrite.</p> <p><u>Mr. W. L. Austin</u> suggested that the iron might have been oxidized to the ferrous condition and carried away in solution without leaving any stains. He cited some examples of this action.</p> <p>A vote of thanks to Messrs.. Austin and Pearce for their interesting papers was proposed and carried.</p> <p><u>Mr. John B. Farish</u> briefly described a copper deposit in Michoacan, Mexico, and exhibited apiece of the ore.</p> <p>The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 175	<p>The one hundred and seventy-second regular meeting of the Society was held in Room 421 Tabor Opera House Bldg., Denver, Saturday evening, October 6, 1900. E. Le Neve Foster, President, in the Chair.</p> <p>Ten persons were present.</p> <p>The minutes of the preceding meeting were read and approved.</p> <p>Mr. E. C. van Diest described some mineral deposits near Silverton, Colorado. These were discussed at length by Messrs. W.L. Austin, W.S. Ward and E. Le Neve Foster.</p> <p>The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 176	<p>The second meeting of the Engineering Section of the Society was held in Room 421 Tabor Opera House Bldg., Denver, Saturday evening, Oct. 20, 1900. E. Le Neve Foster, President, in the chair.</p> <p>Seven persons were present.</p> <p>Mr. F. S. Watkins read a paper entitled “Compressed Air.”</p> <p>This was discussed by Messrs. Foster, Wilkinson, Vezin and Comstock.</p> <p>The meeting then adjourned.</p>
	Charles W. Comstock, Secretary

	T.L. Wilkinson, Secretary pro-tem (copied by C.W.C.)														
p. 180	<p>The annual meeting of the Society was held in Room 421 Tabor Opera house Bldg., Denver, Saturday evening, Dec. 15, 1900.</p> <p>E. Le Neve Foster, President, in the Chair.</p> <p>Seven persons were present.</p> <p>The minutes of the preceding annual meeting were read and approved.</p> <p>The president appointed Messrs. F.L. Clerc and F.S. Watkins tellers to canvass the ballots.</p> <p>Upon the report of the tellers the following were declared elected:</p> <table> <tr> <td>President</td> <td>E Le Neve Foster</td> </tr> <tr> <td>1st Vice-Pres.</td> <td>H. Van F. Furman</td> </tr> <tr> <td>2nd “ “</td> <td>C. H. Livingstone</td> </tr> <tr> <td>Treasurer</td> <td>H.A. Vezin</td> </tr> <tr> <td>Secretary</td> <td>C. W. Comstock</td> </tr> <tr> <td>Cor. Sec & Libr.</td> <td>T. L. Wilkinson</td> </tr> <tr> <td>Curator</td> <td>R. C. Hills</td> </tr> </table> <p>Members of the Executive Committee</p> <p style="text-align: center;">W. L. Austin G. L. Cannon, Jr. Harry A. Lee Richard Pearce F.S. Watkins</p> <p>There being no further business the meeting adjourned.</p>	President	E Le Neve Foster	1 st Vice-Pres.	H. Van F. Furman	2 nd “ “	C. H. Livingstone	Treasurer	H.A. Vezin	Secretary	C. W. Comstock	Cor. Sec & Libr.	T. L. Wilkinson	Curator	R. C. Hills
President	E Le Neve Foster														
1 st Vice-Pres.	H. Van F. Furman														
2 nd “ “	C. H. Livingstone														
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Secretary	C. W. Comstock														
Cor. Sec & Libr.	T. L. Wilkinson														
Curator	R. C. Hills														
	Charles W. Comstock, Secretary														

Included in
the book
was the
printed
ballot for
1901

Colorado Scientific Society

419-421 TABOR OPERA
HOUSE BUILDING * *

Denver



BALLOT

At the regular monthly meeting of the Society held December 1, 1900, the following nominations for officers for the year 1901, were made.

If you wish to vote the ballot as printed return it unmarked. The name of any member of the Society may be substituted for any one of the printed names.

The ballot should be enclosed in the accompanying envelope on the outside of which the voter's name should be endorsed. This envelope should be sealed:

For President, E. LE NEVE FOSTER

For 1st Vice-President, H. VAN F. FURMAN

For 2nd Vice-President, C. H. LIVINGSTONE

For Treasurer, HENRY A. VEZIN

For Secretary, C. W. COMSTOCK

For Cor. Sec. and Librarian, T. L. WILKINSON

For Curator, R. C. HILLS

MEMBERS OF EXECUTIVE COMMITTEE

W. L. Austin

G. L. Cannon

H. A. Lee

Richard Pearce

F. S. Watkins

1901

p. 181	<p>The fourth meeting of the Engineering Section of the Society was held in Room 421, Tabor Opera House Bldg., Denver, Saturday evening, Jan. 10, 1901. E. Le Neve Foster, President, in the Chair Ten persons were present. The minutes of the preceding meeting were read and approved. The evening was devoted to an informal discussion on "Concentration" in which all present took part. The meeting then adjourned.</p> <p style="text-align: right;">Charles W. Comstock, Secretary</p>
p. 182	BLANK
p. 183	<p>The one hundred and seventy-fourth regular meeting of the Society was held in Room 421 Tabor Opera House Bldg., Denver, Saturday evening, Feb. 2, 1901. E. Le Neve Foster, President, in the chair. Fourteen persons were present. The minutes of the previous meeting were read and approved. <u>Mr. J.C. Blake</u> read two papers. The first was on a "Mica-Andesite of Boulder County, Colo." This was discussed by Messrs. Palmer, Cannon and Hills. The second was on "The Structure of Crystallized Matter." This paper proposed a new theory of crystalline structure and was discussed by everyone present. A vote of thanks to Mr. Blake for his interesting papers was proposed and carried. It was moved and seconded that the thanks of the Society were due to the University Club for its courtesy in permitting the annual diner to be held at its club house. <u>Carried.</u> The meeting then adjourned.</p> <p style="text-align: right;">Charles W. Comstock, Secretary</p>
p. 184	<p>The one hundred and seventy-fifth regular meeting of the Society was held in Room 421 Tabor Opera House Bldg., Denver, Saturday evening, March 9, 1901. E. Le Neve Foster, President, in the chair. Eleven persons were present. The minutes of the preceding meeting were read and approved. <u>Mr. Geo. L. Cannon, Jr.</u>, read a paper on the "The Antiquity of the Human Race." This was discussed by Messrs. Argall, Lakes and Comstock. A vote of thanks to Mr. Cannon was proposed and carried. The meeting then adjourned.</p> <p style="text-align: right;">Charles W. Comstock</p>
p. 185	<p>The one hundred and seventy-sixth regular meeting of the Society was held in Room 421 Tabor Opera House Bldg., Denver, Saturday evening, April 6, 1901. E. Le Neve Foster, President, in the chair. Seven persons were present. The minutes of the preceding meeting were read and approved. <u>Mr. T.L. Wilkinson</u> read a paper on "A Test of the Corliss Engine at the Saratoga Mine, Gilpin County, Colo." This was discussed generally and at some length. The meeting then adjourned.</p>

	Charles W. Comstock, Secretary
p. 186	<p>The one hundred and seventy-seventh regular meeting of the Society was held in Room 421 Tabor Opera House Bldg., Denver, Saturday evening, Mary 4, 1901.</p> <p>E. Le Neve Foster, President in the chair. Twelve persons were present. The minutes of the preceding meeting were read and approved. The coming visit of the A.A.A.S. to Denver was discussed by W.S. Ward, G.L. Cannon and others.</p> <p>It was moved and seconded that this Society express its pleasure and gratification at the selection of Denver for the meeting of the A.A.A.S. and that the Secretary communicate this to the Chamber of Commerce. <u>Carried.</u></p> <p><u>Mr. F.R. Carpenter</u> read a paper on "The Smelting of Cripple Creek Ores." This paper was generally discussed. The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 187	<p>The one hundred and seventy-eighth regular meeting of the society was held in Room 421 Tabor Opera House Bldg., Denver, Saturday evening, Sept. 7, 1901.</p> <p>Geo. L. Cannon, Jr., Past. Pres., in the chair The minutes of the preceding meeting were read and approved. <u>Mr. C. W. Comstock</u> read a paper on "Hoisting in Deep Shafts." This was generally discussed. The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 188	<p>The one hundred and seventy-ninth regular meeting of the Society was held in Room 4212 Tabor Opera House Bldg., Denver, Saturday evening, Oct. 5, 1901.</p> <p>E. Le Neve Foster, President, in the Chair Nine persons were present. The minutes of the preceding meeting were read and approved. <u>Mr. A. Lakes</u> presented a specimens said to be a silica replacement of a fungus growth on mine timbers in the lower levels of the Comstock mines. <u>Mr. Lakes</u> also called attention to the occurrence of a vein of lignite coal in a granitic fissure vein in Gilpin County, Colorado. Both of these matters were discussed at some length. The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 189 First use of projection equipment	<p>The one hundred and eightieth regular meeting of the Society was held in Room 421 Tabor Opera House Bldg., Denver, Saturday evening, Nov. 2, 1901.</p> <p>E. Le Neve Foster, President in the chair Twelve persons were present. The minutes of the preceding meeting were read and approved. <u>Mr. T.L. Wilkinson</u> showed a large number of lantern slides of the armor plate plant of the Bethlehem Steel Co. loaned by Mr. F.L. Clerc. The meeting then adjourned.</p>
	Charles W. Comstock, Secretary
p. 190	<p>The one hundred and eighty-first regular meeting of the Society was held in Room 421 Tabor Opera House Bldg., Denver, Saturday evening, Dec. 7, 1901.</p> <p>E. Le Neve Foster, President in the Chair.</p>

	<p>Seven persons were present. The minutes of the preceding meeting were read and approved. The following nominations for officers for the year 1902 were made: For President Irving Hale, “1st Vice-Pres. G.C. Hewett, “2nd “ “ Harry A. Lee. “ Treasurer G. L. Cannon, Jr., “ Secretary E.N. Hawkins, “Cor. Sec & Lib. T. A. Rickard</p> <p>For members of the Executive Committee G.L. Cannon, Jr. C.W. Comstock E Le Neve Foster R.C. Hills Richard Pearce</p> <p>The president appointed T.L. Wilkinson and C.W. Comstock a committee to arrange for the annual dinner. The meeting then adjourned.</p>
	<p style="text-align: right;">Charles W. Comstock, Secretary</p>

Inserted into the book was the ballot for 1902 officers

COLORADO SCIENTIFIC SOCIETY.



BALLOT.

At a regular meeting of the Society held Saturday evening, December 7, 1901, the following nominations for officers for the year 1902 were made:

- FOR PRESIDENT—Irving Hale.
- FOR FIRST VICE-PRESIDENT—G. C. Hewitt.
- FOR SECOND VICE-PRESIDENT—Harry A. Lee.
- FOR TREASURER—George L. Cannon, Jr.
- FOR SECRETARY—E. N. Hawkins.
- FOR CORRESPONDING SECRETARY AND LIBRARIAN—T. A. Rickard.
- FOR MEMBERS OF EXECUTIVE COMMITTEE—G. L. Cannon, Jr., C. W. Comstock, E. LeNeve Foster, R. C. Hills, Richard Pearce.

There are to be elected one President, one First Vice-President, one Second Vice-President, one Treasurer, one Secretary, one Corresponding Secretary and five Members of Executive Committee. The name of any member of the Society may be substituted for any name printed above.

If you wish to vote the ballot as printed, return it unmarked in the envelope sent herewith.

The ballots will be canvassed at the annual meeting to be held Saturday evening, December 21, 1901.

p. 191

The annual meeting of the society was held in Room 421 Tabor Opera House Bldg., Denver, Saturday evening, Dec. 21, 1901
E. Le Neve Foster, President, in the chair.
Seven persons were present.
The minutes of the preceding annual meeting were read and approved.
Messrs. W. L. Austin and F.L. Clerc were appointed tellers to canvass the ballots for officers.
Upon report of the tellers the following were declared elected:
President Irving Hale,
1st Vice-Pres. G.C. Hewett,
2nd “ “ Harry A. Lee.
Treasurer G. L. Cannon, Jr.,
Secretary E.N. Hawkins,
Cor. Sec & Lib. T. A. Rickard
For members of the Executive Committee
G.L. Cannon, Jr.
C.W. Comstock
E Le Neve Foster

	<p>R.C. Hills Richard Pearce</p> <p>The secretary read a letter from Mr. Rickard in which he declined to serve as Cor. Sec & Lib. Mr. T.L. Wilkinson was therefore nominated and elected to this office. The meeting then adjourned.</p>
	<p>Charles W. Comstock, Secretary</p>

1902

<p>Typed notes mimeographed pasted into book p. 192 covered</p>	<p>February 1, 1902, the 182nd, meeting of the Society was called to order at 8:15 P.M. with Vice President Hewett in the Chair. There were ten members present. The reading of the minutes of the last meeting was dispensed with on motion in order to hasten the reading of Mr. E. L. Foster's paper upon the "Colorado Central Lode, A Paradox of the Mining Law" a very clear exposition of the vein existence upon this property. Discussion of the points presented was variously indulged in and upon motion a vote of thanks was tendered to Mr. Foster for his elaborate and instructive paper.</p> <p>Upon motion of the Secretary was requested to tender the thanks of the Society to the University Club for the use of its dining hall for the annual banquet of the Society.</p> <p>The Secretary reported receipt of a tax schedule assessing the Society's property at \$300.00, and as it has not been customary to pay taxes the Secretary was requested to lay the views of the Society upon this subject before the County Commissioner for the purpose of having the assessment remitted.</p> <p>Motion to adjourn was carried at 10:30 P.M.</p>
	<p><i>Edwin N. Hawkins, Sec'y.</i></p>
<p>p. 193 covered</p>	<p>March 1, 1902 the One Hundred and Eighty-third meeting of the Society was called to order at 8:45 P.M. with 1st Vice President Hewett in the chair.</p> <p>There were fourteen members present. Owing to the fact that the Minute Book was not at hand, the reading of the minutes of the one hundred and eighty-second meeting February 1st., 1902, was dispensed with upon motion.</p> <p>The discussion of the evening was upon the Boulder Oil Field with particular reference to the proper interpretation of the Hayden maps relating to this field, and the correspondence of similarity between the Eastern oil occurrences and that of the Boulder field. Mr. George L. Cannon pointed out some inaccuracies upon the maps of Hayden, ascribing them chiefly to the general character of the work down and the large territory covered by the report. Prof. Cannon spoke of the value in this matter of the Monograph of the U.S. Geological Survey No. 27 upon the Denver Coal Basin and advised a study of the same in connection with the subject of oil in the Northern field.</p> <p>Messrs. Hewett, Comstock and Hale joined in the discussion and Mr. Hewett particularly referred to the occurrence of oil rock in the neighborhood of Morrison and Golden and spoke of the non-relevance of the same to the question of the existence of oil at Boulder.</p> <p>Mr. Foster suggested that persons engaged in drilling wells be approached for the purpose of collecting information concerning the formations penetrated.</p> <p>Mr. Hale moved that the Chair appoint a committee of three to take this matter in hand and not only secure such information, but co-operate</p>

	<p>with Dr. Fenneman of the State University in the collecting of oil well records of the Boulder field for the purpose of getting knowledge of the whole subject of the development in this field – and that such committee shall be authorized to add to itself such other members of the Society whose assistance will be valuable in securing the facts. The motion was carried and the Chair appointed Prof. H.B. Patton of Golden, Prof. Geo. L. Cannon of Denver and Edwin N. Hawkins of Denver.</p> <p>Mr. A.G. Brownlee of Denver, proposed by Harry A. Lee, was reported by the Executive Committee as elected to membership.</p> <p>Meeting adjourned at 10:00 P.M. on motion.</p>
	<p><i>Edwin N. Hawkins, Sec'y.</i></p>
<p>p. 194 covered</p>	<p>April 5th, 1902 the one hundred and eighty-fourth meeting of the Society was held in the rooms of the Society with President Hale in the chair. There were nine members present.</p> <p>The minutes of the last meeting were read and there being no objections they were approved.</p> <p>The committee on oil was called on to report, but as they had not been able to meet together, no report could be expected.</p> <p>Mr. A.G. Brownlee and Mr. A.W. Warwick were elected to membership and the Secretary was instructed to notify them to that effect.</p> <p>Three new applicants for membership were reported and referred to the Executive committee.</p> <p>The paper of the evening was then read by Mr. G.C. Hewett, 1st Vice President of the Society, on “South Utah and its Iron Ores.”</p> <p>Discussions by Messrs. Comstock, Foster, Clerc and Hale were indulged in upon the subject of the paper. Mr. Comstock brought up the subject of centrifugal pumps and fans stating that a French engineer has made some remarkable experiments on the subject.</p> <p>Mr. Clerc spoke of a Swiss centrifugal pump of high efficiency but the firm making them is not yet prepared to fill orders. The centrifugal pumps were quadrupled.</p> <p>Pres. Hale spoke of steam turbines built by the General Electric Company, but added that the company was not yet prepared for orders.</p> <p>A letter was submitted from Dr. Day to Mr. Hewett on the subject of sending our collections to the St. Louis Exposition. General discussion was to the effect that the exhibit would be of no good to the Society and the prevailing opinion was against such action.</p> <p>On motion the meeting adjourned at 10:30.</p>
	<p>T.L. Wilkinson, Temp Sec'y</p>
<p>p. 195 covered</p>	<p>May 3, 1902, the 185th meeting of the Society was held in its rooms and ten members were present. The minutes of April 5th were read and approved. The Secretary brought up the subject of the general welfare of the Society with reference to the membership list and the various members who had resigned or been dropped during the past few years, and with particular reference also to the subject of the Society's permanent quarters and financial status.</p>

<p>Emmons Honorary</p>	<p>In this connection it was suggested that the possibility of housing the collections and library in the State House with permanent quarters therein should be investigated. Discussion upon these questions was general by Messrs. Hewett, Comstock, Wilkinson, Lee and others.</p> <p>The resignation of Prof. Dr. S. F. Emmons presented to the Society was not accepted and it was on the contrary resolved that in view of Prof. Dr. Emmons' eminent services and long connection with the Society, that he should be elected an honorary member. This was done upon motion, and the Secretary instructed to so notify Prof. Dr. Emmons.</p> <p>John W. Finch of Victor, and W.G. Moore of Colorado Springs were reported by the executive committee as elected to membership and the Secretary requested to so advise them.</p> <p>Motion to adjourn was carried at 10:25 P.M.</p>
	<p style="text-align: right;"><i>Edwin N. Hawkins, Sec'y.</i></p>
<p>p. 196</p>	<p>BLANK</p>
<p>p. 197 covered Unsigned</p>	<p>September 6th, 1902 the 187th regular meeting of the Society was held in its rooms #419 Opera House Building, with Vice President Lee in the Chair.</p> <p>On motion, and because they were not available, the reading of the minutes of the meeting of June 7th, 1902 was dispensed with. Applications for membership, properly endorsed were received from:</p> <p style="padding-left: 40px;">Frank Walter Royer, Denver Thomas Walter Beam, Denver William Beals, Jr., Boston Robert Forrester, Salt Lake City</p> <p>These were referred to the executive committee for proper action.</p> <p>A communication was read from the Pa. Mines Co., through its President, Ernest Le Neve Foster, announcing that it wished to vacate room #419 rented to it from the Society, after August 31st. The same communication stated the willingness of Mr. Foster to retain the said office for some months yet upon satisfactory agreement being made, and thus keep the rooms of the Society open daily. The consideration of this communication was left with the executive committee.</p> <p>The secretary reported the contribution to the Society from H. H. Burrows of Cripple Creek, of some mineral and rock specimens. These were added to the mineral collection.</p> <p>Upon motion the meeting adjourned at 9:20 P.M.</p>
<p>p. 198 covered</p>	<p>Meeting of the executive committee held September 10th 1902, Mr. Cannon occupying the chair.</p> <p>The communication from Mr. Foster, President Pennsylvania Mines Co., was read and the rental indebtedness of this company to the Society of \$200.00 was promised paid by the Pennsylvania Co., at the earliest possible moment – their lease of room #419 expiring August 31st. It was agreed by Mr. Foster that he should have office occupation of this room for an indefinite period at a rental of \$5.00 per month and in this way keep the Society's library and collection open.</p>

<p>handwritten at bottom of page</p>	<p>Applications for membership from Frank Walter Royer, Denver, 4001 W. 35th Ave. Thomas Walter Beam, Denver William Beals, Jr., Boston Robert Forrester, Salt Lake City</p> <p>Were presented and upon motion each applicant was elected to membership in the Colorado Scientific Society. The executive committee on motion from Mr. Foster, authorized the librarian to present to new members back numbers of the Society's proceedings when such were desired, with the limit however, that at least ten of each shall be retained by the Society for its own collection.</p> <p>Mr. Lee reported to the executive committee that very favorable progress was being made in the matter of securing for the Society permanent quarters in the State Capitol Building and promised further advice at a later date.</p> <p>Resignations from F.C. Knight, Robert S. Breed, Anton Eilers and Karl Eilers were presented and accepted.</p> <p>The Secretary reported presentation of an assessment schedule upon the Society's property and upon motion the Secretary was requested to endeavor to have taxation remitted by the County Commissioners as in the case of last year. On motion the meeting adjourned.</p> <p>Geo L. Cannon – E. Le Neve Foster, C. W. Comstock, E. N....</p>
<p>p. 199 Handwritten, bad copy, good in book</p> <p>p. 200</p>	<p style="text-align: right;">Denver, Colo., Oct. 4th, 1902</p> <p>The 188th Regular meeting of the Colorado Scientific Society was held at its room 19-421 Opera House Bldg at 8³⁰ PM with Vice Prest. Lee in the chair.</p> <p>There were 32 members present.</p> <p>The minutes of the last meeting Sept. 6/02 were read and on motion approved.</p> <p>The paper of the evening was on "The Arapahow Glacier" by Dr. N. M. Fenneman of the U.S. Geological Survey and of the chair of geology at the University of Colorado. Dr. Fenneman illustrated by many views displayed with the aid of lantern slides.</p> <p>The address was very much appreciated and brought forth an interesting discussion of the physical features of the Arapahow glacier developed by Dr. Fenneman.</p> <p>The thanks of the Society were by unanimous vote tendered to Dr. Fenneman for this admirable address.</p> <p>Mr. Geo. L. Cannon gave a talk on "Glyptoliths" or wind worn stones, and exhibited a number of wind and sand worn stones which he had collected upon the Cape Cod coast and elsewhere.</p> <p>The subject was discussed generally and mention made of the somewhat similar effect of wind and sand upon the rock formations which are left standing and exposed just south of Palmer Lake Colo – near Monument.</p> <p>After a vote of thanks to Prof. Cannon, the Society adjourned at 10⁰⁰</p>

	P.M. .
	<i>Edwin N. Hawkins, Sec'y.</i>
p. 201	Denver, Colo. Nov. 9 th 1902
p. 202	<p>The 189th Regular meeting of the Colorado Scientific Society was held in its rooms 419-421 Opera House Bldg at 8³⁰ PM with Past President E. Le Neve Foster in the chair.</p> <p>There were 14 persons present.</p> <p>The minutes of the meeting Oct. 4th were read and, on motion, approved.</p> <p>Mr. A.W. Warwick presented a paper on the "Chemistry of Roasting." The paper was read in abstract and the author showed the various reactions occurring in Furnace practice by writing them on the blackboard. Mr. Warwick through the chemistry of roasting had not been accurately followed and brought out the fact that comparatively little had been published, and he believed that there was much yet to be shown on the subject by a study of the various furnaces in use. The author also stated that technical men in the U.S. had not studied this subject as thoroughly as either the German or French and believed that investigations of this line or work presents a large field.</p> <p>The paper was discussed by Messrs. Comstock, Gouyard and Clerc.</p> <p>The Society's thanks were voted to Mr. Warwick for his instructive paper, and he stated that the completed text of the paper would soon be handed to the Printing Committee.</p> <p>The question was raised as to what was the heat balance of a lead smelting furnace.</p> <p>On motion the meeting adjourned at 10 PM.</p>
	T. L. Wilkinson, Temporary Secretary
p. 203	Denver, Colo., Dec 6 th 1902
	<p>The 190th Regular meeting of the Colorado Scientific Society was held in its rooms 419-421 Opera house Bldg at 8¹⁵ PM this date with Past President E. Le Neve Foster in the chair.</p> <p>There were 15 persons present.</p> <p>The minutes of the meeting Nov. 9th were read and approved on motion.</p> <p>The Executive Committee reported the Election of E. N. Platt, Denver, to active membership in the Society.</p> <p>On motion by Mr. Wilkinson, the Chairman appointed a committee of three to act for the Society and to draft resolutions upon the subject of the assault upon Arthur L. Collins at Telluride, Nov. 19th, 1902, which resulted in his death within 2 days.</p> <p>The chairman appointed as this Committee, Messrs. Comstock, Hawkins, and Wilkinson.</p> <p>The Society on motion took up the subject of the nominations of officers for the year 1903 and on separate motion the following became the nominees.</p> <p>President G.C. Hewett Colo Sprgs</p>

p. 204	<p>1st Vice Prest H. A. Lee Denver 2nd Vice Prest. A.G. Brownlee “ Treasurer Geo. L Cannon “ Secretary Edwin N. Hawkins “ Corresponding Secy and Librarian A. W. Warwick “ Executive Committee Messrs Cannon, Comstock, Clerc, Wilkinson, and Warwick. On motion, Messrs. Wilkinson, Comstock and Hawkins were appointed a committee to arrange for the Annual dinner with instructions to have the same at he University Club if possible. On motion the meeting adjourned at 9⁴⁰ PM.</p>
	<p style="text-align: right;"><i>Edwin N. Hawkins, Sec'y.</i></p>
p. 205	<p style="text-align: right;">Denver, Colo. Dec. 20th 1902</p> <p>The annual meeting of the Colorado Scientific Society was held in its rooms 419-4212 Opera House Bldg at 8 PM with President Hale in the chair.</p> <p>There were nine members present.</p> <p>The minutes of the last annual meeting Dec 21st 1901 were read and on motion approved.</p> <p>The President appointed Messrs. Comstock and Roger as tellers to count the ballots for officers.</p> <p>The tellers opened the sealed ballots and their count resulted in the election of the following, who were declared by the President to be the officers of the Society for the year 1903. There were 32 straight ballots cast.</p> <p>President G.C. Hewett Colo Sprgs 1st Vice Prest H. A. Lee Denver 2nd Vice Prest. A.G. Brownlee “ Treasurer Geo. L Cannon “ Secretary Edwin N. Hawkins “ Corresponding Secy and Librarian A. W. Warwick “ Executive Committee Messrs Cannon, Comstock, Clerc, Wilkinson, and Warwick.</p> <p>The Corresponding Secretary and Librarian, Mr. Wilkinson read his annual report and the annual report of the Treasure Mr. Cannon.</p> <p>Upon motion it was decided that these two reports should be printed and distributed to the members</p> <p>It was moved and seconded that the committee appointed at the meeting Dec. 6th on the subject of the murder of our fellow member Arthur L. Collins, and which committee consisted of Messrs. Comstock, Hawkins and Wilkinson, be authorized to prepare appropriate resolutions and with the approval of the Executive Committee to have the same spread upon the Society's minutes and have a copy of the resolutions forwarded to Mrs. Collins.</p> <p>On Motion the meeting adjourned at 10 PM.</p>
p. 206	<p style="text-align: right;">Thos. L. Wilkinson Temporary Secretary</p>

1903

p. 207	Denver, Colo., Jan 3 rd 1900										
p. 208	<p>The 101st regular meeting of the Society was held in its rooms 419-421 Opera House Bldg at 8 PM with 1st Vice President H.A. Lee in the chair. President Hewett had not yet returned from Mexico and Secretary E.N. Hawkins was unavoidably absent.</p> <p>There were nine members present.</p> <p>The minutes of the last regular meeting were read and approved.</p> <p>The dinner committee was discharged with a vote of thanks.</p> <p>The Secretary was instructed to communicate the thanks of the Society to the University Club for the courtesy of the use of the dining room of the Club for the Society's annual dinner Dec. 30th.</p> <p>Mr. A. F. Wuensch gave a short talk upon a meteor which was found in Mexico, and called the Arizpa Meteorite after the locality in which it was discovered. Mr. Wuensch presented it to the Society. Is 12 x 10 inches, and contained 5% nickel. It was discussed by Messrs. Palmer, Clerc, Cannon, Warwick and others; Prof. Palmer particularly speaking at some length on meteorites he had seen or had knowledge of.</p> <p>The Executive Committee announced to the Society the election to active membership of</p> <p style="padding-left: 40px;">Wm Fitz Randolph Mills, Denver Arthur Benjamin Frenzel, “ And to associate membership of Frank James Campbell, Denver Fred L. Sigel, “ William Wittle][?], Rico</p> <p>It was suggested by Mr. Wuensch that memorial meeting be held by the Society at some near future time to pay tribute to the memory of the members of the Society ad lost in the past few years by death. This suggested was afterward put in the form of a motion and referred to the Executive Committee for action.</p> <p style="padding-left: 40px;">On motion the Society adjourned at 9:45 PM.</p>										
	Thomas L. Wilkinson Secretary Pro Temp										
p. 209	Denver, Colo., Feby 7 th 1903										
	<p>The 192nd Regular meeting of the Society was held in its rooms 4190421 Opera House Bldg at 8¹⁵ PM with the 1st Vice Prest. Lee in the chair.</p> <p>There were 22 persons present.</p> <p>The minutes of the last meeting were read and approved.</p> <p>Mr. Wilkinson, for the Executive Committee reported the election of the following gentlemen to active membership in the Society –</p> <table style="width: 100%; border: none;"> <tr> <td style="padding-left: 40px;">Charles J. Garvin</td> <td style="padding-left: 40px;">Denver</td> </tr> <tr> <td style="padding-left: 40px;">E. Bartin Hack</td> <td style="padding-left: 40px;">“</td> </tr> <tr> <td style="padding-left: 40px;">Wm. A. Johnston</td> <td style="padding-left: 40px;">“</td> </tr> <tr> <td style="padding-left: 40px;">Eugene W. Gebhardt</td> <td style="padding-left: 40px;">Golden, Colo</td> </tr> <tr> <td style="padding-left: 40px;">E. Lyman White</td> <td style="padding-left: 40px;">Victor “</td> </tr> </table> <p>The 1st Vice Prest. Lee stated that the Society's lease on these rooms for</p>	Charles J. Garvin	Denver	E. Bartin Hack	“	Wm. A. Johnston	“	Eugene W. Gebhardt	Golden, Colo	E. Lyman White	Victor “
Charles J. Garvin	Denver										
E. Bartin Hack	“										
Wm. A. Johnston	“										
Eugene W. Gebhardt	Golden, Colo										
E. Lyman White	Victor “										

p. 210	<p>its collections and meetings would expire April 1st 1903 and reported that in his investigations he had discovered that it might prove possible to secure extremely desirable quarters in the Chamber of Commerce building. He also reported that such quarters might be secured rent free if the Society would renovate and furnish the same.</p> <p>On motion of Mr. Wilkinson the chairman appointed a committee of three to consider the possibility of securing such new quarters for the Society with ample room to display the library and collections, and with power to conclude all necessary arrangements for moving by April 1st 1903.</p> <p>The members generally expressed their opinions on the subject and the consensus was that the Society should have ample and commodious quarters for its use and for a fitting exhibition of its collection.</p> <p>The chairman appointed the following Com .Messrs. Lee, Wilkinson and Hawkins.</p> <p>Dr. Palmer then presented the paper of the evening: "Some Present Paradoxes in the Classification of the Chemical Elements," and accompanied his address by an exhibition of Prof. H.A. Rowlands "Standard Photograph of the Solar Spectrum."</p> <p>The paper was an extremely interesting one and clearly defined the possibilities of the discovery of new elements which would occupy somewhat arithmetical places in the periodic sequence upon the basis of progress in atomic weights. Dr. Palmer pointed out how much had already been definitely accomplished and proven in present discoveries of such new elements and the places they occupied in this sequence. The paper was quite in line with and a continuation of the subject upon which Dr. Palmer addressed the Society some years ago while the Society had its quarters in the East Denver High School building.</p>
p. 211	<p>Upon motion of Mr. Wilkinson the hearty thanks of the Society were extended to Dr. Palmer for his finished discourse upon a subject of which he is so much the master and upon which he has spent so much study.</p> <p>Mr. G.C. Hewett, who arrived after the meeting began, presented by gift to the Society a specimen he had obtained in Mexico from a mine which had been abandoned for 150 years. It was a piece of leather, probably used by peon ore carriers, which had precipitated around it and almost enclosing it, calcite, pyrite and blende.</p> <p>Mr. Lee spoke of a new mineral, telluride of copper which Dr. Louis Weiss of the Gold Hope Mine, Vulcan, Colo. had found associated with native tellurium and tellurides of Bismuth and Gold. Mr. Lee stated that this new mineral had been entered with the American Journal of Science under the name of Rickardite.</p> <p>Mr. Wilkinson reported that the Printing Committee will have ready for distribution within two weeks the bulletin of the Society's meetings for the past two years, together with the reports of officers for the past year.</p>
Mention of bulletin for 1902	<p>Upon motion the meeting adjourned at 10³⁰ P.M.</p>
p. 212	<p>.Edwin N. Hawkins, Secretary Denver Colo May 7th 1903</p>

p. 213
Gen. Palmer
elected LIFE
member

The 193rd Regular meeting of the Society was held in its rooms 419-421 Tabor Opera House Bldg Denver at 8¹⁵ PM.

First Vice Prest. Lee occupied the chair.

The minutes of the last meeting were read and approved. There were 17 persons present.

The Executive Committee reported the election of the following gentlemen to active Membership:

Philip Argall	730 Majestic Bldg, Denver
Edwin O. Dane	Hotel Broadway, “
William G. Holdane[?]	School of Mines Golden, Colo
Dr. Louis Weiss	Del Norte Colo.
George D. James	Exchange Bldg Denver
Harry C. Smith	1049 Pearl St. “
George W. Collins	217 Boston Bldg, “

Mr. G.C. Hewett, President of the Society was unavoidably absent but he sent a communication to the effect that Gen. W^m J. Palmer, had offered as promised to pay for the binding of the Society’s books to the extent of \$200⁰⁰. The generous offer of Gen. Palmer brought out many expression of thanks from members present.

It was moved and seconded and unanimously adopted that General Palmer be elected a “Life Member of the Colorado Scientific Society,” and the Secretary was instructed to write Gen. Palmer an appropriate letter thanking him for his kind offer, accepting it, and appraising him of his election as a Life Member of the Society.

Mr. F. L. Clerc presented to the Society’s library thirteen unbound volumes of the Engineering and Mining Journal, being Vol 40, Oct 10/85 to Vol 52 Nov 7/01 inclusive – also six unbound volumes of the Engineering News and Railway Journal, Vo 19 January 1888 to Vol 24 December 1890 inclusive.

A vote of thanks of the Society was upon motion tendered to Mr. Clerc and the Secretary was instructed to extend the same by letter to Mr. Clerc.

A letter was read from Dr. Louis Weiss, Del Norte, Colo to Hon. Geo P. Merrill, Head Curator of the Dept. of Geology, Smithsonian Institution, Washington, D.C. in regard to his discovery of “Telluride of Copper.” A specimen of this mineral was exhibited and presented to the Society.

The paper of the Evening was a short one on “The Commercial Assay of Lead Ores” by A.W. Warwick. Mr. Warwick was absent and the paper was read by the Secretary.

Discussion of the paper was indulged in by Messrs Prof. W.G. King, Lee, Palmer, Carpenter, Cannon, Argall, Collins, Hogarty and others.

Following this there was considerable discussion as to the method of publication of papers. It was suggested that all papers should be printed before presentation, so as to permit of time for discussion. It was moved and seconded that all papers when read be submitted for information discussion, then printed, distributed to members, and at the following meeting of the Society, formally discussed. The motion was adopted.

<p>p. 214</p>	<p>It was ordered that Mr. Warwick's paper be printed and distributed for formal discussion at the April meeting of the Society.</p> <p>Dr. Palmer exhibited some meteoric specimens and announced that Mr. W.S. Cunningham of Boulder, would in the near future present a paper on the subject of meteors under the Caption "The Northeast [...?] Pallasite."</p> <p>A communication from the "Mining Reporter" was read, concerning a book by Dr J. Ohly on "The Detection and Determination of the Rare Metals. A copy was presented to the Society and the offer of a liberal discount made to members.</p> <p>A letter from Mr. P.J. Rollandet was read thanking the Society on behalf of the children of the late P.H. van Diest, for the kind token of sympathy sent them on the occasion of his death.</p> <p>It was moved and seconded that the chair appoint the Publication Committee for the year 1903.</p> <p>Upon the motion being carried Mr. Lee announced the following as the Committee – Chas. W. Comstock, Geo. L. Cannon, Edwin N. Hawkins.</p> <p>It was moved and second that the President appoint Curator – Carried.</p> <p>The committee appointed for the purpose of securing new quarters for the Society reported that arrangements had been made with the officers of the Chamber of Commerce under which the Society was to have, free of charge, two rooms in the 3rd floor. The Society was to bear the expense of moving. A lease covering the new rooms and to be signed by the officers of both the Society and the Chamber of Commerce was read.</p> <p>The chairman appointed the above Committee to take entire charge of moving the Society's property into the new rooms on or before April 1st 1903, and instructed the Committee to put the rooms in proper condition for occupancy.</p> <p>On motion the Society adjourned at 10³⁰ PM.</p>
	<p>Thomas L. Wilkinson Sec'y pro tempore</p>
<p>p. 216</p>	<p>Denver Colo April 4th 1903</p>
	<p>The 190th Regular meeting of the Society was held at its new rooms in the Chamber of Commerce Bldg and the meeting called to order by President Hewett at 8⁰⁰ PM. The minutes of the last meeting were read & approved.</p> <p>There were 35 persons present.</p> <p>The Secretary reported for the Executive Committee the election of the following gentlemen to active membership: A. Lakes- E.N. Van Cortlandt - Chas H. Doolittle - Stuart Crossdale – Geo. L. Keener – W. F. Edwards – W.G. King – Godfrey D. Doretton – J. B. Stott and Chester W. Purginton.</p> <p>The Secretary read a communication from Gen. Wm. J. Palmer expressing his pleasure of being elected to Life Membership in the Society and his gratification for having the opportunity of binding some of the publications of the society.</p> <p>A letter was also read from Dr. W. F. Hillebrand of the U.S. Geological Survey of the subject of his hope that during the year he may find an opportunity to present to the Society a paper to be read at one of its meetings.</p> <p>The Moving Committee reported that their progress in preparing the</p>

p. 217	<p>new quarters had been satisfactory thus far.</p> <p>The Publication Committee reported on the publication of the last 3 papers from T.A. Rickard upon the subject of the new mineral "Telluride of Copper," explaining his connection with its discovery.</p> <p>Dr. Johnston presented and read a written discussion of Mr. Warwick's paper upon the Commercial Assay of Lead ores, and stated his views, expressed the sentiments of the smelting industry with particular reference to the impurities in usual ores.</p> <p>Discussion was presented by Messrs Argall, Lee, Hawkins and Hewett.</p> <p>A motion was made that the President appoint a Committee of seven for the purpose of investigations in to the subject of the Commercial assay of lead in ores versus volumetric methods for its determination. This motion was amended by Mr. Lee to the effect that the Society take this matter under advisement one month before taking position action. Carried.</p> <p>The first paper presented was by Dr. Franklin R. Carpenter on the "Separation of Gold and Silver from Copper in Mattes, with particular reference to Pyritic melting." Dr. Carpenter brought out a number of new points in this interesting and novel metallurgical subject, and in motion the thanks of the Society were extended him for his paper.</p> <p>The second paper of the evening was on "The Genesis of Commercial ores" by John W. Finch. Mr. Finch elaborated the subject of the factors controlling and affecting the deposition of roes in both primary and secondary forms – with particular reference to Cripple Creek deposits.</p> <p>Upon motion the Society thanked Mr. Finch for his address.</p> <p>The motion to adjourn was carried at 11¹⁵PM</p>
	Edwin N. Hawkins Secretary.
p. 218	Denver, Colo., May 2 nd 1903
<p>(See agreement with Mrs. House)</p> <p>Copy is bad, original is fine</p>	<p>The 195th Regular meeting of the Society was held in its rooms in the Chamber of Commerce Bldg at 8³⁰ PM with President Hewett in the chair.</p> <p>There were 30 persons present.</p> <p>The minutes of the last meeting were read and approved.</p> <p>The Executive Committee reported an arrangement concluded with Mrs. B. F. House of Denver for its placing and exhibiting of her valuable mineral collection in the Society's rooms for the period of two years. The collection is comprised in three cases and is now installed</p> <p>The Executive Committee also reported the election of the following gentlemen to active membership in the Society: Mr. G. Fallis, Denver, August Motley, Denver – L.C. Hansen[?], Amos Slater, Arthur R. Hodgson, Jno C. Kingley and Geo. B. Clark, all of Denver.</p> <p>The unfinished business of last meeting was the question of the appointment of a committee to investigate for the Society the relative value of the volumetric and the fire assay methods for the determination of lead in ores as compared with the gravimetric methods as a standard. The subject was discussed upon the lines of using for this purpose characteristic roes as presenting prevailing types of occurrences in the shipment and sale of lead ores.</p> <p>Dr. Johnson moved that a committee of seven be appointed by the</p>

<p>p. 219 Also bad copy</p>	<p>President and instructed to collect data and determine upon the best volumetric method for use in the determination of lead in ores.</p> <p>The President appointed the following Committee: C.S. Palmer, Richard Pearce, Philip Argall, W.F. Hillebrand, E.C. Woodward, A. W. Warwick, Henry E. Wood and Edwin N. Hawkins.</p> <p>The first paper of the evening was upon "the Development of Pseudomorphs" by Horace B. Patton of Golden. The subject was fully illustrated by handsome specimens showing all forms of pseudomorphism whether the changed was effect by loss of substance, by addition of substance or by chemical action of interchange.</p> <p>The second paper was by W.F. Edwards on the subject of "Refractometers and Some of their uses in Analytical Chemistry."</p> <p>Upon motion a vote of thanks was extended to Mr. Wuensch for his presentation to the Society of a section of the Arizpe meteorite.</p> <p>The meeting adjourned at 10³⁰PM.</p>
	<p>This agreement entered into by and between Mrs. B. F. House, 2445 California St., Denver, Colorado, and The Colorado Scientific Society of Denver, Colorado, this 22nd day of April, 1903, to wit:</p> <p>Mrs. B. F. House is to place her collection of minerals, which occupies three substantial oak cases, in the rooms of the Colorado Scientific Society. She is to do this at her own expense. In return for the use of this collection for exhibition purposes the Colorado Scientific Society agrees to store the same until such time as Mrs. House may wish to remove it.</p> <p>The Colorado Scientific Society is not to be responsible in any way for this collection, but the Society will have control and supervision over it and will permit it to be removed by Mrs. House any time after a period of two years from this date and upon proper notification.</p> <p>It is further understood and agreed that Mrs. House is not to pay any charge or storage to the Society while the collection is in the Society's rooms, but in case of removal, such removal is to be at the expense of Mrs. House.</p> <p><i>Agreed to April 22^d 1903.</i> <i>The Colorado Scientific Society</i> <i>By Edwin N. Hawkins Secy</i></p>
<p>p. 220</p>	<p>Edwin N. Hawkins Secretary Denver, Colo., June 6th 1903</p>
	<p>The 196th Regular meeting of the Society was called to order in its rooms at 8³⁰PM with Past Pres. Mr. Charles S. Palmer in the chair- he having been elected chairman pro tempora in the absence of President Hewett and both</p>

p. 221	<p>the 1st and 2nd Vice Prest.</p> <p>There were 31 persons present.</p> <p>The minutes of last meeting were read and approved on motion.</p> <p>The Executive Committee reported the election of the following gentlemen to active membership in the Society – Dr. Carl D. Henry, Pueblo, John E. Norman, Howard C. Parmalee, George Alexander, and Thos. G. Smith, all of Denver, and Frank M. Kurie of Victor Colo.</p> <p>The Committee for the investigation of methods for Commercial determination of Lead reported at length, outlining the plans adopted at its organization meeting. The committee designs to secure some ten or fifteen characteristic ores representing every commercial variety and conduct investigations upon their lead content by gravimetric, volumetric and assay methods asking for this work the assistance and co-operation of the best analysts and assayers in the state. The committee requested suggestions for members of the Society regarding the work to be done.</p> <p>The paper of the evening was then presented “The White Country Granite of West Sugar Loaf or Bald Mountain, Boulder County, Colorado.”. In the absence of the author Mr. Henry, the paper was read by Prof. Geo L. Cannon.</p> <p>Dr. Palmer made some informal remarks upon the paper, stating that it represented one of a series of similar subjects which some of the advanced students at the University of Colorado had prepared or had in preparation when he was with the University.</p> <p>Dr. Palmer spoke of having in his possession some specimens of the occurrence of charcoal at the 600 ft. level of the Doctor Jack Pot Mine, Cripple Creek and promised to present them to the Society. Mr. Finch also spoke of being familiar with this occurrence in this mine. It was proposed to have microscopic as well as chemical examination of the samples made for gold.</p> <p>Mr. Warwick read a short note constituting a response to Dr. Johnston’s correction[?] of the meting April 4th upon the subject of present inaccuracies in the commercial methods for estimating and determining lead in ores.</p> <p>At 10 PM the Society adjourned to the informal enjoyment of a Dutch lunch spread.</p>
p. 222	<p style="text-align: right;">Edwin H. Hawkins Secretary Denver, Colo., July 11th 1903</p>
	<p>The 197th Regular meeting of the Society was held at its room in the 3rd floor of the Commerce Bld and was called to order at 800 PM with President Hewett in the Chair. There were 37 persons present.</p> <p>Upon reading and after motion the minutes of its last meeting were read and approved.</p> <p>The Executive Committee reported the election to active membership of the following gentlemen: Robt. F. McElhenny, Arthur R. Curtis, J.P. Loftus, Geo. H. Evans, A. L. Fellows, and W^m P. Headden.</p> <p>Mr. C. S. Palmer reported that the last two numbers of the Mining Reporter contained abstracts</p> <p>Mr. Palmer also reported for the Lead Committee that it had made</p>

<p>p. 223 No signature</p>	<p>substantial progress in securing some of the necessary samples and types of ores essential to the proper prosecution of the investigations it is deemed the Committee should endeavor to conduct.</p> <p>Mr. A. B. Frenzel graciously offered to confer under the Society's care and management as well as award a prize of \$250⁰⁰ to be given to any student who during the coming 12 months submitted for publication the best paper or essay upon the subject of investigations into the rare minerals.</p> <p>After discussion and upon motion the matter was referred to the Executive Committee.</p>
<p>p. 224</p>	<p style="text-align: right;">Denver Colo Aug 1st 1903</p>
<p>p. 225</p>	<p>The 198th regular meeting of the Society was held in its rooms in the Chamber of Commerce Bldg at 8³⁰ PM with 2nd Vice Prest. A.G. Brownlee in the chair – President Hewett and 1st Vice Pres Lee being absent. There were 26 person present.</p> <p>The Secretary was also unavoidably absent and upon appointment to the Chair Mr. T. L. Wilkinson occupied the desk.</p> <p>The minutes of the last meeting were read and approved upon motion.</p> <p>The Executive Committee announced the Election to active membership of the following gentlemen: E.K. Buttolph, Denver – Russel B. Paul, Denver-Geo. W. Schneider, Denver.</p> <p>The Lead committee reported considerable difficulty in securing proper samples of ore desired for the investigation of the committee but announced progress though slow.</p> <p>The mater of the prize offered by Mr. Frenzel for the best original work upon rare minerals during the year was reported by the Executive Committee as held in abeyance until Pres Hewett could be present.</p> <p>Mr. Wilkinson made the following statement as to the recent gifts to the Library – as follows: 130 Bound volumes rec'd from Gen^l. Wm. J. Palmer as part of his gift of Bindings of the Proceedings of Society , Encyclopedia Britannica in full presented by Col. A. G. Brownlee, "Century Declaning[?] last edition, bound in half numbers, presented by Col. Brownlee, Proceedings of the American Ass'n for the Advancement of Science 1884-1896 inc. and The Physical Review, several volumes, all by Mr. W.F. Edwards. Transactions of the Federated Institution of Mining Engineers Vols 8-15 Bound – Vol. 16-19 inc. unbound – and parts of vols. 20-22 and 23 unbound, all by Mr. Amos Slater. Mr. W.F .Mill of the Mining Reporter generously offered to bind all the files of the Mining Reporter – which offer the Librarian accepted.</p> <p>Quarterly Journal of the Geological Society, of London recently presented and the Report of the Juries of Award for the Exhibition of 1862 – and the Mineral Industry 1893 all by E. Le Neve Foster.</p> <p>For the Librarian Mr. Wilkinson stated that the files of the Society would now be complete as to some of the above publications and he expressed the hope that the prolue[?] such books were to the Library might act as an incentive to the continuance of such valuable contributions to the Society's library. And upon motion the Secretary was instructed to individually thank the kind contributors in behalf of the Society for the various gifts.</p>

p. 226	<p>The papers of the Evening were then presented: "The Contact Quaquaversals of Nevada," by Mr. Chester W. Purington and "Notes on the Santa Eulalia Mining District of Chihuahua" Mr. Philip Argall.</p> <p>The first paper was discussed at some length by Mr. Argall, who had been over the country described by Mr. Purington. Mr. Geo E. Collins also discussed the paper.</p> <p>In discussion of Mr. Argall's paper the author replied in detail to Dr. Palmer's query as to why the Santa Eulalia mineralization had come from below rather than above.</p> <p>Mr. White explained that caves that were similar in character were found in the Leadville Mining District.</p> <p>Mr. Purington also gave his experiences with such caves.</p> <p>Mr. Comstock stated that these two papers were among the very best and most interesting the Society has listened to for a long time and proffered upon motion a vote of thanks to each of the gentlemen who read the papers.</p> <p>Dr. Palmer showed the specimen of charcoal taken from the 600 ft. level in the Doctor Jack Pot mine at Cripple Creek. He also exhibited a specimen of monazite sand and gave a short talk regarding its usual occurrence.</p> <p>Mr. Purington followed with his acquaintances with monazite sands found in North Carolina.</p> <p>Upon motion the meeting adjourned at 10¹⁵ PM.</p>
	T.L. Wilkinson, Sec'y Pro tempore
p. 227	Denver Colo Sept 5 th 1903
First award for excellence in papers	<p>The 199th regular meeting of the Colorado Sci Society was called to order at 8³⁰ PM with 2nd Vice President A.G. Brownlee in the chair.</p> <p>There were 26 persons present.</p> <p>The records of the last meeting were read and approved.</p> <p>The Executive Committee by Mr. C.W. Comstock reported that upon the subject of the Prize offered by Mr. A.B. Frenzel for the best paper upon the rare minerals, the committee had decided it best not to further await the attendance of President Hewett, and recommended that the Society appoint Messrs. W.F. Edwards, Dr. W^m. P. Headden, and Prof. H.B. Patton to act as a Committee for the award of the Prize. Upon motion of Mr. Argall the Society expressed its approval of the recommendation of the Executive Committee and the Chairman appointed these gentlemen forthwith.</p> <p>The Lead Committee reported considerable further progress in the work of collecting the desired large ore samples for preparation and distribution to the various analysts and assayers throughout the state; and that work of this sort was found to be necessarily slow but should be thoroughly done before any distribution is attempted.</p> <p>Mr. Wilkinson read a communication from Mr. E.C Van Diest upon the subject of the library of his father, the late P.H. van Diest, and offered in the name of his father the gift to the society of 187 volumes from the collection; and Mr. Wilkinson stated the gift would now be added to the Library.</p> <p>Mr. Wilkinson also said he had been able to obtain for the Society a photograph of the late H.A. Vezin and several other mementos of Mr. Vezin. It</p>
p. 228	

p. 229	<p>was also stated to be the intention of the Executive Committee to secure for this Society's rooms photographs of all our Charter members.</p> <p>Mr. T.E. Schwarz presented the Society with two handsome specimens of mica about 10 inches in diameter collected some 10 miles west of Boulder in the South Side of Left Hand Creek, and accompanied the gift by a descriptive paper on the specimens, giving his observation. On motion the Secretary was instructed to thank Mr. Schwarz and the communication was referred to the Publications Committee.</p> <p>Mr. Comstock reported that Mr. Geo. B. Clark had presented to the collection a sample of natural coke.</p> <p>The first paper of the evening was then presented by Mr. Geo L. Cannon on "The Fossil Woods of the Platte River valley" – and illustrated his address by a large number of specimens from his own collection.</p> <p>Mr. W.F. Edwards asked has any theory been suggested to account for the non-occurrence of fossilized wood of softer quality or bark- to which Mr. Cannon replied that in River or Estuary occurrence the softer portions of the wood such as the bark was naturally eroded or rubbed off.</p> <p>Mr. Finch spoke of the finding of fossilized wood in some of the Cripple Creek mines and said he would be glad to hand them to Mr. Cannon for Examination.</p> <p>Mr. Argall offered to contribute to the Society's collection a specimen of fossilized wood from the 120 ft level of the Bassick mine of Querida, Colorado.</p> <p>Dr. W^m P. Headden read the second paper of the evening, "Mineralogical Notes," collected from a study of samples of tellurium and some tellurides from the Good Hope Mine, Vulcan, Gunnison Co., Colorado – and from vein occurrences in the Valley Forge Mine of Boulder Co., Colorado.</p> <p>Upon motion the Society tendered its hearty thanks to Mr. Cannon and Dr. Headden for their interesting papers.</p> <p>Mr. Moore asked whether Dr. Headden intended leaving in the Society's collections any of the tellurium specimens he referred to in his elaborate analyses and Dr. Headden replied that he had only these single specimens except one duplicate and needed them for further use.</p> <p>On motion the meeting adjourned at 10⁴⁵ PM.</p>
p. 230 paper pasted over page	<p style="text-align: right;">Edwin N. Hawkins, Secretary. Denver Colo Oct 3rd 1903</p>
The handwriting is not Hawkins', which was gradually deteriorating	<p>The 200th regular meeting was called to order at 8:30 P.M. with President G.C. Hewitt in the chair. There were 44 persons present.</p> <p>The minutes of the last meeting were read and, with slight correction, were approved.</p> <p>The Executive Committee reported the election of the following gentlemen to membership:-</p> <p>To active membership, All of Denver W.G. Swartz</p>

<p>p. 231 Written minutes pasted over page</p>	<p>Walter C. Brace Henry P. Lowe Jesse C. Scobey F. E. Traphagen, of Golden, Active membership Victor C. Alderson of Golden, “ “ Both of Denver, Associate members Wm. E. Humphreys George S. Clason</p> <p>The lead committee reported having secured eight or ten shipments of ores representing various types and percentages. These shipments have been sent for crushing and preparation for mailing. The committee has had some difficulty in security the variety desired, but it confident ti will very soon have all the shipments ready for distribution.</p> <p>Mr. Wilkinson reported the receipt of the large contribution from the library of the late P.H. van Diest, presented by Mr. E.C. Van Diest; and upon motion, the Secretary was requested to communicate the Society’s thanks to Mr. van Diest for this contribution to the Library.</p> <p>Mr. Wilkinson also reported the loan to the Society’s library by Mr. E. Le Neve Foster of the full file of the transactions of the American Institute of Mining Engineers. On motion the Secretary was requested to thank Mr. Foster for his valuable loan.</p> <p>Mr. W.F. R. Mills’s contribution of bound volumes of “The Mining Reporter” was also announced as received, and upon motion the Secretary was instructed to communicate the formal thanks of the Society for the gift.</p> <p>Mr. Comstock called the Society’s attention t the handsome gift of 2 large pieces of gold quartz from the Smuggler Union, which were presented long ago by Mr. John A. Porter; and he read some notes upon the calculated value of the specimens. The rates were prepared by Mr. A. R. Hodgson of the United States Mint, showing a rough estimate of their value based on specific gravity to be \$2500.00.</p> <p>Mr. Collins suggested that the value of Smuggler Union free gold is about \$15.00 per ounce or less, and stated that he might be able to enlighten the Society in regard to the probable value of these handsome specimens. Mr. Comstock stated that these specimens would probably go to the St. Louis Exposition.</p> <p>The President addressed the Society upon the subject of the Society’s growth, history, and sphere of usefulness in the State of Colorado. He stated that the Society now had a membership of 173, the largest in its history, and that activity of the members promised a large increase yet before the end of the year.</p> <p>Reminiscent talks of the charter members and their work for the society were given by Mr. Regis Chauvenet, Dr. Headdon, Professor Cannon, and Mr. Wuensch.</p> <p>The Society adjourned to the enjoyment of a social lunch served in the rooms.</p> <p>Signed Edwin N Hawkins, Secretary. Approved, Nov. 7, 03, AWW</p>
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p. 232 Back to Hawkins' handwriting	Denver, Colo. Nov. 7 th 1903
p. 233	<p>The 201st regular meeting of the Society was called to order in the rooms at 8³⁰ PM with Vice President H.A. Lee in the chair.</p> <p>There were 27 members present.</p> <p>The minutes of the preceding meeting were read and approved.</p> <p>The Executive Committee reported the Election of the following gentlemen to active membership: Wilber E. Adams, Denver, and E. M. Sprague, Denver.</p> <p>Mr. Wilkinson reported that upwards of 1250 volumes, chiefly transaction of societies had been bound and received from the Printer as a first installment of Gen'l Palmer's liberal gift to the Society.</p> <p>The paper of the evening was then read by Mr. W.E. Humphreys, subject "Mine Accounting." This paper is the first of these papers Mr. Humphreys intends presenting to the Society, the Succeeding ones to be in Mill and Smelter accounting. The paper was closely followed by members present and was discussed informally by Messrs. Lee, Collins, Schneider and Johnston.</p> <p>Mr. H. A. Lee announced that he had made some informal notes on the subject of bad air in mines, especially with reference to gases containing a large excess of nitrogen. He requested the members present to look the matter up with the idea of discussing the subject at the next meeting, at when time he promised to present it.</p> <p>After a vote of thanks from the Society to Mr. Humphreys for his admirable paper the Society adjourned at 9⁵⁰ PM</p>
	Edwin N. Hawkins Secretary
p. 234	Denver, Colo Dec 5 th 1903
Pages pasted in book a top page numbers	<p>The 202nd Regular meeting of the Society was called to order at 8 PM with first Vice President Lee in the chair.</p> <p>There were 36 persons present.</p> <p>The minutes of the last regular meeting were read and on motion approved.</p> <p>Upon motion the consideration of business before the Society was postponed until the conclusion of the presentations of the two papers arranged.</p> <p>Mr. George E. Collins consented to read Mr. W. H. Davis paper upon "The Case of Cyanide Solutions."</p> <p>Considerations affecting chiefly the strength of solutions and determinations of alkalinity were presented. The paper was followed by a contribution by</p> <p>Mr. Jesse Scobey on "the Economy of Mill Water," who gave the result of his experience in the operations of a Wilfley Concentration Plant situated near Washington, Ariz. The problem was one of careful handling of a limited water supply. Mr. Scobey's presentation of his experience was quite clear and demonstrated the operation of nine Wilfley Concentrating Tables with a Total circulating water supply of 216,000 gallowes showing a daily loss of three per</p>

<p>p. 235</p>	<p>cent in all direction including the production and shipment of those products of concentrates. The features presented were the removal of water from the sands by a drag inclined away from the slimes by a syphen of water overflow discharging separately from the inlet of the slimes and water.</p> <p>The minutes of the last meeting were then read and approved.</p> <p>The Executive Committee had no report to present.</p> <p>The Lead committee reported only small progress, owing to the absence from the city of the Secretary of the Committee in whose charge was given the handling and preparation of the samples to be submitted to the investigators.</p> <p>Upon Mr. Wilkinson's motion the Secretary was instructed to extend the thanks of the Society to Mr. Crawford Hill and to Mr. Geo E. Collins for portraits presented to the Society of two of our deceased members Nathaniel P. Hill and Arthur L. Collins.</p> <p>Mr. Frenzell reported to the Society that upon a recent visit East he had the pleasure of meeting Dr. M.J. Hammer, who is a very high authority in this country upon the subject of radioactivity. After conversation with him he decided to present to the Society a plan by which Dr. Hammer could be induced to give a popular lecture in this city under the auspices of the Society upon this extremely interesting subject. Mr. Frenzel outlined his plan for taking up the matter and stated that the whole project could be carried out at an expense of \$500⁰⁰. of the amount Mr. Frenzel generously proposed to contribute one-fifth for the benefit of members of the Society, with the additional proposal that the Society should secure subscriptions sufficient to defray the balance of the expense.</p> <p>The Chairman referred Mr. Frenzel's proposal and plan to the Executive Committee for consideration and action.</p> <p>Upon motion the chair appointed Messrs. Wilkinson Johnston and Hawkins a committee to nominate officers for the ensuing year and an executive committee to serve during the same period, with the understanding that members of the Society should be at liberty to substitute on the ballot the names of any others than those proposed by the nominating committee.</p> <p>Messrs. Lee and Finch introduced Prof. R.D. George of Boulder to the Society.</p>
<p>p. 236 – notes pasted over page number</p>	<p>Mr. H.A. Lee then presented some experiences upon the subject of "Gases in Metalliferous Mines," and illustrated his talk by a sketch of the "Nelson Tunnel" and the "Happy Thought" Mine at Creede, Colorado. The bad air encountered seemed to be mainly nitrogen according to the analysis of a sample taken as best it could be at the mine of his observations. The subject was discussed in its specific and general phases by Messrs. Comstock, Collins, Foster, Clerc, Edwards, Argall, Chauvenet, Finch, George, Schneider and Warwick.</p> <p>Mr. Lee stated that he hoped his presentation of this subject would result in its full discussion and serve as a stimulus to the members of the Society for a free expression and statement of experiences on the subject of Noxious Gases in Mines.</p> <p>The nominating Committee after holding a conference presented the</p>

	<p>following names for the various officers of the Society for the year 1904.</p> <p>President – H.A. Lee 1st Vice Pres. A.G. Brownlee 2nd “ “ Philip Argall Treasurer George L. Cannon Secretary Edwin N. Hawkins Corresponding sec & Librarian Amos Slater Executive Committee – Messrs. Cannon, Comstock, Johnston, Edwards and Crossdale. Upon motion the report of the committee was adopted The meeting adjourned at 10⁴⁵ PM.</p>
	Edwin N. Hawkins, Secretary
p. 237	Denver Colo. Dec. 21 st 1903
p. 238	<p>The 21st annual meeting of the Society was held in its rooms in the Chamber of Commerce Bldg this date and called to order by President Hewett at 8 PM.</p> <p>There were 17 members present.</p> <p>The minutes of the last annual meeting Dec 20th 1902 were read and adopted.</p> <p>The President appointed Messrs Wuensch and Livingstone as Tellers to count the ballots cast for officers for the ensuing year. After opening the sealed ballots it was found that 46 ballots were cast and the 46 ballots were in favor of the following candidates.</p> <p>President – Harry .A. Lee 1st Vice Prest A.G. Brownlee 2nd Vice Prest Philip Argall Treasurer George L. Cannon Secretary Edwin N. Hawkins Corresponding sec & Librarian Amos Slater Executive Committee –Geo L. Cannon, Chas W. Comstock, W^m A. Johnston, W.F. Edwards and Stuart Crossdale.</p> <p>The Secretary presented his annual report for the year 1903 showing most gratifying progress in the Society’s history, and a present total membership of 171, divided into 101 Resident, 66 Non-resident, 3 Honorary and 1 Life member. The report also revealed a very large average attendance at the Regular meetings of the Society.</p> <p>Upon motion it was decided to print and publish the Report.</p> <p>The Treasure presented his annual report of the year 1903 showing a healthy state of finances and great promise for the coming year. From the Treasurer’s report it appeared that we would very like have some considerable sums available for the purchase of desired additions to the Library.</p> <p>Upon motion the Treasurer’s Report was ordered printed and distributed.</p> <p>The Corresponding Sec’y and Librarian presented an informal report upon the present state of the Library and collection.</p> <p>Mr. Comstock brought before the meeting the suggestion of Mr. Frenzel</p>

p. 239	<p>that arrangements may be made for having Dr. W^m J. Hammer lecture under the auspices of the Society upon “Radioactive Elements.”</p> <p>The subject was quite fully discussed and it seemed to be the opinion of the members that the Executive Committee should take charge of the matter and defer consideration o the subject until after Jany 1st</p> <p>President Hewett broached the question of modification of the annual dues to be paid by those non-resident members who are too far from the City that they cannot have the advantage of reference to the Society’s Library and Collections.</p> <p>After full discussion of the question it was resolved on motion to Mr. Comstock that the Executive Committee should be asked to examine into the expediency of the practice of the suggestion and report its findings to the Society at its February meeting.</p> <p>Upon motion the Society adjourned at 9³⁰ PM.</p>
	Edwin N. Hawkins Secretary.

1904

p. 240	Denver, Colo. Jan'y 16 th 1904														
p. 241 First public lecture	<p>The 203rd Regular meeting of the Society was called to order at the Society's rooms at 8³⁰ PM with President H.A. Lee in the chair.</p> <p>The minutes of the last regular meeting were read and approved. There were 31 members present.</p> <p>The Executive Committee reported the Election to active membership of the following gentlemen:</p> <table style="margin-left: 40px;"> <tr><td>Max Boehmer</td><td>Denver Colo</td></tr> <tr><td>R.D. George</td><td>Boulder "</td></tr> <tr><td>J.H. Haynes</td><td>Denver "</td></tr> <tr><td>F.B. Hydes</td><td>" "</td></tr> <tr><td>T.D. Kyle</td><td>Leadville "</td></tr> <tr><td>O.O. McReynolds</td><td>Denver "</td></tr> <tr><td>A.C. Watts</td><td>" "</td></tr> </table> <p>The Lead committee reported that the work of collecting proper samples and preparing the same was nearly completed and that they would be ready for distribution as soon as the pulps could be divided and shipping bottles secured.</p> <p>A report was called for from the Executive Committee in the Frenzel proposal of last meeting. Mr. Comstock reported that the Committee had not taken any definite action. He then read a letter from Mr. Hammer and showed circulars illustrating the lectures and then made a motion that the Society take up Mr. Frenzel's proposition and guarantee the remaining \$400⁰⁰ as outlined so that the lecture would be given under the auspices of the Society.</p> <p>A general discussion was participating in by those present and was followed by a vote in favor of the motion. To test the sentiments the President asked what number of tickets could be underwritten by those present. Eighty tickets were voted.</p> <p>Mr. White made formal application to the Society for the use of the mineral collection to add to the State's collection to be exhibited at the St. Louis Exposition. The application was referred to the Executive Committee.</p> <p>Prof. Traphagen then presented his discussion on "Mine Gas" taking the physiological condition of a man when acted upon by deleterious gases and cited his experience at Death Gulch in Cash Creek, Yellowstone National Park.</p> <p>Mr. Edwards followed with his discussion of Mr. Lee's former paper giving a simple means whereby the carbon dioxide could be tested by calcium hydrate solutions, and when more definite results were required the further use of color indicator such as phenolphthalein could be applied.</p> <p>The presence of methane in the Strivesdale Tunnel, England, was used to illustrate the fact that it may be an important factor in all mine gas.</p> <p>Mr. Warwick called the attention of the members to the papers on Mine Gas reported by the Royal Commission of the Transvaal Government, the analysis of which showed the presence of considerable amounts of</p>	Max Boehmer	Denver Colo	R.D. George	Boulder "	J.H. Haynes	Denver "	F.B. Hydes	" "	T.D. Kyle	Leadville "	O.O. McReynolds	Denver "	A.C. Watts	" "
Max Boehmer	Denver Colo														
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J.H. Haynes	Denver "														
F.B. Hydes	" "														
T.D. Kyle	Leadville "														
O.O. McReynolds	Denver "														
A.C. Watts	" "														
p. 242															

	<p>carbon monoxide. He also called attention to the effects produced by the unsanitary condition of mine workings generally.</p> <p>Mr. Mills asked if the Executive Committee had gone into the question of having the Elevator run for the use of the members. Mr. Comstock stated that it would be taken up on a short time.</p> <p>The meeting adjourned at 10³⁰ PM.</p>
	Amos Slater Recording Sec'y & Sec'y Pro Tempore
p. 243	Denver Colo Feby 6 th 1904
p. 244 Mr. Pearce	<p>The 204th regular meeting of the Society was called to order at 8³⁰ PM with Pres. H.A. Lee in the chair. There were 34 persons present.</p> <p>The minutes of the last regular meeting were read and approved.</p> <p>The Executive Committee reported that the subscription for the Hammer lecture on Radio Active Elements were coming in slowly and asked those present to aid in having the coupons sent in, so that the date could be set and the contract with Dr. Hammer definitely arranged.</p> <p>In the absence of the Chairman of the Lead committee, there was no report.</p> <p>Mr. H.C Parmalee then exhibited his radiograph and explained in detail the method of exposure. Plate No 1 was place in a box with the articles to be radiographed, then wrapped with rubber cloth and exposed to a piece of uranium oxide. The yellow ochre did not give good results. The second radiograph was made of pitchblende and showed a chicken wing, nails and a piece of aluminum. This was very clear and showed that a radiograph could be made directly from the mineral.</p> <p>Mr. Traphagen then showed a few plates made by placing pieces of metal in the plates after they had been completely wrapped and left in the dark room for 13 hours; these plates were made apparent[?] the use of an induction coil and were directly opposite to X-ray plates. He then asked if it was possible hat these plates were the same as the radioactive.</p> <p>Mr. Pierce then made a few remarks in connection with Pitchblende – on which subject a paper was read before the Society at the time of the discovery of Pitchblende and is in the Transactions.</p> <p>Mr. Comstock made a suggestion that those who wanted to mineral for radioactivity should call on Mr. R.C. Hills, who had a few minerals of that group and would be glad to investigate further an investigation of that kind.</p> <p>Mr. Schneider mentioned the finding of Pitchblende in Gilpin County, in connection with good gold values.</p> <p>On motion the meeting adjourned at 10 PM.</p>
	Amos Slater, Sec'y Pro Tempore
p. 245	Denver Colo March 5 th 1904
	<p>The 205th Regular meeting of the Society was called to order at 8³⁰ PM with President Harry A. Lee in the chair. There were 24 persons present.</p> <p>The minutes of the last meeting were read and approved.</p> <p>Mr. Lee called the attention of the Society to the absence of a sign either in the front of the building or in the lower hall announcing the</p>

<p>p. 246</p>	<p>existence/location of the Society's rooms.</p> <p>Upon motion of Mr. Wilkinson the Executive Com was instructed to have such a sign being either in the hall on the lower floor or in front of the building.</p> <p>The matter of running the Elevator was reported upon by the Executive Committee and it was stated that it was necessary to await the return to the city of Mr. Doherty of the Denver Gas and Electric Co in the hope of either securing a reduction or having the "readiness to sever" charge canceled.</p> <p>Mr. Lee then asked the Printing Committee if the papers in press could not be issued more promptly as papers read at a meeting were supposed to be in the hands of members the following week, so that discussion could be had at the following meeting.</p> <p>Taking up the membership question Mr. Lee gave notice that at the next meeting he would present an amendment to the By Laws relative to the election of members.</p> <p>Mr. Wilkinson asked for a preliminary report from the Treasurer in the finances of the Hammer lecture which had recently been given under the Society's auspices. The Treasurer Mr. Cannon stated that the Society had cleared approximately \$115.00. Mr. Wilkinson then made a motion that the revenue derived from the lecture be invested in periodicals and books for the Library, and that the chair appoint a committee of four members (of which committee the corresponding Sec'y and Librarian shall be a member), to make selections of such periodicals as may be maintained in future. The motion was carried.</p> <p>Mr. Lee then asked that each member of the Society constitute himself a committee to devise something on the way of an entertainment or lecture of a popular nature to be given by the Society free to the public.</p>
<p>p. 247</p>	<p>Dr. F.R. Carpenter presented the paper of the evening on the subject "New Geology and Vein formation." The paper dealt with the genesis of ore deposits under the new hypothesis of Earth's origin, as formulated by Chamberlin, and set forth at a recent meeting of the Geological Society at St. Louis by Fairchild in a paper entitled "New Geology." The comparison of the elaborate system of underground water, derived from meteoric waters, as required by Van Hise and others is not fully explained by the "old Hypothesis," but can be readily explained if water be one of the original constituents of the Earth . Volcanism and its role in the genesis of deposits was touched upon, and in this series he set forth he brought out six tentative conclusion to form the basis of the new theory.</p> <p>Prof. George of the University of Colorado explained his connection with Prof. Chamberlain when the latter was formulating the "new hypothesis", and how the theory of discovery of matter revolving in a ring was deduced from the Mechanics of the problem, another the other theories did not apparently fulfill the conditions required.</p> <p>Prof. Headden mentioned his own belief in the work of meteoric waters in ore deposition.</p>

	<p>Mr. Brunton said he thought that surface waters explained the deposition of ore material, such as solutions as sulphates and depositing as sulphides, citing a case of direct observation with a microscope in a mine at Aspen.</p> <p>Upon motion at 10³⁰ PM the meeting adjourned.</p>
	Amos Slater, Secy. Pro Tem
p. 248	Denver Colo Apr 2 nd 1904
p. 249	<p>The 206th regular meeting of the Society was called to order at 8³⁰ PM with Pres. Harry A. Lee in the chair. There were 26 members present. The minutes of the last regular meeting were read and approved.</p> <p>The committee on the selection of periodicals for the Library presented the following list – Journal of the Society of Chemical Industry – London; Chemical News – London; Engineering News – London; American Naturalist; Electrical Review; School of Mines Quarterly, Columbia College; Technical Quarterly; Dingler’s Polytechnic Journal; Annals de Chemie & Physics, Paris; and the Quarterly Journal Microscopical Society, London. The Committee reported that these have been selected upon the following basis, 1st Such as would cover to the best advantage the field of the needs of the members, and 2nd such as could be maintained in the future- thus laying the foundation additionally of a reference library.</p> <p>Signed by the Committee – W.F. Edwards, T.L. Wilkinson, E.N. Hawkins, A. Slater.</p> <p>The notice of amendment to the ByLaws of which notice was given by Mr. Lee at the last meeting ,w as announced as not quite ready for report and will be presented at the next meeting.</p> <p>Upon motion of Mr. Parmalee it was decided to print and distribute to the members a new copy of the ByLaws and Amendments.</p> <p>In taking up the discussion of Dr. Carpenter’s paper read at the last meeting, Mr. lee said that he expected to have this meeting for such discussions in order that members could present their views. Mr. C.J. Moore briefly stated that he was not in full accord with the new theory and especially with some of the conclusions drawn by Dr. Carpenter.</p> <p>Mr. Cannon said that he would have be shown the relation of the new theory, for the old one, had, to his mind, but few flaws and quite well explained the presence of the precious and rarer metals.</p> <p>Mr. Loftus called attention to the role of erosion in the deposition of ores, explaining by their being no large deposits of ore in the northern part of the sate where erosion had been at work much longer that in the Southern part or San Juan district, which is geologically much younger.</p> <p>Mr. Moore asked if discussion of this paper could not be left open so as to give other members an oppportunity of presenting their views. The chair decide that this would be satisfactory to all, so the discussion will be continued.</p> <p>The paper for the evening was then presented by Mr. E. Barton-Hack, “Progress of Gold Mining in Kalgoorlie, Western Australia in 1903.” This paper gave in detail the progress made by the different mines during the last</p>

p. 250	<p>year and also gave a general description of this most interesting district. Many maps and blue prints were exhibited so that a clear idea could be gained by methods in use both at the mines and mills.</p> <p>In the discussion Mr. Bonnevie suggested that many points could be gained from a study of the practice of some of these foreign mills, further that he thought the practice at Cripple Creek in cyaniding could be improved upon and hoped American practice continue improving until the best was attained.</p> <p>Upon motion at 10⁴⁵ PM the meeting adjourned.</p>
	Amos Slater Sec'y Pro Tempore
	Denver Colo May 7 th 1904
p. 251	<p>The 207th regular meeting of the Society was called to order at 8³⁰ PM with 2nd Vice Pres Argall in the chair.</p> <p>There were 26 members present. The minutes of the last meeting were read and approved.</p> <p>The Executive Committee reported the election to active membership of Mark G. Evans, Denver.</p> <p>The Sec'y reported that in pursuance of the pleasure of the Society as expressed at the last meeting they had been prepared a resume of the ByLaws of the Society and amendments made thereto since 1894, with the object of their being published. The Secretary also read a Communication from the Secy' of Sate announcing that the Charter of the Col. Scientific Society is perpetual.</p> <p>In discussion of Dr. Carpenter's paper on New Geology, Messrs. Finch, Moore and Lakes expressed some opinions upon the new theory as affecting certain observations in Cripple Creek. The discussion of this subject was continued.</p> <p>Mr. W. F. Edwards then presented the paper of the evening – "Some notes on Vanadium," which he called a compilation of many of the important and interesting facts on the subject and stated that it was a desire to collect data relative to this rather rare element which prompted the paper. Mr. Edwards include dint he data a recital of the main chemical reactions of vanadium as they occur in the various group tests.</p> <p>Prof. Lakes asked Mr. Edwards if he knew the location of any considerable occurrence of vanadium in this and adjoining states, to which Mr. Edwards responded that in his professional experience he know of many lots of small and large quantities brought for investigation chiefly under the impression that they contained radium, and that their content in vanadium varies from a few percent up – usually running about 4%, and the occurrence being chiefly in sandstone.</p> <p>Mr. Comstock spoke of a sample of such sandstone in the possession of the Society – but stated it had been temporarily misplaced. Mr. Moore spoke of a like occurrence in sandstone, the sample having come from South Park, Colo.</p>
p. 252	<p>Messrs Slater and Brace related their experiences; the former detailing observations made in the Mammoth Mine of Arizona; and the latter</p>

	<p>spoke of the occurrence of this material near Placerville, Colo.</p> <p>Dr. Fleck of Golden spoke of some personal experiences in the occurrence of vanadium in Carnotite as found in S.W. Colorado and referred to the difficulty of separating Uranium oxide from the vanadium oxide, as a bar to commercial success being attained. He also referred to flattering offers having been made by some German Iron Manufacturers which are intended to stimulate the search for vanadium.</p> <p>Mr. Cannon spoke of the discovery of an uranium compound in the Laramie sandstones, discovered years ago and published first in the Proceedings of the Philadelphia Academy of Natural Science. Mr. Cannon's comment was that the material may have been vanadium.</p> <p>Mr. Finch asked if vanadium had been found in the ash of any American coals, stating that it had been already found in Welsh coal ash.</p> <p>The matter of loaning books from the Library to members was on motion referred to the Executive Committee for action as soon as the Library is completely catalogued.</p> <p>Mr. Slater responded to the gift to the Library of the Society by Mr. Clerc of 52 numbers of the Engineering and Mining Journal of various dates and was asked to convey to Mr. Clerc the Society's thanks for the gift.</p> <p>Upon motion the Society adjourned at 10 P.M.</p>
	Edwin N. Hawkins, Secretary
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