

to the property it will undoubtedly be one of the largest producers in the district.

There are also many thousands of tons of almost pure gypsum, which can be shipped and will be a source of much revenue to the company.

Part of the Nevada Douglas and Yerington Central may be grouped under this second class of ore deposits. They have not been sufficiently developed to determine the true character of their ore bodies, but it is not improbable that, with depth, they will show the same characteristics as the Ludwig.

Ore Deposits of the Third Class.

The deposits of the third class include those previously mentioned under this heading and none have been sufficiently developed to be called other than prospects. They are characterized by the development of chalcopyrite and pyrite in zones of fissuring cutting the granodiorite. In a number of them there has been some filling of open spaces, and, in others, the sulphides have developed within the rock alongside.

When there has been filling of open spaces, the workings show the ores to be chrysocolla, malachite, azurite, melachonite, bornite and covellite. Mineralization has usually worked metasomatically outward from the contact between the dikes and enclosing walls, which produced low grade sulphide deposits. These have been enriched to some extent by downward working waters. The deposits are believed to represent a stage of mineralization a little later than those of the first and second classes. The economic importance of the deposits of the third class is still unproved. There is every reason to believe, however, that there will be developed some large bodies of low grade ore which can be economically mined.

The third class deposits have also been formed by ascending hot waters, working their way along crevices and fissures, and into the country rock forming the walls, replacing it with ore. The deposition has always taken place along the walls of the channel through which the water passed, and, after filling them, the solutions have eaten their way into the wall rocks and there replaced them.

Ore Deposits of the Fourth Class.

The ore deposits of this class differ from those already mentioned, in that they contain considerable amounts of gold and silver, along with copper, lead and zinc. They occur almost entirely on the Buckskin side of Smith Valley, which is situated on the western slope of a spur from the Pine Nut Range, about $4\frac{1}{2}$ miles west of the Ludwig mine.

The formation is composed essentially of andesites, rhyolites, porphyries and some diorites. Several large bodies of limonite and hematite crop along the foot of the range.

The Kennedy Consolidated is the largest and most developed mine on this side. It was discovered in March, 1906, by a prospector named Kennedy, who located the property and started the townsite, which he named Buckskin, after his buckskin pony.

A number of prospect shafts, from 50 to 200 feet deep have been put down, and those which have reached a depth of 100 feet or more encountered considerable water.

The ore occurs as a metasomatic replacement deposit in an altered andesite. The ore bearing minerals are pyrite, and sulphides of copper, silver, lead and zinc, in a gangue of quartz, gypsum, chlorite and epidote.

The veins are propylitic in type, in that the whole body in which the ore occurs is metasomatically altered. The zone of oxidation is very shallow here as the primary minerals are formed at water level, within 100 feet of the surface. They even come to the surface in places.

The deposit of the Kennedy Consolidated mine has a northerly and southerly trend. There has not been enough development work to show the limits of the ore. Several shafts were put down along the general trend of the ore body and have exposed it for at least a mile in length. Drifts from the main shaft of the Kennedy Consolidated show the body to be at that point, over 100 feet wide. The ore will run about $3\frac{1}{2}$ per cent. copper, with about \$2.00 per ton in gold and silver. The lead and zinc occur in small bunches disseminated through the deposits, and are not of much economic importance. It is an excellent ore to concentrate.

The croppings are considerably leached and altered and contain in places much free gold. There has been very little secondary concentration, due to the shallow depth to which oxidization has taken place.

With development large bodies of low grade ore should be exposed, which will be profitable to mine. The natural conditions are very favorable. There is plenty of wood and water within easy access, an electric power transmission line within a short distance, supplies are reasonable, the altitude and climate good, and a railroad now being built within a few miles of Buckskin.

The ore has been deposited from solution by ascending hot waters. There are many small cross veins which run into the main body at nearly right angles to its trend. Some of these are mineralized and some are not.

Conclusion.

The general character of the ore bodies of the district is that of large low grade replacement deposits. As their origin is due to ascending hot waters, they should continue to great depths. They cannot, however, be expected to get richer with depth, but on the contrary, leaner, as the primary ores come so near the surface.

The COLORADO SCHOOL OF MINES MAGAZINE

Published monthly during the college year (nine months), at Golden, Colo., by the Alumni Association of the Colorado School of Mines.

JAY LONERGAN, '05, Editor and Manager.

Subscription price, \$1.25 per annum.

Single copies, 25 cents

Advertising rates on application to the Manager.

Address all communications to Jay Lonergan, Golden, Colo.

Vol. I.

GOLDEN, COLO., JANUARY, 1911

No. 4

Editorial

When, at the beginning of the present school year, the Alumni Association employed an Assistant Secretary, it was the intention that he should place the previously established Capability Exchange on such a basis that it would be of more benefit to the graduates and undergraduates than it has been in the past. After a trial period of four months, in which the service was gratis, it has been found necessary to secure funds to carry on the work of the department properly. The income from the annual dues, paid by the members of the Association, is just sufficient to pay the general running expenses of the Association, so it is only fair that those who benefit by securing positions through the Exchange should stand this extra expense by the payment of a reasonable commission.

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Athletic News.

BASKETBALL PROSPECTS.

Golden, Colo., Dec. 19.—With the first three weeks of practice over, the basketball outlook at the Mines seems brighter than ever. Despite the fact that there are four men left from last year's champions, a squad of thirty men has turned out regularly for practice. This is the largest squad that has ever reported for the winter sport, and it includes many players who will make the veterans hustle if they wish to hold the positions which they played last year.

The old men on the squad are Kissock, captain; Woolf, last year's captain and star quarterback of this year's football team; Davis and Litchfield. Gilbert, who has left school, is the only man missing.

Woolf and Kissock were both picked for last year's All-Colorado team.

Among the other men who have reported are Place, Thomas and Rockwood, subs on the 1909-10 team, and Tolman, Burns and Harper of the freshman class. A great deal is expected of Tolman, who was captain of the Arctic Brotherhood team, champions of Alaska. This team made an extensive tour of the country a couple of years ago, winning 25 per cent. of their games and beating the best team the Miners ever turned out. Burns and Harper have also shown very promising form.

Although the schedule will not be positively known till after the next conference meeting, the following games will very likely be included. There will be eight intercollegiate contests, two each with Boulder, Aggies, Denver and Wyoming. It is also possible that the University of Utah will be met in Golden. It is almost positive that the Boulder dates will be January 20 and February 17. The first game will be in Golden preceding a school dance given on that night. Owing to this a very large crowd is expected to be present. Shortly after the holidays the team will make a trip north to play the Cheyenne Athletic club and Wyoming teams.

The students feel confident that this year's team will bring the Mines its seventh consecutive championship, and their only

College Notes.

FRESHMAN BALL A BRILLIANT AFFAIR

"The best ever" is the general verdict of the Freshman ball given December 9 in Guggenheim hall of the Colorado School of Mines. To merit this verdict it was necessary for the young men of the class of 1914 to "go some," as there have been some particularly brilliant affairs of the kind in late years. The attendance was all

regret is that there has been no trophy offered for the winner.—Denver Post.

THE FOOTBALL SITUATION.

Golden, Colo., Dec. 15.—The selection of Ted Stuart to coach the Mines football team again next year is causing considerable comment. On this account a special meeting of the athletic board of the school will be called within the next few days and some further action may be taken. New student members have been elected to the board and will assume their duties January 1. The following men have been elected: DeLaith, McGuire and R. May.

There has been more interest in this election than usual and close contests for the positions has been the result. It is not improbable that the trustees of the school will take a hand in the athletic situation before long, although they dislike to interfere in these affairs. The results for the past three football seasons have been very unsatisfactory and a change must be brought about in some way. The rule prohibiting first year men from football is especially disliked by the Miners.

The Colorado conference is on its good behavior so far as its existence is concerned, at least in connection with the School of Mines. According to reports, this feeling is not confined to the Miners alone. The actions of the conference during the past two years are considered very inefficient.

A committee has been appointed by the conference to change its rules. One rule is threatened to be changed so as to read "that a man may be protested and removed from participation in athletics at any time if found clearly ineligible" without the two weeks' notice now necessary.

As the rule stands a man may participate in a game even if sufficient evidence is on hand proving him ineligible unless notice has been given of the protest two weeks before the contest. It was over this rule that the trouble about Sinton started.—Rocky Mountain News.

that could be desired, and included the beautiful, the accomplished, the faultlessly attired, the social favorites of many cities.

The decorations were by Daniels & Fisher, who provided a scheme quite out of the ordinary, and which excited the admiration of all. It consisted of Southern smilax, with mammoth California poinsettias and red carnations, arranged in an effective and tasty manner. Doubtless it

was the finest piece of work of the kind ever seen in the hall.

In the receiving line were Dr. J. P. Kelly, president of the board of trustees, and Mrs. Kelly; Dr. Victor C. Alderson, president of the School of Mines, and Mrs. Alderson; Crit. C. Tolman, president of the class of 1914, and Miss Marion Crocker of Denver. Dancing commenced at 9:30, led by President Tolman and Miss Crocker, with inspiring music by Lohmann's orchestra of ten pieces, partially concealed behind a huge bank of smilax and ferns, and continued until 4 o'clock.

Officers of the Freshman class, who are largely responsible for the unqualified success of the ball, are Crit. C. Tolman, president; Stanton E. Winston, vice president; Russell P. Luke, secretary; Frank L. Pittman, treasurer.

At all the fraternity houses, and at many Golden homes, large house parties were entertained, so the festivities lasted throughout Saturday, and in some cases over Sunday. There were a number of coaching parties and excursions to Lookout Mountain, Castle Rock, Morrison, and other points of particular interest in the vicinity.—Golden Transcript.

Y. M. C. A. NOTES.

Religious Meetings.

The last four meetings of the Association have been led by students, and devoted to the discussion of questions that are of particular interest to college men. The last meeting before the Christmas vacation, however, was a Christmas meeting.

November 29: R. V. Thurston, '11, chose as the subject for the evening, "The Crooked Student." Crookedness in the class room was the one phase of the topic, which received the greatest amount of attention. It was the consensus of opinion, strongly expressed, that there was entirely too much "cribbing" in school, and that something should be done to stop this practice. The "Honor System" was suggested as the only known remedy, and was discussed by members of the two upper classes and by a representative member of the Faculty. The subject will be brought up for special discussion at one of the next student meetings in January, and it is hoped that many men will come prepared to defend or attack the system as it is in effect in other schools and colleges.

Frank B. Harris, '12, chose "The Second Mile," as the subject for the evening of December 6th. The idea of unselfish service was the predominant note in this meeting and it was treated from several sides, as affecting the man in school, in business,

in politics, and in society. Earnest thought showed many of the men that they were not living up to the standard of this teaching in Christianity—that of doing more than is asked of them. It was a very interesting and helpful evening.

The next week the topic was "Excuses," and E. M. Field was the leader of the discussion. He spoke of the many so-called reasons given for not taking an active part in Christian activities in church and school, paying particular attention to those advanced in this school. After he had finished his remarks several other men spoke briefly of the things they had heard advanced as excuses for not doing work in this organization. After all was said, however, there were not more than two valid excuses remaining.

"Lest We Forget" was the subject of the Christmas meeting held on December 20th and led by V. C. Robbins, '12. This evening was spent in talking about the ways in which we spend this greatest of holidays, and comparing them with the way in which we should spend the day. The interest manifested was very encouraging, and many of the twenty-two men present took an active part in the meeting.

The Kellogg-Haines Singing Party.

The second number of the Entertainment Course was given on the evening of December 2d, in Guggenheim hall, before a large and appreciative audience. The concert was one continuous surprise, the program being so delightfully varied, the numbers so tastefully chosen and unusually well rendered, that everyone present was more than satisfied when the closing number was given. That we had with us, for that evening, a group of artists, was admitted by all who were present.

The work of the mixed quartette was even better than was expected, although the exchanges all spoke very highly of their ability, and we were expecting a great deal from them. Very seldom is it possible to get four voices that harmonize so perfectly as do the voices of this company of singers.

Individually it is hard to tell where the greatest praise belongs, but Alice M. Monchieff, contralto, and William A. Goldberg, baritone, gave great exhibitions of their talent in solo work. The scene from the opera, "Martha," given in closing, gave both the soprano and the tenor, Miss Fahlen and Mr. Eichenberger, an opportunity to show their ability. The accompanist, Mr. William J. Breach, is a finished pianist and also a splendid singer. It is not saying too much when we give this company the credit of being the best we have had in Golden in many years.

The Alumni.

PERSONALS.

'99.

Andrew Weiss has for the past month been very sick at his home in Denver. He is recovering rapidly and will soon return to Mitchell, Nebraska, where he has charge of the North Platte project for the Government.

'00.

Lloyd Robey is superintendent of the mill for the Rosario Honduras Mining Company at San Juancito, Honduras.

'01.

Walter Burlingame is recovering from a broken arm, received some time ago in an automobile wreck, near Golden.

'03.

Walter A. Funk has moved from Central City, Colo., to Idaho Falls, Idaho, where he will still follow general mining engineering work, as in the past.

'04.

H. J. Wallace has left the employ of the International Smelting Company, of Tooele, Utah, and is now superintendent of construction for the Mason Valley Mines Company, Wabuska, Nevada. The latter company is building a thousand-ton smeltery, on which work is progressing rapidly.

Stephen L. Goodale is professor of Metallurgy and Ore Dressing at University of Pittsburgh, Pittsburgh, Pa.

'05.

Richard L. Grider is now assayer and chemist for the Vanadium Mines Company, Cutter, New Mexico.

Robert McCart has been promoted from assistant manager to manager of the Inde Gold Mining Company, Inde, Durango, Mexico.

'06.

William Dow, engineer for the Eden Land and Irrigation Company, of Eden, Wyoming, has returned to Denver for the winter.

C. N. Bell has been conducting an examination and survey of the Morehead and Liberty Bell mines at Telluride, Colo.

'07.

Charles H. Zulch was badly hurt in a mine cave-in at Seven Troughs, Nevada, where he has been operating a lease. He was covered by about a ton of rock and badly bruised, but was fortunate in not having any bones broken or sustaining internal injuries.

'08.

H. J. Boyd is resident engineer at the Camp Bird mine, Ouray, Colo.

Russel R. Bryan has left the employ of the Primos Chemical Company, at Newmire, Colo., due to the suspension of operations, and is now in Denver doing general engineering work.

'09.

T. J. Benjouskey is foreman for the Yukon Tunnel Company, Silverton, Colo.

William A. Wasley was in Golden the latter part of November on his vacation. He is with the Garfield Smelting Company, Garfield, Utah.

'10.

John W. Whitehurst has left the Garfield Smelting Plant and is now surveyer for the Vanadium Mines Company, Cutter, New Mexico.

Bert Latimer is assistant superintendent of the San Francisco mine, Llera Tamps, Mexico.

Donald McKay has been transferred from Valardena, Mexico, to Matehula, San Luis Potosi, Mexico. He is in the employ of the American Smelters Securities Company.

Vincent K. Jones was married in Trinidad, Colo., December 14, to Miss Florence Helen Williams, formerly of Denver.

O. W. Swainson, who is with the United States Coast and Geodetic Survey, with headquarters at Seattle, Wash., was called to Denver to attend the funeral of his father, December 12.

Frank B. Young, of the class of '95, died July 9, 1910, at his home in Lindsey, California.

ALUMNI MEETING

The Executive Committee of the Alumni Association met in the office of F. S. Titsworth on December 12. The officers present were F. S. Titsworth, president; Arthur Hodgson, secretary; F. C. Steinhauser, treasurer; J. W. Johnson and T. P. Ellis, members of the Executive Committee; Louis Cohen and Marshall Draper, committee on the Capability Exchange; Orville Harrington; and Jay Lonergan, assistant secretary.

The meeting was called to hear the report of the committee on the Capability Exchange appointed at the last meeting, held on November 5, and take action thereon, to consider also the appointment of the Alumni member of the Board of Trustees of the Colorado School of Mines.

The report of the committee on the Capability Exchange as submitted by Chairman Marshall Draper was accepted and approved by the Executive Committee, as follows:

Report.

It is understood that at a meeting of the Alumni, held November 5th, it was decided that the Capability Exchange must be put upon a more substantial financial basis, if it is ever to become a factor of importance, and that a reasonable fee ought to be charged the members benefited.

A committee of three, Marshall Draper, Louis Cohen, and Lewis B. Skinner, was appointed to look up the subject and was empowered to act.

"It is here suggested that the resolutions agreed upon shall contain the following points:

"1. The assistant secretary of the Association shall be made the manager of the Capability Exchange.

"2. The graduates and undergraduates wishing to be considered by the Exchange for positions or better positions shall be required to sign an agreement herewith submitted.

"3. The manager of the Capability Exchange shall be instructed to use his best endeavors, not only to secure positions for applicants who may be out of employment, but to find better positions for those already employed. (This will require considerable advertising by means of letters to mine, mill and smeltery managers, mine owners, etc. Most of the positions voluntarily submitted are rather low pay and not often acceptable to the older graduates.)

"4. The manager of the Exchange shall keep an accurate, separate account of all expenses chargeable to the Exchange, together with the receipts obtained from the fees charged for placing men. All cash received shall be turned over to the treasurer of the association at the end of each month, accompanied by an itemized statement of the funds credited to separate accounts as directed by the treasurer. All bills shall be paid by the treasurer.

"5. The assistant secretary as manager of the Alumni Magazine and the Capability Exchange, in addition to the fixed salary of \$70 per month now provided for, shall receive the entire net profits of said Magazine and said Exchange until the sum of said salary and said profit equals \$125.00 per month. Whenever the sum of the net profits and salary exceeds \$125.00 per month the assistant secretary shall receive in addition thereto 10 per cent. of any such excess, the balance to be applied to the life membership fund till said fund shall be reimbursed the amount heretofore applied to general expenses. After said life membership fund has been reimbursed, said excess shall be applied as the Executive Committee shall direct."

Statement and Agreement.

The aim of the Capability Exchange is to keep every member of the Alumni, who is

in good standing, in as good a position as his capabilities and experience will enable him to hold satisfactorily; to place undergraduates in need of work and experience in profitable positions during vacation periods and assist employers in obtaining competent men.

Only graduates in good standing (that is, with a clear reputation and record) and worthy undergraduates are eligible to consideration by the Capability Exchange.

This Exchange is not run to make money, but there are many necessary expenses in connection with the proper management of the Exchange. The men benefited should help meet these expenses.

The fees charged for placing men in positions through the Capability Exchange will be as follows: Ten (10) per cent. of one full month's salary for positions paying \$50 or less per month; fifteen (15) per cent. for positions paying over \$50 and not exceeding \$75; twenty (20) per cent. for positions paying over \$75 and not exceeding \$100, and twenty-five (25) per cent. for positions paying over \$100 per month. If a man is already employed at a regular salary and in a fairly permanent position and the Exchange obtains a better paying position for him, or he is given an increase of pay in his present position in order to hold him when offered a better position through the Exchange, then the fee will be sixty (60) per cent. of the monthly increase of pay received, unless such fee would exceed the regular fee for positions as above, in which case the regular fee will apply.

If living expenses, board or quarters are furnished in connection with the position, the prevailing rates for same are to be added to the rate of salary in figuring the commission. These fees are due upon acceptance of the position and must be paid then unless other arrangements are made with the manager of the Exchange.

Undergraduates and graduates, not members of the Alumni Association, who wish to be considered for positions, must deposit a fee of two (2) dollars with the Exchange. This deposit will be returned upon written request at the end of one year from registration, provided no position has been obtained through the Exchange, or will be credited as initiation fee and first annual dues in the Alumni Association. In all such cases if a position is secured through the Exchange during the year a new fee of two (2) dollars must be deposited at the end of the year if such graduate or undergraduate wishes to remain on the eligible list.

Men placed in positions, understood to be temporary at the time, will be charged five (5) per cent. of the amount received while so employed, with the understanding

that in no case shall the total of these fees exceed the regular fee for a permanent position.

All communications from the manager of the Exchange MUST be promptly answered. (This is absolutely necessary if the Exchange is to accomplish good results. In most cases positions must be filled very quickly to prevent men from other agencies getting them. Even if the applicant does not care to consider the position, the manager must be informed immediately, that the next on the list may be notified.)

If it is necessary to send a telegram on behalf of the applicant, costing over fifty (50) cents, the applicant will be expected to pay for same in addition to the regular fees.

When a permanent position is secured for an applicant, if he leaves it of his own accord, or loses it through inefficiency or negligence, in every such case the full fee will be charged.

Under no circumstances does the Exchange guarantee to secure employment for any man. The Exchange will, however, use its best endeavors to secure positions, and its best judgment in recommending applicants for positions.

It is understood, when an applicant is put in communication with a possible employer that it is a confidential transaction, and he agrees not to divulge anything, in any manner, in connection with the same.

I have read the above agreement carefully and understand and accept the conditions, as stated.

Signed
Applicant for position.

COMMUNICATIONS.

Kyshtim, Russia, Oct. 11, 1910.

Mr. F. S. Titsworth,
President C. S. M. Alumni Assn.,
Golden, Colorado, U. S. A.

Dear Sir: I am in receipt of a letter over your signature, announcing the launching of a very laudable purpose on the part of the Association, and I hope very much to see it carried along successfully and developed. It will, therefore, give me pleasure to contribute to the proposed magazine from time to time.

However, as yet I cannot see my way clear to join the Association, for at the present stage of the game I am not sure that it would not be throwing good money away, because as yet I have failed to see that any results were accomplished, and results are what count.

In my day in Golden, while those that knew were trying to rid the school of an inefficient faculty, the Association sat back

in self-satisfied complacency and threw in their lot with those in power. They even went so far as to send some members to Golden to try and persuade the students to give up the fight. The fight went on, and we now have a better school in consequence.

Not later than a year ago I had it directly from one of the faculty interested in athletics that the Alumni committee on athletics gave very indifferent attention to it.

It has been said to me by other Alumni that I should join to help things along. That's all right, and I would, were I where I could be near the scene of operations, but so far as I can see, the Association at present is, and in the past has been, run by a few Denver residents among the Alumni, and as no results have been forthcoming, the fellows in parts remote from Colorado might just as well stay out.

What is badly needed by the school, in my opinion, is a wide-awake and active Alumni Association, and it's up to those in the immediate vicinity of Golden to make it such. We fellows at a distance as yet have no show to keep in touch with what's going on. Any paying of dues is therefore money thrown away, and the Association may just as well save themselves the cost of postage, as far as I am concerned, until I note that they are willing to, will, and do something that justifies their existence.

There is one thing in which I think the Association should be very active and that is in continually agitating the attendance at the school—for one day at least—of all the Alumni that reach Denver while the school is in session. I might say that I have been in close touch with the school since graduation and, if anything, it has seemed to me that Alumni shunned, rather than sought, a visit there.

Now, every Alumnus should visit the school as soon after he reaches Denver as possible, for two reasons. First, that he may know at first-hand what is being done there. To talk with the different members of the faculty, and get their views and give them his. It gives them encouragement, and the Alumnus feels better for having seen some of the old scenes. Second, that he may meet the students and give them a short talk on what he is doing. The professors and students benefit by some accurate, first-hand information, and the Alumnus benefits by the practice of addressing an audience; and all will admit that we need that practice.

In my opinion the Association should do all in its power to develop this into an unwritten law among the Alumni and it will then be not many years until the teaching staff will be supplemented by a corps of lecturers, who are experts in their particular branch of mining or metallurgy.

The benefit to the school from such a course, taken by its graduates, cannot be calculated.

I proposed this scheme to a member of the faculty in the summer of 1908, and he gave it his hearty approval. Upon my visiting Golden that fall I was given two hours in which to address the Senior and Junior classes. I had expected at the most fifteen or twenty minutes and was at a loss to see how I could talk that long. As events turned out I found no difficulty at all and I believe that any man interested in his work would have no trouble in using up what time would be allotted him.

Whether the Association may think this suggestion worth considering or not, or whether it has already been considered, I do not know, but I offer it here as one thing in which I think the Association can make itself genuinely useful to the school and to itself, and shall be pleased to hear of the outcome. I remain,

Very truly yours,

HORACE H. EMRICH, '03.

PRESIDENT'S REPLY.

Denver, Colorado, Nov. 25, 1910.

Mr. Horace H. Emrich,

Copper Refinery of Kyshtim Mining Works
Company, Ltd.,

Kyshtim, Russia.

Dear Sir: I beg to acknowledge receipt of your letter addressed to me as president of the Colorado School of Mines Alumni Association, under date of October 11, 1910.

I welcome the criticism which your letter contains, and am very grateful to know that an Alumnus of the Colorado School of Mines so far removed from the scene of his undergraduate labors, is so much interested in the welfare of the school and its Alumni.

I am handing your letter to the assistant secretary of the Association, with the request that your letter and this reply be published in the monthly with an invitation to other Alumni to communicate to the paper comments on the points raised by you.

We are all working hard to make the Alumni Association a success. We invite friendly criticism and trust that your letter will be the means of provoking much friendly discussion. We are always willing to benefit by any changes in the management or conduct of the Association, sug-

gested by the Alumni of the school. We trust that you will see your way clear to join the association in the near future. As you suggest, the association must necessarily be run by those in close touch with the school. Nevertheless, those in control are always ready to benefit by the suggestions of those who are enough interested to give their counsel and advice. Many of the suggestions contained in your letter have already been carried out, and I trust that your letter will bring forth such information as will convince you that the association is not as black as you have painted it.

With kindest regards and best wishes for your continued success, I beg to remain,

Yours very faithfully,

F. S. TITSWORTH,

President of the Colorado School of Mines
Alumni Association.

FST-N.

NOTICE.

The Alumni Association has for some time been trying to locate several of the graduates. Some of these have not sent in their address for several years. If any of the readers of the magazine know the whereabouts of any of the following men, they will be helping the work along by sending what information they can to the Assistant Secretary at Golden:

Neil A. Anderson, '02.
Harry F. Bruce, '00,
Herbert A. Canning, '97.
Henry R. Evans, '00.
Louis D. Fry, '03.
Frank H. Jones, '98.
Robert Nye, '97.
Jacob Well, '04.
Walter J. Atkinson, '96.
Arthur H. Buck, '97.
Frank R. Hamilton, '98.
Floyd Weed, '97.
R. Howard Hawley, '93.
George F. Hoyt, '96.
Gilbert E. Jewel, '93.
N. W. Logue, '97.
William B. Middleton, '83.
J. C. Rodriguez, '98.
Enrique A. Schuman, '97.
Burt C. Stannard, '95.
William E. Newnam, '96.
W. P. Phelps, '07.

Abstracts of Current Articles and New Books.

GEOLOGY.

Some Tests Upon Synthetic Sapphires, by Alfred J. Moses. American Journal of Science, Oct., 1910, p. 71.

A summary of the results of tests made upon the beautiful new artificial or "hope" sapphire. He shows that these are real artificial sapphire "with all determinable characters closely resembling those of natural sapphire."

Controlling Factors of Ore Localization in the Ozark Region, by C. R. Keyes.

Economic Geology, Oct.-Nov., 1910, p. 683. The author concludes as follows: "The Ozark ores are mainly strictly vadose deposits. As such they have no connection with deep-seated activities. They are localized in definite basin-like depressions of diverse origins," which caused a "total or partial impoundment of the underground waters."

A Pocket Handbook of Blowpipe Analysis. By G. Montague Butler, E. M., assistant professor of Geology and Mineralogy, Colorado School of Mines. Pages IV, 80. Price 75 cents net. New York: John Wiley & Sons.

Professor Butler's book is designed both for use as a text-book in colleges and as a handbook for men engaged in active mining and prospecting. The book fills a gap between the ponderous reference book of mineralogy and the strictly elementary book. The author's previous work, a Pocket Handbook of Minerals, covered concisely the physical characteristics of minerals. The Pocket Handbook of Blowpipe Analysis presents briefly the essential blowpipe tests which are often necessary to verify the determination made by a physical test.

For use as a text-book it is so complete as to render oral instruction unnecessary. Two chapters have been written explaining the principles of blowpipe analysis and of chemistry, so that the book can be used with understanding by a man who has not had the advantages of a technical education. The book should also be of value to the mining engineer, assayer, and chemist for making examinations of unknown substances.

Contents.

- Chapter I. Blowpipe Instruments, Reagents and Operations.
- II. Methods of Testing for the Various Elements with the Blowpipe.
- III. Outline for Qualitative Blowpipe Analysis.
- IV. Index to All of the Tests Yielded by the Various Elements.
- V. The Determination of Minerals by Means of the Blowpipe.

VI. The Elementary Principles of Chemistry.

A Table of the Elements with their Symbols and Atomic Weights.

Mining.

The Use of Coal Cutting Machinery, by R. H. Rowland.

Engineering and Mining Journal, Nov. 26, 1910, p. 1067.

Gives the advantages and disadvantages of adopting undercutting machines for coal mines, together with notes on the operation of underground conveyors. In the author's opinion coal cutting by machines is advantageous only when the conditions of the mine are favorable, this depending largely on the nature of the floor and roof.

Tin Mining and Milling in the Bolivian Andes, by George W. Dean.

Engineering and Mining Journal, Nov. 26, 1910, p. 1053.

Describes the crude methods employed by the natives in mining and concentrating tin ores.

Vertical Curves in Shafts, by Sheldon Smillie.

Engineering and Mining Journal, Nov. 19, 1910, p. 1000.

An illustrated article in which the author gives the method for calculation and the transit work necessary in laying out vertical curves in shafts. It is applied to shafts in the Lake Superior copper region.

Electric Hoisting in Mining Operations, by I. F. Walker.

Engineering and Mining Journal, Nov. 19, 1910, p. 1014.

The author states that electric hoists are gradually replacing steam hoists; the reasons therefore are given.

American Longwall Mining Methods, by Henry M. Payne.

Engineering and Mining Journal, Nov. 19, 1910, p. 1020.

A comparison of the longwall system in this country and in England. The author states that many mines in this country, working under heavy cover and now using the room and pillar system could be worked to better advantage by changing to the longwall system.

A Modified System of Back Stopping, by J. E. Wilson.

Engineering and Mining Journal, Nov. 12, 1910, p. 950.

The author states that the method described is a simple, safe and economical one

where the cost of labor and timber is high. It is in use at the Dolores mine, Chihuahua, Mexico.

Mining Methods Employed at Cananea, Mexico, II., by Morris J. Elsing.

Engineering and Mining Journal, Nov. 12, 1910, p. 963.

This is a continuation of the article appearing in the issue of Nov. 5. The following methods are given: Pillar caving system at the Cananea-Duluth mine; back stopping on waste at the Elisa mine; and the pyramid system of stoping at the Veta Grande mine. The author gives the requirements for the application of each with the advantages and disadvantages.

Tin Sluicing in Tasmania, by Edward Edwards.

Mines and Minerals, Dec., 1910, p. 309.

Describes the methods of sampling and sluicing the tin deposits of northeastern Tasmania.

Handling Mine Supplies, by H. H. Fitch.

Mines and Minerals, Dec., 1910, p. 267.

Gives the advantages of and methods for systematic handling, disbursement, and accounting of mine supplies.

METALLURGY, ASSAYING AND CHEMISTRY.

Some of the characteristics of Chilean Mills, by Herbert A. Negraw.

Engineering and Mining Journal, Nov. 12, 1910, p. 967.

An article in which the author states that the Chilean mill is essentially a sliming apparatus, the value as such is beginning to be recognized by mill men.

The Outlook for Hydrometallurgy of Copper, by William E. Greenawalt.

Engineering and Mining Journal, Nov. 12, 1910, p. 960.

An article in which the limitations of the smelting process; difficulties of the wet methods, and advantage in their favor; and present processes are discussed.

The Problem of Fine Grinding in Tube Mills, by H. W. Hardinge.

Engineering and Mining Journal, Nov. 26, 1910, p. 1057.

The author states that tube mills require twice the calculated theoretical horsepower, and are all inefficient.

Hydrometallurgy of Cobalt Ores.

Mines and Minerals, Dec., 1910, p. 303.

This article first gives the early history of

the district. Following this the mining and sorting of the ore is taken up. The ore is divided into two classes—smelting and mill—ing—the latter assaying 75 ozs. of silver or under is treated in local mills. Brief descriptions and flow sheets of the following mills are given: Buffalo mill, Cobalt Central mill, Colonial Mill, Conlagas mill, King Edward mill, McKinley-Darragh mill, Nipissing mill, Northern Custom mill, O'Brien mill, Nova Scotia mill, Silver Cliff mill, Temiskaming mill, and Tretheway mill.

Evolution of the American Copper Converter, by Charles C. Christensen.

Mining World, Dec. 3, 1910, p. 1036.

This article briefly describes the general process of converting copper, and the vertical or "Parrot," the square or "Stahlman," and the trough or "Bisbee" types of converters. A detailed description is given of a late type of converter known as the "Balaklava." Illustrated.

Electrostatic Separation and Ore Dressing, by F. S. McGregor.

Mining World, Dec. 3, 1910, p. 1041.

Describes the Huff process in use at the American Zinc Ore Separating Co.'s plant, Platteville, Wis., working on custom ores and the United States Smelting, Refining and Mining Co.'s plant at Midvale, Utah.

New Lead Smelter for Webb City, Mo., by Otto Ruhl.

Mining World, Dec. 3, 1910, p. 1047.

Describes the new lead smelter, recently completed by the Webb City Smelting Co.

Occurrence and Concentration of Tin Ores, by C. Fred Thomas.

Mining World, Dec. 3, 1910, p. 1045.

Notes on the practice in vogue at the plant of the South Crofty mine, Cornwall, for treating a complex cassiterite, wolfram, arsenic, and copper ore. Also notes on a plant erected in South Africa to treat a very fine grained cassiterite ore.

Notes on Reduction Plants for Gold and Silver Ores, by G. A. Denny.

Mexican Mining Journal, Vol. XI, No. 5, p. 19.

An article in which the author discusses the stamp mill and tube mill or a combination of both as regards their efficiency as a crushing device. He states that it is preferable to use light stamps, crushing to 20 mesh, thereby reducing the duty placed on the tube mill with its low efficiency, than to use heavy stamps crushing to 9 mesh, and thus placing more work on the tube mill as is the present tendency of the operators on the Rand.

Electro Amalgamation, by Elmer E. Carey. Mexican Mining Journal, Vol. XI, No. 5, p. 26.

Gives the description of an electro-amalgamating sluice for which claims are made as follows:

- (a) Cleans and brightens rusty gold.
- (b) Counteracts the effect of grease or oil.
- (c) Preserves the mercury in a highly excited and active state.
- (d) Forces each particle of gold in intimate contact with the mercury.
- (e) Amalgamates all free values, including platinum and iridium.

A Successful Treatment of Concentrates by Cyanidation, by R. E. Tremoureux. Mexican Mining Journal, Vol. XI, No. 5, p. 23.

The author states that a satisfactory extraction can be secured by first re-grinding

the concentrates and then mixing them with the tailings. This scheme is cheaper than sliming all the tails from the battery direct, without previous concentration.

An Australian Electrolytic Copper Refinery, by R. G. Casey, Jr. Engineering and Mining Journal, Dec. 3, 1910, p. 1111.

Gives a complete description of the plant located at Port Kembla, New South Wales.

Notes on Battery Practice on the Rand, by A. R. Stagpoole.

Mining World, Oct. 29, 1910, p. 811.

The author gives some very useful suggestions along practical lines. The following subjects are taken up: Collection of sand from amalgam plates; changing screens; arrangement of "wash-up" and amalgam rooms.



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The COLORADO SCHOOL OF MINES MAGAZINE

Vol. I.

GOLDEN, COLO., FEBRUARY, 1911.

No. 5.

The Colorado School of Mines Power Plant.

(Professor William J. Hazard, '97.)

When our present powerhouse was completed, the old engine, jackshaft, pulleys, clutches, and generators were moved from the basement of "Engineering Hall" where they had been installed in 1894 and were given a place in one end of the new building. This equipment was set up in the same relative position that it had occupied in its original location and comprised a fifty-horsepower Russell high-speed engine, a thirty-kilowatt, one hundred and twenty-five cycle, single-phase General Electric lighting alternator, a fifteen-kilowatt direct current machine, and a one and one-half kilowatt Edison bipolar generator.

The jackshaft also carried a pulley for driving a two-kilowatt Brush generator, a four-foot Prony brake wheel, and an idle pulley for experimental work from which a blower had been run.

The Sturtevant fan engine was taken from the old boiler house and set up beyond the other machines. A six-kilowatt Westinghouse generator was purchased for small lighting and power loads and was belted from the fan engine.

Next in line came the DeLaval Turbine and twin generators, which furnish seventy-five kilowatts, at either one hundred and twenty-five volts or two hundred and fifty. This machine can handle the entire lighting and power load of the school as installed at present, the connected lighting load being about seventy-five kilowatts and the connected power load, half that amount. A five-panel black enameled switchboard, built by the Western Electric Company, controls the output of the turbines.

Steam for the above engines as well as for heating, is supplied by a one-hundred horsepower Babcock & Wilcox boiler and a two-hundred horsepower boiler of the same make. The old eighty-horsepower return tubular boiler was fitted with new tubes throughout, about the time it was moved

to its present location, and is now used for experimental work and to furnish power when the demand is within its capacity.

After the engines and generators had been put in place, together with an exhaust steam feed water heater and two boiler feed pumps the engine room was less than half full. Many persons thought we would never be able to fill up the engine room, and for a year or two it was used as a museum and mining laboratory. The two-stage Leyner compressor was added to the equipment, a half dozen air drills and a mine car were set up, and a collection of pumps was put on exhibition.

Soon after this, a ten-horsepower Fairbanks-Morse gas engine was installed for laboratory work and to run a small generator in the summer months when the steam plant was shut down. Then an air brake compressor was put in to maintain the air pressure when only a small amount was being used. These additions gave us ample power all the year around for normal operation.

When the Testing Plant was projected the designers planned a motor installation of two hundred and seventy horsepower. It was thought that a possible maximum of one hundred and fifty horsepower might be used at one time and the power house equipment was selected on that basis. As the generator capacity in kilowatts should be approximately equal to the motor output in horsepower, it was necessary to provide for one hundred and fifty kilowatts.

The mill is too far from the power house to transmit the required power economically at low voltage, either direct or alternating, and as the use of three-phase induction motors in mill work is standard practice, we adopted a twenty-three hundred volt, three-phase, sixty-cycle transmission, and will step down at the plant to the motor voltage of two hundred and twenty