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Associated Students of the Montana School of Mines

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The Montana School of Mines AMPLIFIER

Vol. VII, No. 10

PUBLISHED BY THE ASSOCIATED STUDENTS OF THE MONTANA SCHOOL OF MINES

Friday, March 17, 1961



RESCUE AND FIRST AID TRAINING: Clockwise, Kurt Weis, Don Olsen, Chuck Palaggi, Frank Quilici, and John Jaksha.

Mines Rescue And First-Aid Training Held

Courses in Mine Rescue Training and First-Aid Training began at Montana School of Mines on Monday, February 27, and concluded on March 10.

Mine Rescue Training, required of all seniors, was conducted at the Original Mine Rescue Station in Butte. Senior metallurgical and geological engineering students spent each afternoon from February 27 through March 3 in this training. Mining and petroleum seniors attended the course from March 6 through March 10.

Engineer Exam To Be Given

The Montana State Board of Registration for professional engineers and land surveyors has recently announced that the 1961 engineer-in-training examination will be held on Saturday, April 22.

The examination will be given at the Montana School of Mines in Butte and at Montana State College in Bozeman. The written examination will start at 8:00 a.m., and consist of two 4-hour sessions. It follows a synopsis approved by the National Council of State Boards of Engineering Examiners covering college fundamentals in the subject areas of mathematics, chemistry, physics, electrical theory, thermodynamics, engineering economics, statics, dynamics, fluid mechanics, and strength of materials.

Coming Events

MARCH

- 20—Convocation, Missoula Players, Library Museum Building, 8:15.
- 25—Easter Recess Begins, 12 Noon.
- 27—Student Wives Bridge Club, 7:30, Co-ed Room.

APRIL

- 3—Easter Recess Ends, 8:00 a.m.
- 10—Student Wives Bridge Club, 7:30, Co-ed Room.
- 12—Student Wives Meeting, 8:00 p.m.
- 15—E-Day.
- 20—Convocation, Library-Museum Building.
- 22—Engineer-in-training Exam, 8:00 a.m., Room 204 Engineering Building.

Don Mahagin Presents Seminar

On Wednesday, March 8, Mr. Don Mahagin, a senior metallurgy student, presented a seminar entitled "Direct Evidence of Dislocations." Mr. Mahagin presented a brief description of dislocations and the methods used in studying them.

"The study of dislocations in crystalline solids has been aided considerably in recent years by the development of certain techniques which permit microscopic observation of these defects. These techniques have not only proven the existence of dislocations, but also have made possible studies of the dislocation density of many crystals, the movement and interaction of dislocations, and the nature of dislocation networks in crystals."

Mr. Mahagin then proceeded to describe four methods which have been employed in the study of dislocations.

The first method mentioned by Mr. Mahagin was etching. This method is based upon the fact that dislocations are regions of disorder within a crystal. The process of



DON MAHAGIN

etching is subdivided into two separate categories — chemical and thermal.

Decoration was the second method mentioned and is based essentially on diffusion and precipitation on a dislocation line. After precipitation has occurred, thin slices of the material are placed in a liquid which has the same index (Continued on Page 2)

Report on E-Day Plans and Progress

Individual committees have met and are planning programs and working on exhibits for E-Day, April 15 and 16, reports Ed Speelman, president of the Anderson-Carlisle Society.

Local firms will donate some of the equipment used as part of the exhibits; other equipment the students have constructed themselves. Lab equipment frequently used will be exhibited and explained. The Navy has offered the School of Mines a technical display.

Publicity arrangements are made for newspaper coverage, before and during E-Day. Members of the advertising committee, in cooperation with Mr. Kelly, are Gay Kravik, Ed Speelman, Dan Rovig, and Jim Mazza. Letters of invitation have been sent to all students' parents, the surrounding schools, various state officials, and other interested groups.

The same time as E-Day, the Butte businesses are having displays and a "Home Show" at the civic center. It is felt that these two programs will attract more people and publicity by being held on the same dates.

"Yellow Jacket" Coming To Mines, March 20

Lead Processing Seminar by Don McMillan



DON McMILLAN

On Wednesday, February 22, Don McMillan, senior metallurgy student, presented a seminar on blast roasting of lead. His talk was based on experience gained while working at the East Helena Smelter last summer.

Lead sulfide, at the temperatures ordinarily reached in practice, is not reduced by carbon or carbon monoxide. Also, the presence of too much sulfur in the ore charge would result in an undesirable proportion of the lead into the matte and render the subsequent recovery of the metal difficult. The solution of such a problem has been solved by oxidizing the lead sulphide to lead oxide, a process known as roasting. Also, lead ores, because of their physical characteristics, require that the roast be in the form of a hard, strong and yet porous clinker when charged to the blast furnace. Such a process for making this clinker is known as sintering.

The combination of the two above processes is termed blast roasting and is used extensively in the preparation of lead ores before (Continued on Page 4)

MSU Masquers To Present Chinese Drama

The smell of burning incense, the sound of Chinese music, and the flavor of the traditional Chinese theater—these will be found in the Montana State University presentation of The Yellow Jacket.

The extravagantly staged production, directed by Firman H. Brown, Jr., chairman of the MSU Department of Drama will play (Continued on Page 3)

AIME Convention Held In St. Louis

The annual AIME convention was held in St. Louis, Missouri, from February 27 to March 3.

Delegates from major companies, representing most of the states and many foreign nations met to discuss new trends, methods and improvements. Delegates presented special papers on their respective fields. Reports covered topics ranging from rising production costs to the future of the metals industries.

Thurston Morton, Chairman of the Republican National Committee, was the featured speaker.

The Chase and Park Plaza Hotels were the scenes of much social activity. The Ladies' Auxiliary entertained with luncheons and tours of the city. Several of the organizations sponsored open houses in the evenings. The highlight of the social activity was undoubtedly the banquet served on the evening of March 1 in the Chase Hotel.

Professors Vine and Harnish represented Montana School of Mines at the meeting.

It is also possible for an engineering student to attend this meeting with his expenses paid as a representative of a company, for many mining and technological schools send students in this manner. It is necessary only for a student to write a company to obtain information on this matter.

Last year the convention was held in New York. Next year it will be held somewhere on the West Coast.

Mineral Club Bags Barite



On Sunday, February 26, the Mineral Club went on a field trip to Indian Head Rock near Basin, Montana. About sixteen members attended.

The Mineral Club left the residence hall at 9:00 a.m. and several of the adventurous mineral

hunters spent the day climbing Indian Head Rock. Their efforts were rewarded when they found several Gold Barite crystals, the largest of which was four inches square.

The Mineral Club is planning another field trip next week.

The Amplifier

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ARTCRAFT PRINTERS BOZEMAN, MONTANA

Editorial

In view of the financial status of Butte today, one of the more favorable aspects of the Montana School of Mines is the relatively small costs for a resident of Butte or a nearby town. But one of the more unpleasant things that helps to offset this early gained advantage comes when the newly registered student wanders down to the Book Store to pick up his books. The initial shock comes when the price of the individual text books is announced. Although the separate prices don't seem too outrageous (\$6.00 to \$12.00), when added up they can make quite a dent in one's bank account, especially if one has to buy more than one hard-covered book for only one subject. After the textbooks are purchased, one has to buy an assortment of lab books, paper, notebooks, pens, drawing instruments, slide rules, etc., for which a young fortune is paid.

Another sore spot with many, especially general students, is the price paid for paperbacks purchased primarily for literature courses. When as many as twelve to fourteen books have to be purchased, one would think as many corners as possible would be cut. One paperback on sale now for American Literature is Faulkner's *The Sound and the Fury*. The Book Store is selling this choice literary effort for \$1.25, while an establishment in downtown Butte is selling the same book for \$0.50. I'll grant you that the one being sold by the Book Store is probably a better quality than the \$0.50 one, but when a person is buying twelve or fourteen of them, I don't believe the quality of the book would influence the buyer too much.

One other thing which causes some dissatisfaction among students who would rather not keep their text books for further reference is the fact that the School of Mines Book Store does not buy back used text books at the conclusion of the school year. Due to the fact that it does not buy the used books, it cannot sell them, and the student has to buy new books (at new prices) unless he can find a former student with the book he wishes to buy.

Paying Jobs In Europe This Summer

Frankfurt, Ger., Jan. 2. — College students have a unique opportunity to obtain summer jobs in Europe that will help pay their board, room and travel costs under a program sponsored by the American Student Information Service, Frankfurt, Germany.

Last summer European employers opened their businesses and homes to American students in

order to make it possible for students on a limited budget not only to see Europe but "live it".

Jobs available to students include work in resorts, hospitals, as camp counselors, child care, construction, farm and many others, with the standard wages of the country being paid.

For more free information write directly to, ASIS, Jahnstrasse 56-a, Frankfurt/Main, Germany.

LITTLE MAN ON CAMPUS



"HE'S NOT REALLY HARD UP FOR PAPER—IT'S JUST RUGPAD'S WAY OF SUGGESTING YOU TAKE MORE TIME IN PREPARING FOR YER LECTURES."

Campus Rod and Gun Club

The Montana Fish and Game Department is asking the full cooperation of more than eleven thousand sportsmen in answering an economic survey questionnaire designed to find out how important hunting and fishing are to the economy of the Treasure State. The questionnaires were mailed this week to a representative group of both resident and non-resident sportsmen.

Fourteen questions are outlined on the forms ranging from "where a sportsman hunted, how many miles were driven and the approximate cost to each sportsman pursuing fishing and hunting activities."

The facts, when tallied, will be very valuable in determining the economic impact fishing and hunting have in Montana.

State Fish and Game Director W. J. Everin said he is pleased that the Highway Department will cooperate with the Fish and Game Department to consider fish and game habitat in future highway construction projects. "The quest for faster, better roads often results in the loss of fish habitat in streams," Everin stated.

With both departments working in close cooperation, Montana sportsmen and thousands from out of state will be assured both of good roads as well as fine fishing streams and access to recreational areas, Everin pointed out.

Highway Department Engineer Fred Quinnell told commissioners "hereafter a copy of proposed construction plans will be sent to the Fish and Game Department." This is the plan which is drafted just prior to the final survey of each road project.

Montana hunters continued to enjoy top quality moose hunting during the 1960 hunting season with 441 moose reported taken by sportsmen. Montana ranks third in the nation in moose harvest, topped only by Alaska, first, and Wyoming, second. Highest moose kill ever recorded in the Treasure State was 470 in 1958.

F. and G. Department stated that "careful management of both moose and bighorn sheep has paid big dividends for Montana sportsmen. The harvest of moose has increased from 50 animals in 1958 to over 400 during each of the last three years. During the last five seasons on bighorn sheep hunting, nearly 300 rams have been taken a big increase over only two rams taken in 1948.

Silt in a stream killed 100 per cent of the eyed-rainbow trout eggs planted at four different locations in a study recently conducted by a fisheries biologist of the Montana Fish and Game Department. In contrast, almost 99 per cent of the eggs planted upstream from the silt-laden water survived.

According to John Peters, fisheries biologist, this shows just how detrimental silt-laden water can be to the success of trout spawning.

In this study, the eyed-rainbow trout eggs were first packed into egg hatching boxes and then placed in the stream bed. The boxes hold about 500 eggs each and enable an investigator to determine, at a later date, whether the eggs hatched or died. Two boxes were placed at a station just upstream from the point where the silt-laden water entered the stream. Of the 1,000 eggs in these two boxes, 986 hatched. Two boxes were placed at each of four additional stations extending 20 miles downstream from this point. All of the 4,000 eggs in these boxes died due to the silt.

"Silt pollution is one of the most serious forms of fish habitat destruction," Peters said. He added that "silt settling on the stream bottoms fills the spaces between individual rocks and stones. This smothers out bottom dwelling insects on which the fish feed and, as demonstrated in this recent study, kills the eggs of fish that attempt to spawn."

Return waters from irrigated fields often carry large amounts of silt due to excessive use of water in irrigation. Over-grazing and other poor agricultural and lumbering practices also cause erosion

(Continued on Page 4)

Who's Who on Campus



Susan Hayes

The Coed Personality of the week is Susan Hayes. Originally from Miles City, she has lived in Butte for fourteen years. She is a 1960 graduate of Girls Central High School.

Sue received the Butte Medical Auxiliary scholarship and plans to transfer to Carroll College after completing one year at the Mines. She plans to go into Medical Technology and would like to work in California.

A member of the Coed Club, Glee Club, and Newman Club, Sue is also a very active singer on campus. She was a member of the Central Cecilian Choir and this year she was a member of the Glee Club Quartet and has sung at various school functions.

Sue works part-time at the Community Hospital as a lab assistant.

Her hobbies include bowling, singing, and reading. Pizza is her favorite food. Her pet peeve is "people who drive too slow."

When asked what she thought of the School of Mines, Sue replied, "As of now? . . . Well, it's really a great school."



Bill Pickard

Who's Who on Campus spotlights Bill Pickard as the campus personality of the week. From Miles City, Montana, Bill is a junior this year majoring in Petroleum Engineering. He plans to graduate next year and would like to secure a job in the Northwest, preferably in Montana. Bill has received advanced scholarships and also received the Cobb Foundation Scholarship his Sophomore year.

A member of the A.I.M.E., Bill is also a Student Council member this year. He played Intramural Basketball for three years and was vice-president of his class his Sophomore year.

Last summer Bill worked for Pan-American Petroleum in Kimball, Nebraska. As a hobby he collects paintings by Charles Russell, ("not originals," he added.) He also enjoys water skiing.

He lists steak as his favorite food.

When asked what he thought of the School of Mines, Bill replied, "I really like it."

Federal Employment Open to Engineers

On March 9, Mr. James McLuskie, the regional personnel officer of the Bureau of Reclamation in Billings, talked to the students of Mr. Kelly's Economic Class.

Mr. McLuskie told the students about the "Job Opportunities in the Federal Government." He said that since the government is one of the largest and finest employers of the country, many new graduates were needed to fill the jobs available.

The government has seventy departments which include almost any kind of work desired. There are very good chances for those who are willing to work to advance to the best jobs with high salaries. The starting salaries are usually around \$5480 for those who are interested in engineering. The starting salary for those who graduate in the top 20 percent of their class is \$6480. Six and one-half percent of the salary is placed in a retirement fund which is granted to the employee upon retirement or if he takes another job. There are also excellent sick leave benefits and yearly vacations.

A person applying for one of the federal government jobs must be a citizen of the United States and must take a civil service examination. There are different examinations for each type of job. These examinations are given in almost all the larger cities of the country once a month.

For further information about the opportunities in federal government write to the Civil Service Office in care of your local post-office.

the metal. Also, movements and interactions of dislocations can be observed directly.

The last method mentioned was that of X-ray microscopy. This technique is fairly recent (1958) and is very similar to the electron microscopy. This method can be applied to bulk specimens, but at present, it is limited to crystals of comparatively low dislocation density.

The talk was followed by a question and answer session.

Students Advised To Submit SSCQT Applications Now

Applications for the April 27, 1961 administration of the College Qualification Test are now available at Selective Service System local boards throughout the country.

Eligible students who intend to take this test should apply at once to the nearest Selective Service local board for an application and a bulletin of information.

Following instructions in the bulletin, the student should fill out his application and mail it immediately in the envelope provided to Selective Service Examining Section, Educational Testing Service, P. O. Box 586, Princeton, New Jersey. Applications for the April 27 test must be postmarked no later than midnight, April 6, 1961.

According to Educational Testing Service, which prepares and administers the College Qualification Test for the Selective Service System, it will be greatly to the student's advantage to file his application at once. Test results will be reported to the student's Selective Service local board of jurisdiction for use in considering his deferment as a student.

DON MAHAGIN—

(Continued from Page 1)
 of refraction as the crystal and light is transmitted through the crystal into a microscope. The passage of the light is impaired by the dense impurities and consequently the dislocation lines are revealed. This method has the advantage of revealing the interior arrangement of dislocation networks within the crystal.

Electron microscopy was next mentioned and can be used to study dislocations in two ways—direct lattice resolution and transmission. This method can be used to study many materials and the complex networks of dislocations can be studied even after deformation of

Bowlers Needed For Bozeman Tournament

The Montana School of Mines will again participate in the fourth annual Montana College Conference Bowling Championships to be held in the Montana State College Student Union Building April 15 and 16.

In the interest of providing the best possible teams to represent the Mines, bowlers will be chosen on the basis of their highest established average. Any and all bowlers who have bowled 15 games

or more in any league this year are eligible to submit their average to Mr. Simonich at his office in the Gymnasium.

Any bowler who is not competing at bowling this year, but who has at some time in the past held an established average will also be eligible on the basis of a pre-tourney roll-off. Berths on the five-man team will be awarded by Coach Simonich prior to the week end of April 1 to assure ample time for the squad to practice together as a team at least once before the tourney.

The tournament will consist of 10 games: a six-game team event with trophies given to winners of first, second, and third places; and a four-game singles event in either open or handicap based on a 175 average, with trophies given the first and second place winners of both the open and handicap division.

It is possible that all games may be bowled either Saturday or Sunday, thus eliminating the necessity of the team's staying in Bozeman overnight.

PRE-STRESSED CONCRETE— (Continued from Page 1)

civil engineering from Montana State College. Later, he was an instructor and assistant professor within the College's Department of Civil Engineering.

Illustrated talks on the uses of pre-stressed concrete were given.

Richard Pugh, associate professor of mechanics and in charge of arrangements, said that about ninety persons attended.

Floyd Swenson commented briefly on the history of pre-stressed structures. A movie demonstrating the basic physical properties was shown. John J. Walsh gave an illustrated talk showing design principles and formulas. He also showed typical dimensions of the beams used in highway bridge and overpass construction. Mr. Swenson mentioned the research program conducted to study the use of fiberglass as a reinforcement material.

Swenson concluded the meeting with a talk on construction methods. He used slides to illustrate the operations at the pre-stressed plant and erection methods on the job.

The Montana State Highway Commission, Portland Cement Association, and the Montana School of Mines were co-sponsors of the meeting.

Ice cream was known as far back as 54 A.D. It was first manufactured commercially in 1851 by a Maryland Quaker, Joseph Fustell.

Connors, Lemelin Place on All-Star Basketball Team

Coach Ed Simonich announced last week that Jim Connors and Bob Lemelin placed on the Conference honorable mention. Both Jim and Bob are freshmen and both are from Anaconda.

Over the season Jim averaged 14.9 points per game and Bob averaged 16.2 points per game. Connors was the Mines post man throughout the season and led the

team in both total rebounds and total points. Bob was a forward and was right behind Connors in both scoring and rebounds.

George Downing, builder of the 10 Downing Street home of British Prime Ministers in London, was the nephew of Governor John Winthrop of the Massachusetts Bay Colony and was educated at Harvard.

We know a guy who is so tight he won't buy his girl a beach umbrella when they lie on the sand. He tells her shady stories instead.

YELLOW JACKET—

(Continued from Page 1)

here March 20 at 8:15 p.m. in Library-Museum Hall.

The stage itself is a recreation of a Chinese theater. No realistic scenery is used, as elaborate Chinese furniture suffices to represent mountains and bridges. The lavish oriental properties on stage are handled throughout the performance by property men who are part of the cast, in the tradition of the Chinese theater. As a Chinese actor would say, the "... property man to your eyes is intensely invisible."

The setting displays elaborate oriental decor, as stage center holds a series of steps leading to a circular opening representing heaven.

Accentuating the thoroughly oriental flavor of the MSU production of "The Yellow Jacket" are costumes specially designed and constructed by Sarah James, costume designer for all major Masquer productions. All of the women wear elaborate wigs, built to suit the individual character. Men wear gaudy make-up of many colors on a white base, all according to Chinese theater tradition. These costumes and make-up designs are results of extensive study in Chinese theater costuming extending back through many centuries of the theater. The twenty-eight costumes are multi-colored satin, accented with gold and silver, to produce a glittering spectacle.

As the staging and costuming are traditionally Chinese, so must the acting be Chinese. All movements on the stage are in the pattern of stylized Chinese acting, with tiny steps for the women, and grotesque and sweeping gestures for the men.

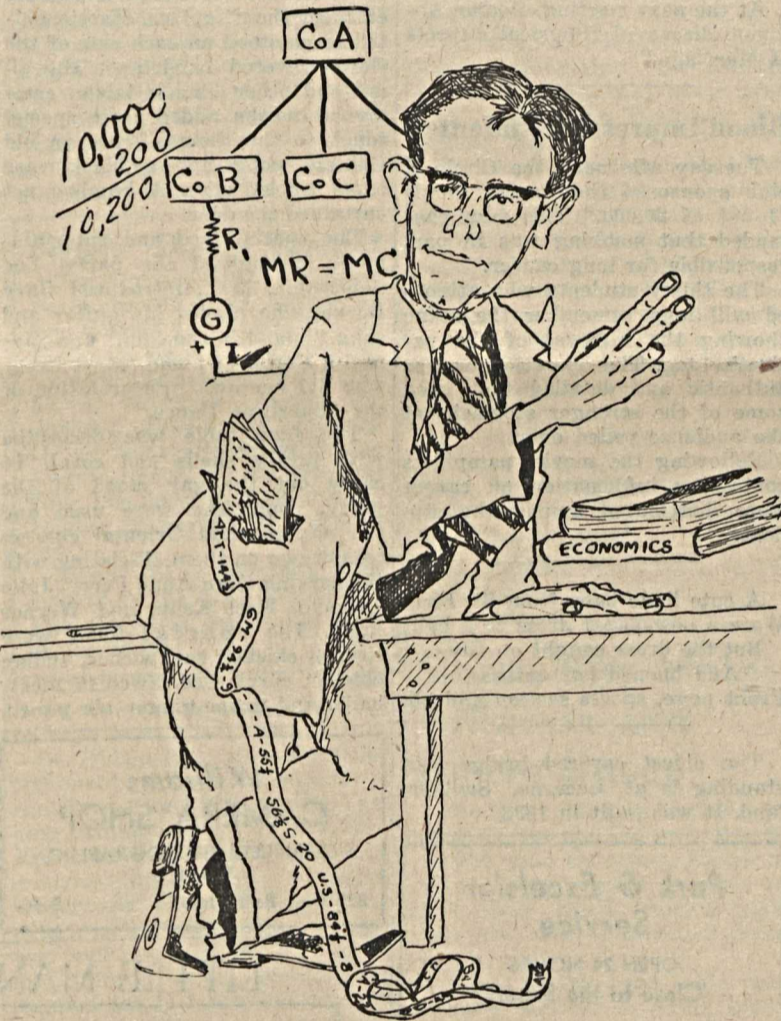
The authentic recreation of the Chinese stage is designed and constructed by Richard H. James, Jr., Instructor and Technical Director at MSU.

"The Yellow Jacket", which is the "world's most famous Chinese play," has been performed thousands of times in the United States and in almost all of the countries of the Western world where it has delighted theatergoers in New York, London, Berlin and Paris as well as those in small communities.

Its seemingly universal charm arises from the rich mingling of fantasy and reality, philosophy and adventurous romance, comedy and pathos.

"The Yellow Jacket" tells the story of the life of a young man, Wu Hoo Git, played by Ray Maidment, Michigan, beginning with birth and traveling through youth and into adulthood, and includes the romantic experiences of this young man. At the conclusion of the play, Wu Hoo Git finds the meaning of his life.

"The Yellow Jacket" is this year's tour presentation by the MSU Masquers and the Department of Drama who will travel 2500 miles and play upward of a dozen performances before returning to Missoula.



Lemelin Leads Mines Scorers

Bob Lemelin, a freshman from Anaconda, led all scorers with a 16.2 point average per game. Jim Connors, also from Anaconda, was second with 14.9 point average.

Complete game totals:	TP	AVE. RE.	FG %	FT %	
Lemelin, Bob	16.2	227	7.8 game	44.7	66.1
Connors, Jim	14.9	208	7.9 game	44.9	50.0
Thompson, Bill	8.1	113	4.3 game	40.6	60.9
Liebsch, Tom	8.5	118	4.5 game	39.8	65.1
Ceserani, Jim	7.3	31	3.0 game	47.3	86.6

Baseball Schedule for 1961

- April 22—Mines vs. Western (doubleheader) at Butte. (1st game conference).
- April 29—Mines vs. Western at Dillon. Mines vs. Carroll at Dillon.
- May 6—Mines vs. Carroll at Havre. Mines vs. Northern at Havre.
- May 13—Mines vs. Western at Butte. Mines vs. Eastern at Butte.

This schedule does not include those games that are to be arranged with the University and the State College.

Track Schedule for 1961

- May 6—MSC Invitational (tentative).
- May 13—NAIA meet at Dillon.
- May 19 or 20—Conference Spring Carnival at Butte (Track, Tennis and Golf).

Football Schedule—1961

- Oct. 7—Western Here 28—Northern There
- 14—Rocky Here 21—Carroll Here
- Nov. 4—Eastern There

Basketball Schedule—1962

- Jan. 6—Western Here Feb. 3—Rocky Here
- 13—Carroll Here 9—Carroll There
- 19—Rocky There 10—Northern There
- 20—Eastern There 17—Eastern Here
- 20—Western There 20—Western There
- 23—Northern Here

Know Butte...

BUILDS FIRST SILVER MILL

John How, loyal Unionist in the Civil War and one of St. Louis' leading merchants of his day, built the first silver mill in 1870 in the Butte district, according to some historians.

The mill was erected in Brown's Gulch, where it was found to be unprofitable to operate, and then moved to a site just west of Butte in 1875. It was situated on the side of the road that led to Rocker along Silver Bow creek. It sometimes was known as the Centennial Mill.

The How Mill when compared with the Lexington, the Alice and Moulton mills of a later day was but a small primitive affair, but it did its part to develop the great mining camp.

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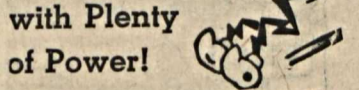
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Interest

Park and Main Butte

Isaacson Presents Lectures On Rock Pressure

Mr. E. de St. Q. Isaacson, experienced in control of deep level mining problems, delivered a series of lectures on the campus of Montana School of Mines in the Physics-Lecture Room of the Physics-Petroleum Building on March 16, 1961.

Born June 4, 1915, in London, England, Mr. Isaacson gained his experience in the Kolar Gold Fields of India, where the most difficult mining problems in ground control are found. He founded and was the first principal of the Kolar Field School of Mines in India, and established U.G.F. Mining Research Laboratory.

Prior to the war, in which he served as a Captain in the British Army (Intelligence Corps), he worked in various mining fields in the Witwatersrand, Rhodesia, Belgian Congo, and what is now Ghana.

Some of the former positions he has held since 1949 include Principal of the Kolar Gold Fields School of Mines, Officer-in-Charge of the Government of Mysore Rockburst Research Unit, and agent of the Champion Reef Mine in the Kolar Gold Fields. He is presently employed by the Atlas Copco Aktiebolag of Stockholm, Sweden, as Technical Representative in India and Nepal since March, 1960.

Mr. Isaacson is also credited with a number of papers on Mathematics and Technical aspects of Mining and he is the author of the text "Rock Pressure in Mines."

The first lecture, presented at 1:30 p.m., was devoted exclusively to the problem of predicting and controlling rockbursts in underground mines. The other two lectures, at 3:00 and 8:00 p.m., dealt with rock pressure problems in general. The lectures were very informative to those engaged in mining who are confronted with heavy ground pressures and rockbursts.

The lectures were a part of a series being given throughout the United States and those in Butte were the only ones in the northwest. Previous to his series of lectures presented here, Mr. Isaacson delivered lectures at the Missouri School of Mines, Rolla, Missouri; the University of Minnesota, Minneapolis, Minnesota; Michigan Tech, Houghton, Michigan, and at the University of California, Berkeley, California. After he leaves the Mines, Mr. Isaacson will continue his lecture tour until April 1, visiting such places as the Colorado School of Mines, Golden, Colorado; the University of Illinois, Urbana, Illinois, and Pennsylvania State University, in University Park Pennsylvania.

LEAD PROCESSING—

(Continued from Page 1) they are charged to the blast furnace.

The Dwight-Lloyd machine, so named after the designers, has proved to be the most popular machine for blast roasting. Such a machine will handle a charge which consists of residues, crude ores, slimes, dusts, concentrates, and fluxes which are blended together before entering the machine. The charge is roasted and sintered by adding a source of heat, usually gas burners, and by drawing this heat through the charge by air currents. It has been discovered by experience that greater efficiency of operation is obtained by passing the charge over the machine twice.

Since oxidation is of primary interest in the first pass, heat is kept to a minimum or just enough to oxidize the charge and remove as much sulphur as necessary. Coke is added to the second pass to give additional heat for the purpose of fusing or sintering the charge. Double sintering has had a marked effect on blast furnace operation because if the entire charge is sintered the blast furnace becomes merely a melting device. For ex-

Student and Faculty Wives Fete Coeds and Mothers

On Sunday evening, March 5, the student wives and faculty wives sponsored a get-acquainted party in honor of the coeds and their mothers. Held in the Copper Lounge, the party was attended by 69 people.

The Saint Patrick's Day theme was carried out in the decorations, and a group of Irish folk dancers, comprised of students from Girls Central and Christian Brothers High School, provided entertainment. Several games were played,

ROD AND GUN CLUB—

(Continued from Page 2) which result in excessive silt being carried into streams, thus destroying fish.

The black bear season opened statewide March 15. No closing date has been determined. Game preserves closed to big game hunting and other big game closures remain closed to black bear hunting.

Winter fish kill, a common problem in shallow northern lakes, will soon be combated in Montana by a new technique, the fish and game department announced. Brown's Lake, near Ovando, will be the site of an experimental installation of a special type of aerator late this month.

Winterkill, sometimes called freezeout, is the result of oxygen depletion in a lake's waters. Oxygen is plentiful in most shallow lakes during the summer when wind action aerates the surface waters. Summer days also furnish long periods of light which enable aquatic plants to add oxygen through photosynthesis. This is the process by which plants, exposed to light, use carbon dioxide and release oxygen.

During the winter months, ice cover prevents the introduction of oxygen into the lake by wind action. Photosynthesis is greatly reduced by both shorter days and the filtration of light rays through ice and snow cover. Due to the longer periods of darkness and reduced light, plants not only stop giving off oxygen but reverse this process and use oxygen and release carbon dioxide. This reversal aggravates the problem of oxygen depletion, it was explained by Art Whitney, department fish manager at Missoula.

The possibility that Brown's Lake would winter kill was recognized when this body of water was selected for rehabilitation in 1957. At this time, however, no economical means of preventing fish loss was known. The long-range management plan for the lake included heavy restocking.

Last year, a new type of portable aeration system appeared on the market and was found to be economically feasible in preventing winterkills in small lakes. Recently, the manufacturer's guarantee of preventing winter fish loss was expanded to include the larger lakes. Reports on installations in other western states have been very favorable.

ample, a furnace which would smelt 100 tons per day of unsintered charges in the past can now smelt 600 tons per day when the entire charge is double sintered.

The chemical aspects of blast roasting are explained by the simple reactions between carbon and oxygen, lead sulphide and oxygen, lead oxide and sulphur trioxide, lead sulphide and lead oxide, lead sulphate and lead sulphide, lead oxide and silicates, and lead oxide and carbon.

The factors that are instrumental in governing the regulation of the Dwight-Lloyd machine are physical in nature. These factors are porosity of the ore bed, machine speed, bed depth, amount of fuel, and the blending of the ore. In addition it might be mentioned that the porosity of the charge on the machine depends on the amount of moisture, the amount of return sinter, and the size and distribution of pellets.

and some lovely and unusual prizes were awarded to the winners.

Fruit salad and tea sandwiches were served, and lastly a door prize, the lovely centerpiece, was awarded to Janet Richardson.

Mrs. V. Griffiths and Mrs. W. Hall were co-chairmen for the faculty wives, and Mrs. G. Mondlak was chairman for the student wives.

The decorations and invitations committee consisted of Mrs. P. Fossey, Mrs. K. Tyner, Mrs. W. C. Hahn, and Mrs. T. F. McBride.

On the food committee were Mrs. R. Coppage, Mrs. R. Laughlin, Mrs. E. Koch, Mrs. F. H. Kelly, Mrs. H. C. Fisk, Mrs. W. A. Catenaro, and Mrs. G. P. Sarsfield.

Newman Club Continues Discussions on Marriage

On February 28, Reverend J. Sarsfield O'Sullivan gave an informative talk entitled "Marriage in God's Plan of Creation and Redemption." This, the second in the series of lectures on marriage, was not only an interesting lecture, but also provided material for the discussion which followed.

The following week, Reverend William Greytak of Carroll College spoke on "Courtship." Both of the lectures were well attended.

At the next meeting, Doctor Antonioli discussed "Physical Aspects of Marriage."

Blood Impresses Students

Tuesday afternoon the Circle K club sponsored the Cancer movie "1 out of 20,000." This film contended that smoking was in part responsible for lung cancer.

The thirty students who attended will long remember the scene showing the removal of the patient's lung. The operation was so authentic and detailed that even some of the stronger stomachs of the audience rolled over.

Following the movie, pamphlets containing information on cancer were distributed among the students.

A cute little babe from St. Paul Wore a newspaper dress to a ball; But the dress caught on fire And burned her entire Front page, sports section and all.

The oldest covered bridge still standing is at Lucerne, Switzerland. It was built in 1333.

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Three Men Find Archeologists' Relic-Rich Nevada Discovery

Archeologists admitted today they have been secretly working for 18 months on one of the most important prehistoric finds in the history of Nevada.

Three Sparks, Nev., men stumbled into one of the relic-rich caves, forcing officials of the University of Nevada to acknowledge the project.

Officials still are keeping secret the exact location of the caves to prevent vandalism.

It is believed, however, the find is at the site of ancient and now-dry Lake Winnemucca, part of the

defunct Lake Lahontan which once covered most of northwestern Nevada.

The Sparks trio discovered the cave containing a baby's skeleton wrapped in fibers and animal hide, well-preserved artifacts and water baskets still capable of holding water.

The trio, Jim and Bob McKinnon and Paul Dinan, also found a rare throwing stick about 18 inches long, grooved at the end for holding an arrow or dart point.

Only about 12 of these sticks have been found in the United States and only one other has been found in Nevada. It is estimated to be more than 2,000 years old.

Richard Shutler, Jr., archeologist of the museum and Desert Research Institute, said the artifacts of the caves also include a "beautiful chert knife," matting, cordage, shell horns and beads. The beads and shell horns have been traced to California prehistoric dwellers, indicating that some trading took place.

Artifacts are the products of primitive art. Chert is impure flintlike material.

International Affair Held March 11

Saturday evening, March 11, the International Club sponsored their annual dance in the Copper Lounge. As in the past the special foreign foods, entertainment, and gay atmosphere made the dance a well-attended success.

Following the friendly Hawaiian custom, leis were given to the couples as they arrived. The Bob Bowman Orchestra, also wearing leis, played favorite Hawaiian songs and other popular dance music.

Revolving colored lights silhouetted a palm tree and an island girl. The soft-colored changing lights also flashed on the fireplace corner, where large pink flowers outlined the fireplace. Exotic potted ferns stood on each side of the flower-covered bandstand. Hawaiian and other Pacific Island ceremonial masks added their special touch to the theme. From an old Chinese gong and a black vase came smoky mist. A bamboo net curtained the door.

The special food and entertainment highlighted the party. Lee Seperstein, M.C., introduced Gary Burke, who played his guitar and sang "Island in the Sun," and "Jamaica Farewell"; and Karyl Keup, who did her own interpretation of the "Sacrifice Dance."

The food table was decorated with pretty shells and coral. To carry out the gay mood of the party, chopsticks were used and the napkins had Oriental characters drawn on them. Assisting with the serving were Anne Perry, Julio Tamayo, Karl Keup, and Werner Raab. The special foods were French chicken sandwiches, Indian chicken curry rice, Swedish meatballs, and grape-ginger ale punch.

High Schools Hold Career Days

Professor Harnish and Dan Rovig, a senior student in mining, will travel to Kalispell on March 21 to represent the School of Mines in a Career Day program being sponsored by the high school. They will speak in Columbia Falls and Whitefish that night. Girls Central held a similar program on March 9, and invited Mrs. E. G. Koch to council girls interested in science. These programs which are held in the spring by many of the state's high schools offer students a chance to listen to authorities in their prospective fields of interest, and to ask questions.

The United States is estimated to have unmined uranium ore reserves amounting to 86 million tons.

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"WELL, I'M GLAD TO SEE THEY'VE FINALLY DONE SOMETHING TO SOLVE THE STUDENT PARKING PROBLEM."