NOTICE.

The Alumni Association has for some time been trying to locate the following 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:

Walter D. Abel, '06.
Walter J. Atkinson, '96.
Charles F. Breed, '01.
Harry F. Bruce, '00.
Herbert A. Canning, '97.
Bert Cole, '92.
F. C. Farnam, '09.
Louis D. Fry, '03.
Frank R. Hamilton, '98.
Leon P. Hills, '08.
George F. Hoyt, '96.
Gilbert E. Jewel, '93.
Fred G. Kelley, '99.
Oscar A. Lampe, '98.
N. W. Logue, '97.
William B. Middleton, '83.
Enrique A. Schuman, '97.
E. M. Smith, '05.
T. E. Stephenson, '06.
B. T. Wells, '04.
Charles E. Wheeler, '94.

The
COLORADO SCHOOL OF MINES MAGAZINE

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Present Conditions of Mining and Metallurgy in the Ural Mountains.

Horace H. Emrich,
Manager Copper Refinery, Kyshtim Mining Works, Kyshtim, Russia.

Present conditions of mining and metallurgy in the Urals, as far as the writer has been able to see and learn, are easily summed up in a few words. From an American point of view there almost are not any conditions, the industry is so small. However, this is not due to lack of minerals, for the hills seem to be full of them, to be had for the searching. The heavy minerals, i. e., zircon, magnetite and garnet, can be found by panning in any stream, and very frequently one gets color also. In a word, the country is undeveloped, and offers a good opportunity for the mining engineer and metallurgist.

Let it not be assumed that one may prospect here as in America or Mexico, for the land is all owned; but expert mining and metallurgical opinion is in demand and is well paid for. Conditions are absolutely in no way similar to those in America.

A knowledge of Russian is a key to any part of Russia or Siberia, and a knowledge of German a very great aid until such time one may acquire Russian. To speak Russian correctly is exceedingly difficult; to pick up enough words to get along with is not hard when one is thrown in a position where he hears only Russian spoken.

There are numerous small iron works scattered along the range, built in the old days to make iron with charcoal and to take advantage of what small water powers there may be. At the present time most of these works are closed. As a rule, the iron ore is a limonite, and from what the writer has seen it would not be a surprise if it turned out to be from the gossan caps of copper veins, since in some places this is worked for gold extraction by the cyanide process.

With the wane of the iron industry, which is now practically controlled by a syndicate in South Russia, copper is coming to the front. There are several copper works along the range, but they all refine to ingot copper by fire, in small gas-fired furnaces, holding about five tons, the gas being made from wood.

The most modern copper plant is owned by the Kyshtim Mining Works Company, with whom the writer is now connected, with headquarters at Kyshtim, about eighty miles due south of Ekaterinburg. The latter city can be seen located on any map of the Ural region.

This company has just erected a smelter of two American copper furnaces of approximately 400 tons each of ore per day. The ore is highly pyritic and almost no coke is used in smelting. Basic-lined converters convert the matte.

The writer has just completed the construction of a refinery, embodying the latest American practice, of twenty-five tons daily capacity, which will treat the smelter product. At the present time this is about fifteen tons per day, and will reach twenty-five tons in about a year. There is only one other refinery in Russia, and that smaller, situated in St. Petersburg.

The Ural mountains are known to almost every one as the producers of practically the world's entire supply of platinum. As far as the writer is aware, very little else is known about them by Americans. As opportunities for mining men and Metallurgists are great, it might be of more interest to some, as it was to the writer, to know more of living conditions and of how to get here, than to give here mere detail of antiquated mining and smelting methods. It will, therefore, probably be best to devote the most space to impressions along these lines.

It has already been the writer's pleasure to answer a series of questions on this subject, asked of him by letter by a fellow alumnus.

Any American coming to Russia would very probably be engaged by some com-

pany operating here, and would receive all information for getting here through it. However, it might be to some purpose to give the writer's own experiences. Having decided to go to Russia, absolutely the first essential is to see about getting a passport. A passport is required by Russian law before admittance to the country is granted. To be regular, this document must be countersigned by the Russian consul-general, resident in certain designated American cities, (preferably New York, fee $1.25). Without this countersignature on the passport, admittance to the country is also denied. With everything regular, there is no trouble about getting through.

To get a passport, write to the Secretary of State at Washington for information. Full information is sent to the questioner with blanks to be filled in with necessary data. This is witnessed by a notary, and sent to Washington with the fee required ($1.00) and the document required is very quickly forthcoming. Before leaving the country do not forget to have it countersigned by the nearest designated consul-general.

In searching for all possible information as to conditions, before accepting the position, it was learned that there were a very great many Russian graduates of the German technical schools all over Russia and Siberia, and that a man speaking some German would be able to get along fairly well. This was found to be the case.

In consequence of this, passage was engaged to London via Plymouth on a German boat, in order that the writer might have as much chance as possible to limber up some very stiff and labored German. The boat was all that could be wished and while all meals paid for were not eaten, it was through no fault of the Germans.

It being necessary to go to London, landing was made at Plymouth, where the train was taken for the capitol, after going through the customs. This proved to be a very quick and pleasing operation. Travelers are asked whether they have any spirits or tobacco, and are asked to open one package (in the writer's case it was a suitcase), and it was so with all those noticed. After almost no examination at all, the train was boarded for London. With no stops the trip took about four and one-half hours.

In London tickets were bought to St. Petersburg, via Queensboro, Flushing, Holland and Berlin, on the St. Petersburg express, which the writer understands, leaves twice a week. The services of an interpreter were secured at Berlin, where a five-hour stop is necessary in changing trains. The tickets were bought through Thomas Cook & Son, and it is believed that this is the best and easiest way.

Baggage is checked through to St. Petersburg at the station in London, and with this there need be no attention given to it through Dutch and German customs. On the Russian frontier it must be opened to be examined. There are no baggage checks, as Americans know them, only a small slip of paper being given and a like slip pasted on each piece of baggage. All baggage over and above what is carried into the car by the person must be paid for. For two fair-sized trunks and a steamer the writer paid £8, 10s, or about $42.50, from London to St. Petersburg.

The train leaves Victoria station, London, at 8 p. m., reaching Queensboro at about 10 p. m., where all embark on a small steamer for passage to Holland. This embarkation takes probably fifteen or twenty minutes. It is well to take a cabin and, if possible, to sleep, for the crossing takes about seven hours, arriving at Flushing, or, as the Dutch call it, Vliessingen, about 5 a. m. One might say that Holland is about the size of a pocket handkerchief, and the customs officers did no more than put a chalk mark on each piece of hand-baggage.

From the customs on the pier it was only a few hundred feet to the waiting train. The cars of this, like all other European trains, are of the compartment type. In general arrangement they are somewhat on the order of the compartment Pullman, though roomier.

The trip to Berlin takes the entire day, arriving there about 6 p. m. The interpreter, with the letters in gold on his cap, is a man in uniform, and having been notified of the purchase of his services, he is on the lookout and there is no trouble finding him. Acting on instructions from London he had made all sleeper arrangements and handed over the tickets the first thing.

As it was spring and therefore light, the writer arranged with the interpreter to put him in a taxicab and instruct the driver to show him the points of interest in a two-hour drive. Every hack has a taximeter on it; no auto-taxies were seen. The ride consumed two hours of the five and was a welcome diversion. Two more were spent in enjoying a good meal, and the last hour went in practicing German on the waiter and watching the crowds.

The express left at 11 p. m., and the Russian frontier was crossed at about 11 a. m. the next day at Wierballen.

Here all baggage is examined, and a change is made from the regular broad-gauge train to the Russian standard gauge of five feet. As one leaves the German train and enters the custom house his passport is taken from him to be examined and all pass on into a large hall and line up alongside of their baggage. The examination of this goes on in a very quiet and orderly fashion, and everything is repacked by the examiners, according to law. After examination is completed, one proceeds on through a gate—if his passport has been accepted—where it is handed back to him, and he goes to the dining-room at the other end of the station for dinner. The train left at 2, and of all the trains the writer ever traveled in, he believes he prefers the

first-class cars of the Wierballen-Petersburg express. With the five-foot gauge, the cars are about nine feet wide, inside measurement, and the compartments are large and roomy, with electric lights and convenient wash-room with hot and cold water.

When in America, the writer always understood that no one in Europe traveled first class excepting royalty and Americans. It is certain that the writer and his wife were the only Americans on the train, and equally certain that no royalty was aboard, yet every first-class compartment was occupied. First-class cars are very liberally patronized, and it is undoubtedly the proper way to travel, especially when one expects to go some distance.

St. Petersburg is reached about twenty hours after leaving Wierballen. Here two days were spent waiting the departure of the Trans-Siberian express, which leaves once a week on Saturdays. A mail train leaves every day and while the first-class cars are the same as on the express, one must eat at the various stations along the way. The express carries a diner where one may, literally, get meals at all hours. In addition, it travels about twice as fast, or about thirty-five miles an hour, while the mail train makes about sixteen miles per hour. If one knows something of the language, and is not rushed for time, the mail train makes very satisfactory traveling, especially as the fare on it is about half what it is on the express.

The scenery from St. Petersburg to the Urals is uninteresting. Practically the entire distance passed through during waking hours was covered with pine forests. At a station, it seemed as though generally there was nothing else about, excepting the station buildings, and it was learned that the towns were some distance off. It gave the impression that the railroad had intentionally sought to avoid them. However, the real reason is probably that as the towns were in existence before the railroad, and not very conveniently situated for the line to go through each (the road being built as a military measure), they were ignored, if unimportant, and a station built on the line at the nearest convenient point to accommodate each.

Ekaterinburg, literally, Kathrine's Burg, being named for the Empress Katherin, is the Ural metropolis, and is reached in about sixty hours after leaving St. Petersburg. The city claims about 70,000 population, and looks the same as all Russian cities so far seen.

So much for the traveling, now for some of the conditions met in living here.

As stated previously, there is nothing similar to American conditions here. Also the writer has yet to see the conditions Americans are lead to believe exist here. This should not be taken to mean that they may not exist, in some parts, but the writer can positively say that they do not where he has been, and that he would not advise any of the peasants he has seen to emigrate. Living is extremely easy for them and their wants are few.

The writer attended very creditable opera in Ekaterinburg, and hobble skirts for the ladies are not a novelty there or at Kyshtim. A dress-suit comes in very handy, and occasions where it may be used are not scarce.

For one expecting to stay in the country some time, it would be advisable to lay in a large supply of shoes before leaving America, as a matter for his own comfort and convenience, for the writer has yet to see a comfortable Russian shoe. A good supply of various weights of underwear should also be taken along. In addition to these things, the writer laid in a supply of the latest editions of the standard technical handbooks, and copies of the best books on lines thought liable to crop up in the work, such as Low's Technical Analysis; Howe's Steel Mill Buildings; Fulton's Assaying. It is also well to subscribe to a few standard technical magazines. All other things, along the line of the railroad, at least, are easily gotten and are cheap from an American standpoint.

The writer has now been in the country about a year, and must say that the climate, contrary to the American idea of it, is ideal, at least in the Ural region, and there is nothing he would wish to add to it. The greatest cold was 29 degrees below zero, Fahrenheit, and this occurred several times, holding on for several days, but the usual temperature averaged about minus 8 degrees Fahrenheit, below. Every one goes about in furs, which are cheap, and it is no more than right to say that the writer has felt the cold more in New York at 14 degrees above, than he has felt it in the Urals at 29 below. This is on account of the moisture. In the Urals that is all frozen out at the beginning of the winter, and does not appear until spring, when the weather moderates very rapidly. When the snow falls it is very fine and dry, each flake being a separate ice crystal. As a consequence, the fallen snow is like powder, and blows about like sand when the wind rises. Spring, summer and autumn are all one could wish. The summers are cool and enjoyable, and the great forests offer many beautiful drives. As the sun sets then about 8 p. m., an after-supper drive is a great pleasure.

If one expects to stay awhile here it is advisable that he take his wife along, and if he has not one it would be wise to supply the lack before leaving the States, as living conditions for a single man are not good at all, especially for one not knowing the language, for Russian cooking is different, and it would take all his time to keep the house going satisfactorily. The writer's experience has been that a man need have no doubts about taking his wife along, and unless she has leanings toward society, as the word is known in America,

she will soon grow to like the country and the people. These views are based on views expressed to the writer by English and American women he has met in the Urals, from observing his own wife and from other observations.

The health of the people, in this part of the country, at least, is exceptionally good. The Russian law requires that each company maintain a doctor and hospital, and look after the health of its people. There is, therefore, certainty of medical attendance. There has been no cholera about Kyshtim during the writer's time here.

The writer's impressions of the Russian people he has met are of the very best, without exception, and he feels that he already has many good friends among them. One is not made to feel in any way like a foreigner and it has so far been found a pleasure to live among them. Good-nature seems to be proverbial, and their naturalness and freedom from affectation is refreshing.

What mining places the writer has seen (he can not call them camps as the term mining camp is used in the States) seem more on the order of quiet farming hamlets, and, on the whole, very desirable places to be in—in fact, it can be truthfully stated that the writer knows of a great many places in the States where one could not be as comfortable nor have such pleasant surroundings as in the Urals.

The mountains are extremely old, geologically, and are consequently not very high. Kyshtim is about 1,200 feet above sea-level, and it is hardly possible that any but the very highest peaks can go above 3,000 feet. The country, as stated previously, is covered with heavy forests, and the drives through them, both in summer and in winter, are delightful.

In closing, it might be well to give some hints in the matter of making a contract, which might be useful to those of the Alumni contemplating coming here. The contract can naturally be for any period mutually agreed upon. It would be advisable to specify, in addition to the salary and length of service, transportation, first-class from New York to point of destination and return transporation to New York at the end of service, for self and family, and quarters at the works with fuel and light, and necessary furniture.

The writer is not prepared to state how conditions are out of the Ural region, but regarding this part of the country he can state that he has had no cause for regarding the venture into the Tsar's domains in any other light than a very pleasant one.

To push a good school paper
Is very little fun,
'Specially when subscribers
Will not remit the mon.—Ex.

BULLETINS AND EXCHANGES.

We have in our storeroom from one to four hundred copies of each issue of the Bulletin, formerly published by the Technical and Engineer Society, that are of no use whatever to anybody where they are now. There is not a single number but contains at least one valuable article. We would like very much to put these copies to some use and we offer you the chance of your lifetime to get good technical articles for little or nothing. We will send any copies needed to complete the files of any member of the Alumni Association free of cost, to all others at 10 cents per copy or $1.50 for a complete set of nineteen numbers, while they last. First come, first served. This will be your last chance, as all copies, beyond a few kept for our files, will be disposed of in some other manner after a reasonable time. The average postage per copy is four cents.

We also have a great many miscellaneous "Journals of Engineering," published by the University of Colorado, Perdue, Michigan, Massachusetts Institute of Technology, etc., obtained as exchanges for the Bulletin. From five to a hundred copies of each. If you care to send five cents per copy to cover postage, as a speculation, you will be surprised at the amount of technical and practical information you can get for the money.

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Some Lessons to Be Drawn from Gilpin County Practice.—George E. Collins.

Manager—"What is the most nervous thing next to a girl?"

Editor—"Me—next to a girl."

Other papers all remind us,
We can make our own sublime
If our fellow schoolmates send us
Contributions all the time.
Here a little, there a little,
Story, school note, song, or jest;
If you want a good school paper
Each of you must do your best.

—Ex.

The

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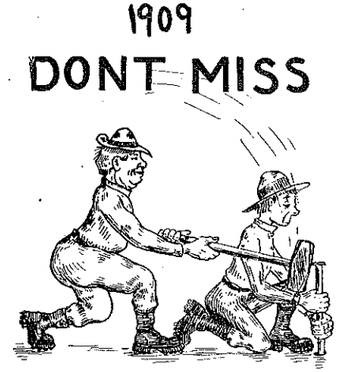
PROGRAM FOR ALUMNI REUNION.

As there has never been an Alumni Reunion at Golden before, we do not know how many we can depend on to be here, and it is hard to decide on any set program; but there will be entertainment enough to keep everyone busy for several days. The Class of '09 will hold a banquet Wednesday evening, May 24th, and on Commencement morning, May 26th, at 10 a. m., will play the faculty a game of baseball. If there is time the Senior class will play the winners or the whole Alumni. If you will let the Assistant Secretary know, before Commencement week if possible, that you will be here he will arrange for a luncheon at some of the clubs or eating places, not to cost over 50 cents each. At 1:45 procession forms at the President's house, headed by Seniors, then Alumni, Faculty, Trustees and invited guests. Proceed to Guggenheim Hall. Seats reserved in the hall. Commencement exercises, 2 p. m. In the evening, Junior Prom. May 27th, 7:30 p. m., Alumni banquet and meeting, Albany Hotel, Denver, plates $1.50 each. All members of the Alumni cordially invited.

Everybody come and make this reunion a grand success. Headquarters for the Alumni, Integral Club, Gymnasium building.

Come back to the old school and see how it has grown, take a swim in the pool (we will have a supply of towels), and talk over old times with your old classmates.

Baseball: Faculty vs. Class 1909.



The class of '09 having connected for a hit with the intellectual outshoots of the faculty, individually, hereby and in consideration of the opportunity for revenge, challenge them collectively, to a mortal combat on the athletic field in a game disguised as baseball, the morning of Alumni day, May 26, 1911.

CLASS OF 1909,
Louis Schafer, Pres.

The Faculty has accepted the challenge, but insists upon playing under the Faculty Conference Rules. Time set for combat, 10 a. m., May 26, 1911.

The school will furnish all necessary stretchers and hospital supplies. The Senior class will render "First Aid to the Injured," and the Almuni will guard the exits so that none may escape.

The Faculty line-up:

Haldane, p.
Fleck, 3b.
Mertes, c.
Alderson, rf.
Cronin, 1b.
Miller, ss.
Test, cf.
C. E. Smith, 2b.
Hawley, lf.

All the rest substitutes.

It is often easier to get along without your ideal than with her.

Marriage isn't necessarily a failure because some married people are.

An optimist is merely a person who saves a little sunshine for a rainy day.

Athletic News.

Harold C. Price, Sporting Editor.

BASEBALL COMMENT.

Half of the season is over and we have won one game and lost two. This does not mean that we are out of the running for the pennant at all. The team is just beginning to find itself, and has simply got to win every remaining game. The men claim the Aggies had no right to the decision down here, and are confident they will give them a good trimming at Fort Collins. The Denver game should come our way again, and there is no reason we cannot beat Boulder when they come to Golden. Wilson had an off day in Boulder, and he is sure it was the only one in his system. In the long sophomore Bert Jones has developed a real pitcher. Owing to eligibility rules the infield has had to be changed several times, but is finally in good shape. The team is fighting its hardest to bring the championship to Golden, and it is up to the students to get out and root. There were about five hundred rooters in the stands at Boulder, and they didn't stop yelling for a minute. Now the team will beat the Aggies at Fort Collins, so the Boulder game here the week after will be an all-important one. We have got to win, and every man in school must get out and help. It is not necessary to rattle the visiting team, but it is necessary to cheer your own. So get out and root. The team will do the rest.

MINES 16, EAST DENVER 4.

East Denver, the high school champions, strolled up our way on the 29th of March to pay us a preliminary visit, but our ball team acted very rude; in fact, they were so rude they made sixteen dents in the home plate, while they only allowed the visitors to dent the said plate four times. All this was done with a patched-up team. The whole story was that our men were hitting hard and often. Warren made his first appearance in the box and showed up very well. The score:

	1	2	3	4	5	6	7	8	9	R.	H.	E.
E. D. H. S.	0	0	1	0	3	0	0	0	0	4	4	4
Mines	0	5	0	2	4	0	2	3	*	16	14	4

MINES LOSE TO AGGIES IN POOR GAME.

The intercollegiate season was ushered in on April 1, when for the first time in years the Silver and Blue was lowered to the Green and Gold of Aggieville by the score of 10 to 9. What was expected to be a sure victory for us was instead a bitter defeat. It was more bitter because we almost won. We lost because the Aggies played better baseball. The Miners were up in the air, that's all there was to it. Wilson pitched a good game, striking out eleven men and only allowing eight hits, an extremely creditable showing for so early in the season. The fourteen errors made behind him more than offset his good work, although the worse things broke the harder he pitched.

A detailed account of the game is better omitted. All that need be said is that the Farmers made three runs in the first inning and were never headed, although our men were always right at their heels. The handful of rooters went crazy in the last inning when the first two men up got on bases, but their hopes were shattered when the next three failed to bring them in.

Converse, the Aggies big first sacker, played a great game.

The score:

AGGIES.

	A.B.	R.	1B.	P.O.	A.	E.
Blackmore, 2b	6	2	1	3	2	0
Brill, rf	6	1	1	1	0	1
Stressoner, 3b	5	1	1	0	0	2
Converse, 1b	5	3	2	12	0	1
King, p	4	2	0	0	4	1
Spahr, lf	3	1	1	1	0	0
Antles, c	4	0	2	7	0	0
Warner, ss	4	0	0	1	6	2
McCaddon, cf	4	0	0	2	1	0
Totals	41	10	8	27	13	7

MINES.

	A.B.	R.	1B.	P.O.	A.	E.
Davis, 2b	5	0	0	2	2	2
Bregman, 1b	5	2	2	6	1	3
Dyrenforth, 3b	4	0	1	3	0	3
Watson, cf	4	1	2	0	0	0
Turner, c	5	0	1	10	3	1
Andre, lf	5	1	2	2	0	0
McGuire, ss	4	1	0	2	2	2
Rockwood, rf	2	1	1	0	0	1
Price, rf	1	1	0	0	0	0
Wilson, p	3	2	0	2	4	4
Totals	38	9	9	27	12	14

Score by innings:

	1	2	3	4	5	6	7	8	9	R.	H.	E.
Aggies	3	0	1	2	0	0	1	3	0	10	8	7
Mines	0	0	3	1	0	1	1	3	0	9	9	14

Three-Base Hits—Watson, Andre. Double Play—Brill to Converse. Base on Balls—Off King, 4. Base on Balls—Off Wilson, 1. Struck Out—By King, 7; by Wilson, 11.

MINES 7, D. U. 4.

With the score standing 4 to 1 against us at the end of the third inning and everybody in the stands expecting another defeat, the Mines' team got the Mines' spirit and did some Mines' batting and fielding and finally walloped the Ministers to the tune of 7 to 4. After the second inning, D. U. failed to circle the bags, thanks to the great pitching of Wilson. Our men added two runs in the fourth on a couple of passes and a two-bagger by Wilson. The score was tied the next spasm on hits by Watson and Litchfield. The game was put on ice in the sixth, when Turner tripled with the bags all loaded. It was the first college game the Mines had won in Golden in two years. The team looked a hundred per cent better than when they played the Aggies. The score.

DENVER.

	A.B.	R.	1B.	P.O.	A.	E.
Margraves, lf.	5	1	2	2	0	0
Gobin, ss.	5	0	0	1	4	1
Paulicheck, 1b.	3	1	1	7	0	0
Davis, cf.	4	1	0	0	0	0
Bailey, p.	4	0	1	0	2	1
Wallace, 2b.	4	0	0	4	4	1
Hill, 3b.	4	1	1	2	3	0
Metzer, rf.	1	0	0	0	1	0
Sinclair, rf.	2	0	0	0	0	0
Wells, c.	4	0	1	8	1	1
Totals	36	4	6	24	15	4

MINES.

	A.B.	R.	1B.	P.O.	A.	E.
Davis, 2b.	3	1	0	3	1	1
Turner, c.	4	1	1	9	4	1
Andre, lf.	4	0	1	0	0	0
Watson, 3b.	4	1	1	2	0	0
Litchfield, 1b.	3	1	2	5	1	0
Rockwood, rf.	4	0	0	1	0	0
Dyrenforth, cf.	3	2	1	1	1	2
McGuire, ss.	2	1	0	2	3	1
Wilson, p.	4	0	1	4	2	0
Totals	31	7	7	27	12	5

Score by Innings:

	1	2	3	4	5	6	7	8	9	R.	H.	E.
D. U.	3	1	0	0	0	0	0	0	0	4	6	4
Mines	1	0	0	2	1	3	0	0	*	7	7	5

Two-Base Hits—Bailey, Wilson. Passed Balls, Wells. Three-Base Hits, Turner. Double Plays, Wallace to Paulicheck. Base on Balls, off Bailey, 5; off Wilson, 2.

BOULDER WINS.

For three innings on Gamble field it looked as if we were going to break our hoodoo and beat Boulder, but in the fourth inning the balloon started up and although our men nearly pulled it down at the start of the eighth, it got away again at the end of that inning and has not been seen since. We scored one run in the first session, while Boulder went out in order. In the fourth they tied the score and went two to the good in the fifth. One more was pushed over in the sixth. Johnny Davis got on in the next session and scored on Warren's three-bagger, the latter scoring on Litchfield's single. This brought us up within one run of the Silver and Gold, but it was a rally wasted, for on their turn at the bat, Boulder hammered the ball all over the field and, with the help of a couple of errors, scored five runs. Wilson, although not up to his usual form, pitched as good a game as Lavington, but was not given the support which was accorded the Boulder man. Griffin was the star for the winners, polling out four singles. Warren and Turner held up our end with three swats apiece; Andre made a sensational catch on the dead run, back of second base.

The score:

MINES.

	A.B.	R.	1B.	P.O.	A.	E.
Davis, 2b.	4	2	1	1	1	0
Warren, cf.	4	1	3	0	0	0
Litchfield, 1b.	4	0	2	8	0	1
Watson, 3b.	3	0	1	3	1	1
Andre, lf.	4	0	0	1	0	0
Turner, c.	4	0	3	5	5	1
Rockwood, rf.	3	0	0	1	0	0
McGuire, ss.	3	0	0	2	2	2
Wilson, p.	4	0	0	3	3	1
Totals	33	3	10	24	12	6

BOULDER.

	A.B.	R.	1B.	P.O.	A.	E.
Griffin, rf.	5	1	4	1	1	0
Mathews, 2b.	3	0	1	7	3	2
McNeil, 1b.	3	2	1	12	0	0
Cowell, ss.	2	1	1	3	1	1
Hall, lf.	4	0	1	0	0	0
Kemp, cf.	4	2	1	0	0	0
Fawcett, 3b	3	2	0	1	0	0
Lavington, p.	4	0	0	1	4	0
Bonner, c.	4	1	1	3	5	0
Totals	32	9	10	27	14	3

Score by Innings:

	1	2	3	4	5	6	7	8	9	R.	H.	E.
Mines	1	0	0	0	0	0	0	2	0	3	10	6
Boulder	0	0	0	1	2	1	0	5	*	9	10	3

Two-Base Hits—Kemp, McNeil, Cowell, Bonner, Davis. Three-Base Hits—Turner, Warren. Double plays, McGuire to Litchfield, Wilson to Turner to Litchfield; Wilson to Wilson. Base on Balls—Off Lavington, 1; Off Wilson, 3. Struck Out—By Lavington, 3; by Wilson, 4. Umpire, Bill Everet.

Warm Weather Coming.

A delinquent subscriber was dying and the editor dropped in to see him. "How do you feel?" asked the pencil-pusher. "All looks bright before me," gasped the subscriber. "I thought so," said the editor. "You'll see the blaze in about ten minutes." —Western Publisher.

Paternal Goodness.

"I cannot understand," wrote the college boy, "why you call yourself a kind father. For three weeks I've had no check from you. Pray, what sort of kindness do you call that?"

And the father wrote back: "Unremitting kindness."—Lippincott's.

All Right in Their Place.

Aeroplanes look graceful
When soaring high in space,
But the trouble is the pesky things
So often fall from grace.

Some men are so versatile that they never know which side they are on.

College Notes.

SENIOR NOTES.

E. J. Dittus.

The Senior class spent three days in Idaho Springs during the week beginning April 17th, in the attempt to gain some knowledge of practical milling. The work was carried on under the supervision of Professors Traphagen and Haldane and Mr. Keeney, in a ten-stamp mill three and a half miles from Idaho Springs. The trip proved highly instructive. The class left on April 25th for the Senior trip. They will visit all the leading mines, mills and smelters in Leadville, Canon City, Garfield, Park City, Bingham, Butte and Anaconda. A day will be spent at the Shoshone hydro-electric plant, and a day at Glenwood Springs.

The following is the itinerary of the entire trip:

ITINERARY—SENIOR TRIP, 1911.

	No.		
April 25.			
Lv. Denver	5,	9:00 a.m.	D. & R. G.
Ar. Portland		2:24 p.m.	
Lv. Portland	9,	6:30 p.m.	D. & R. G.
Ar. Canon City		7:15 p.m.	
April 26.			
Lv. Canon City	5,	3:05 p.m.	D. & R. G.
Ar. Leadville		8:20 p.m.	
April 29.			
Lv. Leadville	3,	4:05 a.m.	D. & R. G.
Ar. Shoshone		8:00 a.m.	
Lv. Shoshone	61,	3:48 p.m.	D. & R. G.
Ar. Glenwood Spgs..		4:50 p.m.	
April 30.			
Lv. Glenwood Spgs..	5,	11:52 p.m.	D. & R. G.
May 1.			
Ar. Castle Gate	7,	10:10 a.m.	
Lv. Castle Gate	3,	6:20 p.m.	D. & R. G.
Ar. Salt Lake City ..		11:15 p.m.	
May 3.			
Lv. Salt Lake City ..102,		8:20 a.m.	D. & R. G.
Ar. Park City		10:10 a.m.	
May 4.			
Lv. Park City 101,		3:10 p.m.	D. & R. G.
Ar. Salt Lake City ..		5:00 p.m.	
May 5.			
Lv. Salt Lake City ..204,		8:00 a.m.	D. & R. G.
Ar. Bingham		9:10 a.m.	
May 6.			
Lv. Bingham 205,		4:35 p.m.	D. & R. G.
Ar. Salt Lake City ..		5:45 p.m.	
May 8.			
Lv. Salt Lake City ..	51,	7:45 a.m.	S. P., L. A.
Ar. Garfield		8:19 a.m.	& S. L.
Lv. Garfield	52,	5:24 p.m.	S. P., L. A.
Ar. Salt Lake City ..		6:00 p.m.	& S. L.
May 9.			
Lv. Salt Lake City ..	11,	6:10 p.m.	D. & R. G.
Ar. Ogden		7:10 p.m.	
May 10.			
Lv. Ogden	1,	1:15 a.m.	O. S. L.
Ar. Butte		5:45 p.m.	
Lv. Butte	5,	5:00 p.m.	B. A. & P.
Ar. Anaconda		6:00 p.m.	
May 20.			
Lv. Anaconda	6,	3:00 p.m.	B. A. & P.
Ar. Silver Bow		3:45 p.m.	
Lv. Silver Bow	2,	6:20 p.m.	O. S. L.
May 21.			
Ar. Ogden		9:15 a.m.	
Lv. Ogden	12,	12:45 p.m.	D. & R. G.
Ar. Salt Lake City ..		1:45 p.m.	
Lv. Salt Lake City ..	8,	7:20 p.m.	D. & R. G.
May 22.			
Ar. Grand Junction.		6:00 a.m.	
Lv. Grand Junction.	4,	6:10 a.m.	Colo. Mid.
Ar. Denver	15,	11:00 p.m.	C. & S.

JUNIOR NOTES.

Walter C. Huntington.

The Junior Class under Profs. Traphagen and Haldane visited the various departments of the Globeville plant of the A. S. & R. Co., on April 12. This was the regular inspection trip to supplement the lectures on the metallurgy of lead.

The Mets finished up Testing Lab. about the first of April, and are now taking Cement Lab. As this is a Senior subject, it will put them just so much ahead of the game for next year.

Profs. Hoskins and A. C. Smith entertained their mining classes at a joint reception in room 134 on Friday, April 21. The wall was tastefully decorated with questions, and quiz papers trimmed with yellow were served. Guessing games were played and every one present enjoyed a very "pleasant" afternoon.?

Have you come through with your X for the Junior Prom assessment yet? If not, make it a point to pay Frank Harris as soon as possible and have it over with.

Would it not help to foster that famous "Mines spirit" and promote a better school fellowship if we were to have mass meetings more often? After the last football rally in the Fall the men seldom get together as a body during the rest of the year. We should be able to take at least an hour every two weeks from the regular scheduled time, at which topics of general technical or scientific interest might be presented by members of the faculty or outside speakers; or the time used for baseball or track rallies. The spirit in spring athletics is not over-enthusiastic at the best. We need to get together more, not as members of our individual classes, but as more loyal students of C. S. M.

The miners have put on a night shift in Assay Lab., so that they will finish up before the Seniors leave on their trip. Verily these Miners are exceedingly ambitious about this time of the year.

SOPHOMORE NOTES.

Adolph Bregman.

In the late athletic meet we succeeded in rolling up more points than the rest of the classes combined. "Whitey" McNeil was the star, making 18 points by himself. Other winners were Grtgg, Young, Carper and Miller. McGregor ran a great race in the 440.

It is rumored that the militia will be called out immediately after the close of school. If so, a number of our Sophs will become "soldiers brave." It will be a relief for them, after taking the fire of Calc., Mine-Surveying and Physics. The man was right who wrote, "War is hell—but Calc.!"

These spring days it is harder than usual to do any studying, so every other mineralogy Lab. period Messrs. Ailinger and Eaton tangle horns and roll on the turf while the crowd cheers them on. Now-a days when anyone asks, "What's Ailinger?" the answer is, "Too much Eaton." (Don't shoot!)

Chapman has blossomed out with a new pair of khaki trousers, a blue sweater and a "Western" hat. Many happy returns of the day, Chappie! Arthur and Ailinger turned the sprinkler on the class the other day. Ailinger was wrinkled with the hose and water, but Arthur fled. He'll get it, however.

Outside of the fact that Cadot has attended classes regularly for at least two weeks, there is nothing more to note. Damman hasn't said much lately, so we are short on material.

FRESHMAN NOTES.

Tsung Te Kao.

On the morning of April 4, in the geology class, Prof. C. E. Smith gave a fine speech on the honor system as established in educational institutions, and demonstrated that it was for the benefit of the students. The hope of the faculty is to furnish the country or the world honorable men to manage the important affairs. Therefore, every student should be trained to be trustworthy and there will be a chance for everyone to manifest his work publicly. Everyone must be faithful in his school work, then he can be trusted in any kind of business and under any conditions. Professor Smith stated that in his class he would like the students to practice self-control. His good advice was very much appreciated. The class spirit was aroused by the reasonable talking. A class meeting was held. S. E. Winston, the vice-president of the class, presided. J. W. Pearce moved that the class adopt the honor system and make it a success. This motion was approved by the class. The meeting then adjourned.

According to the new catalog, issued 1911, there will be no plane surveying in the Freshman year. As the class of 1914 started September 6, 1910, it was thought that some of the Freshmen might like to take this subject in the coming summer vacation. The faculty, therefore, generously gives them the liberty to have their own choice. Those who want to take the course this summer may do so. Others may take it in the next year. Many students who wish to take the subject in the summer vacation have registered. Certainly they will enjoy the work very much, since this course will be conducted by the professor who is a master of this kind of work. But perhaps they will not like the warm weather, as the archer god in the fiery chariot will hurl his dazzling spears so that the white angels may become as the brothers of Hemera, "black but comely."

The modern education is different from the Spartan education. That is to say, that our education is not chiefly gymnastic. We neither neglect mental cultivation nor disregard physical development. Some days ago, Professor Sherwood in the analytic geometry class, advised the students to study diligently. He said:

"If you find some problem which is hard to be solved, don't give it up; but stick to it." This is very wise advice, because diligence is the mother of good luck. But it is easy to go to the extreme. It is easy for a studious student to neglect his health. We must remember to work while we work and play while we play. Now-a-days, all college men know that they should improve their physical condition as well as cultivate their mental knowledge. It is good to know this principle, and it will be better, if we do it. When we see some school fellows follow this principle, we are very much pleased. We are very glad to have our class men in the different athletic sports. For instance, our class is represented on the track squad by Welsh, Lee, Harper, DeLaittre, Brousseau, Grant, Orr, Brainerd, Essig and Davis. In the baseball squad, we are represented by Turner, Robinson, Ellis and Tolman.

Y. M. C. A. NOTES.

The Dunbars—Male Quartet and Bell Ringers.

Friday evening, May 5, is the date of the last number of the course of entertainments for the present school year, and incidentally, we might say that this number is the real star attraction of the course. This company has traveled over 300,000 miles and has given over 2,000 concerts since it was first organized. Practically three-fourths of the places visited now are return engagements, which speaks very well for the character of the work done by the members of the organization.

The versatility of the men is amazing; all of them are experts on the bells and produce some very difficult, as well as very popular

music. Those who have never heard such music should not miss this opportunity, for the Dunbars are noted, not only in America, but also in Europe, for their accomplishments in this field of music. As a male quartet they rank among the very best on the Lyceum circuit, being well balanced and having in their repertoire selections from the best of all classes of music. Ralph Dunbar is a real artist on the cello, and Harry Dunbar is a pleasing performer on the flute, in addition to his great ability as a reader of both serious and humorous selections. One of their number is a pianist and the fourth is a fine bass soloist.

So the program is one of the most varied that anyone could desire, and as they are very liberal with their encores everyone goes away thoroughly satisfied with the concert, and enthusiastic friends of the Dunbars.

As this is the closing number of the course the committee has decided to make the general admission price 35 cents, children under 15 years of age, 25 cents. It is hoped that a great many will take advantage of the reduction in order to hear this great company.

THE FINANCIAL CAMPAIGN.

In the last issue of the Magazine mention was made of the proposed campaign to raise $400 of next year's Budget from the student-body. Criticism had always been made by those to whom appeals were made for subscriptions, because the students gave so little financial support to the Christian Association. This criticism was a just one, and because the cabinet members felt that it was just, they decided to ask the men of the school to subscribe $400 of the $1,775 needed for the year 1911-12. Accordingly, plans were laid for a three-day campaign, and the time chosen was March 27-29, Monday to Wednesday inclusive. Fifteen men were used in the canvass and the amount was all pledged inside the time limit set by the committee. This successful campaign should show all our friends that the students themselves believe in the work of the Christian Association, and should make it easier for the finance committee to raise the rest of the money needed for next year.

ENTERTAINMENT COURSE SELECTED FOR NEXT YEAR.

The committee in charge of the entertainment course, F. B. Harris, chairman, has selected the numbers for the coming season. It is, without doubt, the best course we have ever had in this school, and is going to cost Christian Association more than any previous one. It will be a five-number course, as the preceding ones have been, and the price for season tickets with reserved seats, will be $2—just about the cost of one good show in Denver. The committee decided to omit the lecture this coming season, because of the small attendance in past years. The idea of the Christian Association has been to give to the faculty, students, and people of Golden an opportunity to see and hear the same class of Lyceum productions as can be secured in cities like Denver and Colorado Springs. It never intended to present a lecture course, but included one for those who enjoyed lectures. The attendance showed that the majority of our patrons prefer entertainment, so the committee will present next season a course strictly entertaining in character.

The numbers are as follows, without regard to their order of appearance or dates:

John B. Ratto, the impersonator who so delighted a large audience last year, will be the only attraction given a return date. He was urged to return by many of our leading supporters and we were glad to be able to get him for a return date.

We have never had a great cartoonist before, but we are to have the greatest of them when Alton Packard comes to us. That he is without an equal in his line is acknowledged by all who have seen him perform with crayons, heard him play the piano to accompany his singing of humorous and characteristic songs, and enjoyed the running fire of satire and humor. He is beyond comparison, and it is impossible to do him justice in writing, but it must be said that he is an artist, lecturer, musician, humorist and entertainer all in one. No more need be said of him than that he is always in demand for return dates wherever he has visited.

The Dick-Bergen Company has just been organized, but we have heard the great violinist here in Golden as a member of the Central Grand Concert Company, so we can judge pretty accurately in gauging the class of this company. Maximilian Dick needs no introduction to the people of Golden; his reputation as a musician was established when he played in Germany and was honored by being chosen concert-meister of the Philharmonic Orchestra of Leipzig. The other member of this strong company has long been known as one of the best baritones in the United States. He has been doing interpretive work with the great music critic for the Chicago Tribune, Mr. W. L. Hubbard, during the season just closing, and has had a remarkable success. For next season he will appear on the Salt Lake City great musical course, with such artists as Gadski, Pasquali and Bonci, and the Russian Symphony Orchestra. This assures us that he is one of the best. A competent pianist will accompany these two great musicians next year.

The popularity of the modern magician never seems to die, and because of the interest in Laurant last season we have secured Reno for our next season. Reno has been in the business for over twenty years and in that time has traveled over the whole world, studying the magic of such countries as India, Syria and Egypt, picking up secrets here and there and utilizing them in the practice of his art. That is why he stands head and shoulders above others of the same calling.

The last attraction to be secured is the greatest company we could get this coming season. Without doubt it is the strongest group of entertainers under the management of the Redpath Lyceum Bureau, and we will be convinced of this when they appear. The LeBrun Grand Opera Quartet is composed of Madame LeBrun, soprano; Laura Baer, contralto; Fritz Huttmann, tenor, and Arthur Deane, baritone. Every one of this company have appeared in Grand Opera, and three of them in leading roles. It is utterly out of the question to say all that could be said, and should be said, of this company in this brief space, so an extra press sheet is being prepared and will be sent to all who desire additional information concerning this great group of musicians.

The LeBrun Company carries special scenery for everything. Over $5,000 are invested in costumes and scenery, and one gown worn by Madame LeBrun is completely covered with solid silver spangles, imported from Paris and cost $500. In the production, especially of Il Trovatore, she wears several thousand dollars' worth of jewels.

Each member can sing in three languages—Italian, German and English. They emphasize, however, the giving of operas in this country in English, and they have done much to influence other operatic companies to do likewise. This one company will be worth the price of the entire course of entertainments, so we feel that your support should be gladly given to the committee in charge of this entertainment course.

ESTES PARK STUDENT CONFERENCE.

Much has been written and spoken about the value and necessity of student summer conferences for the training of men for the leading of the Christian Association work in our colleges, but it has never yet been overemphasized in the slightest degree. This year our men go to Estes Park for ten days, as is told in the Hand Book. The date is June 9 to 18, and the expense is $22.50 for everything—carfare, automobile ride of thirty miles, program fee, board and lodging for the entire ten days. A finer investment could not be made by anyone after the end of the school year, for it combines rest, recreation, profit and travel.

The leading men of the colleges of every state surrounding Colorado will be there. Last year Kansas sent over 100 men to Cascade, and this year they will probably send as many to Estes Park. The leaders of the conference are men who are at the very top of their respective departments of work in the United States and foreign countries. Here are the names of some of them: Charles D. Hurrey, of the International work in South America; E. T. Colton, who has traveled over the world in Y. M. C. A. work; Dr. C. A. Barbour, of the International committee in the United States; Dr. F. T. Bayley, of Denver; Robert E. Lewis, formerly of Shanghai, China, and many others. Ask the general secretary for information.

The Alumni.

ALUMNI MEETING.

Owing to the absence from the state of most of the members of the Executive Committee it was impossible to obtain a quorum to arrange for the annual meeting and banquet, so the few members left in Denver held an informal meeting Friday, April 21, and appointed M. D. Draper, chairman of the Nominating Committee, to arrange for the banquet, empowering him to select two other members to assist him. The annual banquet and meeting will be held as usual the evening of the day after Commencement. Time, 7:30 sharp. Place, Albany Hotel, Seventeenth and Stout streets, Denver. Plates, $1.50 each. Business meeting after the banquet. All members of the Alumni cordially invited. Please let the Assistant Secretary know promptly whether you will be present or not.

PERSONALS.

'97.

Floyd Weed is now manager of the Bailey Mine, Cobalt, Ontario, Canada.

'98.

Janes Dollison and wife were down from Alma, Colo., and spent a few days with relatives in Golden.

'00.

A nine-pound girl was born to Mr. and Mrs. Arthur H. Rudd, at Joseph, Oregon, recently.

'01.

F. T. Williams, Park City, Utah, will entertain the Senior class while in Park City on the Senior trip.

'03 and '05.

F. B. Hyder, '03, and C. A. Hyder, '05, of Hyder & Hyder, mining and metallurgical engineers, announce the merger of the busi-

ness of Mildon & Russell, mining engineers, Nacozari, and the Sonora Mining Agency, Moctezuma, with their general engineering business, established in Moctezuma in 1905. The firm, with enlarged scope and facilities, will continue the general and mining engineering work and all the special departments heretofore conducted by the respective interests at Moctezuma and Nacozari, Sonora, Mexico.

'04.

Loyal W. Trumbull was in Golden last month on business.

'05.

Robert Paul Lee died suddenly Friday, April 14, at Ely, Nevada, from heart failure. He was born in Denver twenty-nine years ago, and was well known there, especially in North Denver, where he attended High School. His body was brought to Denver by his brother, Murray Lee, of Stockton, Utah, and F. W. Millard, of Ely, Nevada. He was buried from the residence of his parents, Mr. and Mrs. Henry Lee, of 2653 West 32nd avenue. At the time of his death he was chemist for E. W. Millard & Sons, of Ely, Nevada.

A. F. Cuno is in Golden frequently superintending the work on the funicular railroad up Lookout Mountain. The Cuno Engineering and Construction Company has the contract for building the road, which will be completed about June 1.

'06.

Thomas L. Chapman and his bride visited Golden and the School April 11. He is located with the Stratton Independence Mill, at Goldfield, Colo.

'07.

A. M. Howat, field man for the United States Smelting and Refining Company, has finished the examination of the Red Gap Mine, near Kingman, Arizona.

William H. Friedhoff has been appointed to a responsible position on the force of mineral experts of the Department of the Interior. His first assignment is at Helena, Montana.

'08.

A. J. Weinig's father was seriously ill at Durango, Colo., during the latter part of March.

'09.

Ernest J. Ristedt has accepted a position as chemist with the Miami Copper Company, Miami, Arizona. He visited Denver and Golden for a week or two before leaving for Miami.

'09 and '10.

Clarence T. Emrich of '09 and J. S. Bradford of '10, with others, have recently organized a mining company to operate at Wallstreet, Boulder County, Colorado. Emrich is president and Bradford vice-president and general manager. The company is known as The Investors' Mining and Leasing Company, and has taken over property that promises to give excellent returns. There is good ore in the mine, and a large dump that can be treated at a fair profit.

'10.

H. G. Skavlem is assistant engineer and tester with the Hollinger Gold Mines, Ltd., Porcupine, Ontario, Canada, and not with the Hollingsworth properties, Cobalt, as reported in the April number.

F. A. Goodale is leasing on the Capitol Mine, Georgetown, Colo. He and his wife are living at Georgetown.

H. D. Phelps left Denver for Honolulu suddenly the early part of April to be with his father, who was seriously ill at Honolulu.

George M. Lee was married to Ethel Shotwell at the home of Dr. W. E. Shotwell, 3379 Marion street, Denver, April 18. Ernest Ridstedt was best man. The romance began in the East Denver High School. G. M. Lee is head chemist, Granby Smeltery, Grand Forks, B. C.

Harry Munson Showman and Miss Verdie Gertrude Crews were married in Denver, Thursday, April 20, 1911. At home after June 1st, Golden, Colo.

COMMUNICATIONS.

366 Kensington Ave., Montreal, Can.,
April 2, 1911.

Orville Harrington,
Assistant Secretary, Alumni Association,
Golden, Colo.

Dear Sir—Your notation on the enclosed bill makes me very much ashamed of myself. I am certainly very much interested in the magazine and also to note that you are connected with it. My brother, John Mitchell, who died some years ago, you will remember, was a member of your class, but only for the freshman year.

I am very glad when the magazine comes around and get much pleasure looking it over, as I have been quite out of touch with things connected with the school, having only been in Colorado once since '96, when, of course, I went to Golden and saw there, for the first time since graduating, any of the men I knew during the four years, and I have not seen any of them since.

I enclose check for $5, which you may use as you see fit for the magazine, sending me another bill when due, as usual.

You may possibly remember that I took a C. E. degree and have therefore not been connected in any way with mining, so that I doubt the advisability of bothering you with "capability exchange blanks," particularly, as I am not looking for anything that you would likely come across and, again, because I am fortunate in being pretty well fixed with better prospects ahead, unless something very unexpected happens. Of course I am willing to do anything I can for any of the boys and am well acquainted with the mining men in this part of the country.

I am now engaged in general contracting work and it does not look as if I would make any change as I have bought a house and raised a family here in Montreal, and fortune has been pretty good to me—in fact, I have only had to look for work once since my first job after graduation. I have only taken two vacations, of about a week each, during the last ten years, so you can see that I should be pretty thankful for the training I got at Golden, as I am sure that without it I would not have been worth anything, and also feel, for my case, at least, that I got a better training there than I would have received anywhere else.

I hope if any of the graduates are ever in Montreal they will let me know, as I should like very much to talk over old times and to hear the latest news. I have been pretty far from Golden all these years but am glad to say I do not feel like the man in Russia, and I realize the impossibility of pleasing everyone in any crowd of men, and that the downfall of many associations is due to members dropping out because everything does not suit them, but as my views are pretty strong on these points it may be as well not to print them and I had no idea of writing at such length when I began.

Do not forget that I am more than willing to do anything I can for any of the Golden boys, and as I was with the Canadian Pacific Railway for some years, I am pretty well posted on all engineering matters in Canada, that is, as far as knowing the men at the head is concerned.

Very sincerely yours,
G. B. MITCHELL, '96.
The Engineers' Club, Montreal.

Care Mr. E. R. Richards, Aptdo 25,
Guanajuato, Gto, Mexico, March 24, 1911.

Orville Harrington,
Assistant Secretary, Alumni Association.
Golden, Colo.

Dear Sir—Enclosed please find check for $5 in payment for four years' subscription to the magazine. Please accept my apologies for my tardiness in sending in my subscription, as I intended to do so when I first received the magazine.

I do not see how any alumnus of the Colorado School of Mines can fail to be interested in the magazine, as it offers practically the only chance for uniting and strengthening the Alumni Association.

The alumnae at the Unexpected Mine seem to have been rather unfortunate in their experiences with fellow-alumnae, for my part, I may say that I have found the opposite to be true and that the "Mines old-timers" were always ready to give a "Mines" man the best possible show that they could. Out of the last six positions I have held, both during vacations, while in school and since I graduated, four have been under older "Mines" men and one of the other two was obtained through a fellow-graduate.

Awaiting the next issue with interest and wishing the magazine the greatest possible success, I remain.

Very cordially yours,
K. G. LINK.

P. S. Walter Abel, '06, was working for the Guanajuato Reduction Company, Guanajuato, Mexico, the last time I saw him. I am in charge of the concentrators at the Jesus Maria Mine in La Luz, Gto, Mexico.
K. G. L.

EXTRACTS.

I am one of the charter members of our alumni association and while always enthusiastic in regard to it have always been so far removed from the center of operations that my influence has been "nil."

Wishing and hoping for the success of our school and the magazine, I beg to remain. Yours very truly,
PROF. L. J. HARTZELL, '95.
Montana State School of Mines,
Butte, Mont.

It is certainly a pleasure to see that the association is in a fair way to become something tangible—not a mere name. I believe that once you convince the average Alumnus of this fact he will quickly get behind and help push, forward. With best wishes. Yours very truly,
E. L. LARISON.
Metallurgical Engineer, Isabella, Tenn.

The magazine has been coming regularly and I wish to thank you for sending it. I have not acknowedged the favor sooner, for I imagine my case is similar to that of many others; not a lack of interest in the affairs of the school and the alumni, but, due to distance and environments, one does get entirely out of touch with the old and pleasant association.

Wishing you success with the magazine, I beg to remain. Yours very truly,
ROBT. McCART, JR.
Inde' Gold Mining Co.,
Inde', Durango, Mexico.

The Association of the Alumni has been a dead-letter for some time, and I am glad to see it is being made into an active and useful organization and I will do what I can to help the cause along. There is always a feeling of fellowship among men from the same school, and this feeling will be greatly strengthened by an active associaton. The magazine is all to the good, and I hope to see it grow and flourish under your management.

Some day I will fill out the blank of the Capability Exchange and send it in—not that I need a job at present, but it is well to be on the list when the necessity arises, or to be in line for a better place. There are times when a man finds himself out of work and doesn't know just where to turn

to find a suitable place. The Exchange will help many a fellow to success by putting him in the place for which he is best adapted by inclination or experience, or both.

With best regards and best wishes for the success of the association, magazine and exchange, I am. Yours very truly,

A. H. BUCK, '97.

Eh Tajo Mining Co.,
Poza, Sonora, Mexico.

The last few numbers of the magazine have been to me the most interesting that the school or the association has produced, I hope that the standard will keep up.

The Capability Exchange is certainly a very good move. If it is as successful as it deserves to be it will do a great deal to reduce to a minimum one of the worst features of the young mining engineer's career, namely, the time lost between jobs. Most of us do fairly well while engaged, but few escape the trying periods of inactivity, which come through no fault of the individual, but from the inherent uncertainty and short-life of most mining enterprises.

Wishing you the greatest measure of success in the good work you are doing, I remain. Yours very truly.

ROBERT NYE.

Idaho-Maryland Development Co.,
Grass Valley, Cal.

NOTICE!

The Alumni Association has for some time been trying to locate the following graduates. If any of the readers of the Magazine know the whereabouts of any of these men please send what information they can to the assistant secretary at Golden.

Walter J. Atkinson, '96.
Charles F. Breed, '01.
Harry F. Bruce, '00.
Paul H. Carpenter, '10.
Burt Cole, '92.
L. A. Dockery, '95.
E. E. Greve, '05.
F. R. Hamilton, '98.
Leon P. Hills, '08.
George F. Hoyt, '96.
Gilbert E. Jewel, '93.
B. M. Johnson, '08.
Fred B. Kelley, '99.
Oscar A. Lampe, '98.
N. W. Logue, '97.
William B. Middleton, '83.
Enrique A. Schuman, '97.
R. T. Sill, '06.
T. E. Stephenson, '06.
B. T. Wells, '04.
Charles E. Wheeler, '94.

Lo! in the fire there is a life's reflection;
Smoke for illusions, light for sweet belief;
Flames for the passions, embers for affection;
The sparks for hope, ashes for bitter grief.

NEW ACCESSIONS IN THE C. S. M. LIBRARY.

Mabel Clair Shrum, B. L. S., Librarian.

Alternating Currents; C. G. Lamb.

Analysis of Ashes and Alloys; L. Parry.

Annual Report of Iowa Geological Survey, Vol. 20.

Annual Report of Smithsonian Institute for 1909.

Annual Report, Vol. 19, Tennessee Mining Department.

Building Construction and Superintendence, Vol. 3; F. E. Kidder.

Chemical Reagents; E. Merck.

Chemistry and Testing of Cement; C. H. Desch.

Chemistry of Gas Manufacture; H. M. Royle.

Cyanide Industry; R. Robine and M. Lenglen.

Decomposition of the Alkalies and Alkaline Earths, The, Reprint; Humphry Davy, Sec. R. S., 1807-1808.

Design and Equipment of Chemical Laboratories; R. K. Meade.

Die Künstlichen Kohlen; Julius Zellner.

Discovery of Oxygen, The, Part I, Reprint; Joseph Priestley, 1775.

Discovery of Oxygen, The, Part II, Reprint; Carl Wilhelm Scheele, 1775.

Early History of Chlorine, The, Reprint; Carl Wilhelm Scheele, 1774; C. L. Berthollet, 1785; Guyton de Morveau, 1787; Joseph Louis Guy-Lussac and L. J. Thenard, 1809.

Economics of Mining, Ed. 2; T. A. Rickard and others.

Edison, His Life and Inventions, 2 vols.; F. L. Dyer and T. C. Martin.

Education, Art and Civics; G. L. Raymond.

Electrical Distribution; M. H. Kilgour and others.

Electric Furnaces; J. Wright.

Electric Power Transmission Plants; T. H. Leggett.

Electrolytic Preparations; Karl Elbs.

Electrolysis of Organic Compounds, The, Reprint; Hermann Kolbe, 1845-1868.

Elementary Crystallography; W. S. Bayley.

Elementary Nature of Chlorine, The, Reprint; Humphry Davy, Sec. R. S., 1810-1818.

Engineering Index for 1910.

Engineering Mathematics; C. P. Steinmetz.

Essays of Jean Rey, Doctor of Medicine, on an Enquiry Into the Cause Wherefor Tin and Lead Increase in Weight on Calcination, Reprint; 1630.

Experimental Electrical Engineering, 2 vols.; V. Karapetoff.

Experiments on Air, Reprint; Hon. Henry Cavendish, F. R. S., 1784-1785.

Experiments Upon Magnesia Alba, Quick-Lime, and Some Other Alcaline Substances, Reprint; Joseph Black, M. D., 1755.

Extracts From Micrographia, Reprint; R. Hooke, F. R. S., 1665.

Foundations of Alternate Current Theory; C. V. Drysdale.

Foundations of the Atomic Theory, Reprint; John Dalton, William Hyde Wollaston, M. D., and Thomas Thomson, M. D., 1802-1808.

Foundations of the Molecular Theory, Reprint; John Dalton, Joseph Louis Guy-Lussac and Amendeo Avogadro, 1808-1811.

Handbuch der Organischen Chemie, Beilstein's; Dr. Herman Fleck has made a permanent loan to the library of his copy. It has recently been bound in four volumes and placed among the reference books near the librarian's desk.

International Mining Manual for 1910.

Laboratory Experiments in Metallurgy; A. Sauveur and H. M. Boylston.

Lead Refining by Electrolysis; A. G. Betts.

Liquefaction of Gases, The, Reprint; Michael Faraday, F. R. S., 1823-1845.

Manual of Assaying, Ed. 11; W. L. Brown.

Manual of Microchemical Analysis; H. Behres.

Manual of Practical Assaying, Ed. 6; H. Van F. Furman.

Medico-Physical Works of John Mayow, Reprint.

Minerals and Metals; J. G. Goesel.

Modern Practice in Coal Mining; R. A. S. Redmayne.

Ore Mining Methods; W. R. Crane.

Organic Chemistry, Ed. 5; Ira Remsen.

Papers on Etherification, and on the Constitution of Salts, Reprint; Alexander W. Williamson, LL. D., F. R. S., 1850-1856.

Physical Chemistry in the Service of Sciences; J. H. Vant Hoff.

Pocket-Book of Electrical Engineering Formulæ; M. Geipel and M. H. Kilgour.

Practical Alloying; J. F. Buchanan.

Practical Physical Chemistry; Alex. Findlay.

Practical Stamp-Milling; H. W. MacFarren.

Proceedings of National Association of Cement Users, Vol. 1 to date.

Qualitative Chemical Analysis; J. I. D. Hines.

Quantitative Analysis for Mining Engineers, Ed. 2; E. H. Miller.

Quantitative Chemical Analysis; F. Clowes and J. B. Coleman.

Recent Advances in Physical and Inorganic Chemistry; A. W. Stewart.

Reports of West Virginia Geological Survey, 11 vols.

Report, Vol. 7, Vermont Geological Survey.

Researches on the Arseniates, Phosphates, and Modification of Phosphoric Acid, Reprint; Thomas Graham, 1833.

Researches on the Molecular Asymmetry of Natural Organic Products, Reprint; Louis Pasteur, 1860.

Smoke Preventation and Fuel Economy; W. H. Booth and J. B. C. Kershaw.

Tables for the Determination of Minerals; P. Fraser and A. P. Brown.

Testing of Electro-Magnetic Machinery, Vol. 2; B. Y. Swenson.

Text-Book of Electrical Engineering; A. Thomalen.

Text-Book of Physics; A. W. Duff and others.

Theories of Chemistry; Svante Arrhenius.

Transactions, Vol. 18, American Electrochemical Society.

Transactions of American Institute of Chemical Engineers, Vol. 1 to date.

Vectors and Vector Diagrams; W. Cramp and C. F. Smith.

Volumetric Analysis; E. Knecht and E. Hibbert.

O TIME.

Backward, turn backward, O time, in your flight!
Give me conceit again, just for tonight;
Carry me back to the days when I wore
Loud clothes, and, in fact, was a gay sophomore;
Smooth from my forehead all traces of care,
Cover my poll with a thatch of dark hair;
Put all the doubts that assail me to sleep,
Give me back the self-love I neglected to keep.

Tired of the hollow, the base and untrue,
I long to be somewhere around twenty-two,
With the boundless conceit that enlivened me then,
When I fancied I wielded a masterful pen;
When I thought that the things which I wrote were sublime,
And was sure that my fame must endure through all time—
When I proudly believed that my wisdom was deep
And that genius was resting when I went to sleep.

Turn backward, O time, for tonight, won't you, please,
And let me be gladdened by youth's ecstasies?
Permit me to have the cock-sureness of yore
That I had when I strutted, a proud sophomore,
Believing I knew all a mortal might know,
And sure I was chosen to lead here below;
Oh, put all the doubts that perplex me to sleep,
Give back the conceit I've neglected to keep.

—Chicago Record-Herald.

The use of "coryza wool" for relieving the annoyance of inhaling dust-laden air will be appreciated by workers in dusty mines or mills, or by travelers over dusty roads. Small tufts of this medicated wool are placed in the nostrils, where they effectually remove dust from the air without imposing any inconvenience on the user.

COMPARATIVE STRENGTH OF SEVERAL STYLES OF FRAMED TIMBER SETS—SIMPLEST METHODS BEST FOR HOLDING HEAVY GROUND.

Conditions in one place were such that the sets would be down in six weeks if not relieved; both caps and posts would be half moons. Sawed 10x10 or 12x12-inch caps and posts had to be relieved every morning in certain sections of the ore-shoot. This meant that every stick was overloaded, hence the exceptional opportunity for trying out different styles of framing sets.

Several methods of framing were tried, but it was found that any cuts made in the posts or caps weakened the timbers considerably and that the timbers failed by splitting. This was especially true of the posts. The simplest method was found to be the best. Caps, posts and sills were sawed the proper length and shape, and planks, spiked to the lower side of the caps with thirty-penny spikes, formed a shoulder that prevented the post slipping and obviated the necessity of cutting notches and thus not only weakening the timber but creating a starting place for the timber to split. It was found that 8x8-inch timber framed this way would stand as much as 10x10-inch timber framed with even a slight single notch in the cap. One and one-half inch plank was used for 8x8-inch timber, 2-inch plank for 10x10-inch timber, and 2½-inch plank for 12x12-inch timber. These planks held the posts so that they would break at almost any point before they would split. The planks never buckled or slipped. This method not only saved much time in both framing and setting but gave much stronger timbers.

Probably the principal reason notched timbers fail by splitting is due to the impracticability of getting a perfect fit, thus causing excessive pressure at certain points and splitting the timber.

Many types of timber framing have their uses for certain cases, but in a great many cases money for mine timbers and retimbering, and much of the expense for framing and putting in sets, would be saved if more consideration was given to the utilization of the entire strength of the timber and not so much to the beauty of the even notches and tenons.—Abstract of an article by K. C. Parrish, E. and M. Journal.

George Ade, Purdue's most distinguished alumnus, contributed a poem on girls for the co-ed's issue of the Purdue Exponent, which has just appeared. Following is a sample of the humorist's lyric:

"I want to live in a college town
Where men are thick as bees,
Where the noisy boys in corduroys
Are grouped beneath the trees.
Each night a light
In a parlor bright
And a song in the key of G,
With a real Dutch lunch
For the midnight bunch;
A college town for me."

The above is hardly in harmony with a serious journalistic venture by young women, so I hasten to add No. 2 as antidote:

"You've heard the chanticleer declare
That when he flops his wings and crows
The sun emerges from its lair
And o'er the earth a splendor throws.
O mighty herald of the dawn
Your occupation's done;
The cock-a-doodle of the men
No longer awes the cackling hen.
For I'm quite prepared to demonstrate to you
She rules the rooster, too.

REFRAIN.

"O happy, fast approaching day,
When woman has her own sweet way,
Within six months our country's flag
Will be a talcum powder rag."

—Denver Times.

The tracks that great men leave behind
Upon the sands of time
Oft show they wobbled 'round a lot
Before they got sublime.

Modesty is a great virtue, but a man seldom gets his salary raised on the strength of it.

The
COLORADO SCHOOL OF MINES MAGAZINE

Vol. I. GOLDEN, COLO., JUNE, 1911. No. 9

The North Platte Project—U. S. Reclamation Service.

Andrew Weiss, '99
Project Engineer.

The North Platte Project.

The North Platte Project contemplates the storage and diversion of the waters of the North Platte River for the irrigation of lands lying in the North Platte Valley, in Eastern Wyoming and Western Nebraska. At the present time active operations on this project are confined to the construction of two principal works, the Pathfinder Reservoir, in Wyoming, and the Interstate Canal and its distributing systems, in Eastern Wyoming and Western Nebraska. The construction work on the Pathfinder Reservoir is about completed, but the completion of the Interstate Canal and its distributing system will require about two years more, with the probable amount of available funds. The Interstate Canal irrigates a tract of land of about 130,000 acres, on the north side of the river, between Whalen, Wyo., and Bridgeport, Nebr. There are also under investigation two additional units, namely, the Goshen Park Canal and the Fort Laramie Canal, which contemplate the irrigation of 150,000 acres and 80,000 acres, respectively, on the south side of the river, between the towns of Guernsey, Wyo., and Bayard, Nebr.

The North Platte River and Its Water Supply.

The North Platte River carries the run-off from a large and mountainous territory. Its catchment basin contains the mountains surrounding North Park, in Colorado, and the Ferris, Green, Seminole, Laramie, and inferior ranges in Wyoming. Through its tributary, the Sweetwater River, it also carries the run-off from a considerable portion of the Continental Divide. Rising in the mountains of Northern Colorado, the river flows in a northerly direction into Wyoming, where, after traversing half the State, it turns to the southeast and continues in a southeasterly direction to its junction with the South Platte, in Central Nebraska.

These geographical features determine largely the principal characteristics of the stream. During the spring and early summer the melting snows of the mountains swell its volume to large proportions, while in the late summer the long continued drouths shrink its volume to that of a small stream distributed over a wide stretch of shifting sand. On account of this irregularity of flow it was found necessary to provide means for the storage of the flood-waters of the spring and early summer, in order that they might be delivered to the lands under the various canals evenly through the season. To meet this necessity the construction of the Pathfinder Reservoir was determined upon.

The average run-off of the North Platte River at the Pathfinder Reservoir is 1,450,000 acre-feet, or about five times that of the Cache La Poudre River, in Northern Colorado, which irrigates the famous Fort Collins District. With proper storage, such as is contemplated by the use of this reservoir, there need be no fear of water shortage on any lands which may be watered by canals from this river for some years to come. An abundant supply of well water, of excellent quality, may be reached at all points on the project at depths ranging from 60 to 300 feet.

Pathfinder Reservoir.

The Pathfinder Reservoir is situated in Central Wyoming, and is formed by the construction of a masonry dam in the bed of the North Platte River, three miles below its junction with the Sweetwater. The Pathfinder dam is of the arched type, the radius of its center line being 150 feet. It is built