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Associated Students of the Montana College of Mineral Science and Technology

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Amendment to raise activity fee passed

On March 7, Montana Tech voted on whether they wanted a student activity fee of $20.00 for each semester instead of the previous fee of $5.00. There were 250 students who voted yes for the new constitutional amendment and 42 students who voted no. Since 85.60% of the votes were yes, more than the required 2/3 vote, the new constitutional amendment was passed.

This issue was an example of better student support than has been shown before. A petition signed by 84 students at Montana Tech was brought in to bring this once defeated measure to another vote. Also, there was never a sign put up around the school urging students to support this issue. The way the students defended the measure at the A.S.M.T. Constitutional meeting showed a strong response to the appeal of the petitioning students.

A convention, which was an open student council meeting, was held on March 6, 1967 to discuss the proposed raise in student activity fees.

President Koch attends workshop

President Edwin G. Koch is attending the ASCU How-To-Do-It Development Workshop in San Francisco. Conducted by the Association of State Colleges and Universities (ASCU), the workshop is being held in the Sheraton Palace Hotel April 3-5. Discussions during the workshop concern methods of coordinating school development programs and their financial backing. Ways of securing the needed private financial support, as well as gifts and bequests, will be related to long-range planning for institutional development.

Circle K College days start today

Plans for the 1967 edition of college days at Montana Tech are in full swing according to Dave Kneebone, chairman for the event. The Circle K club members are directors of the annual sessions, conducted to familiarize students of area high schools with Montana Tech.

About 150 students of Butte high school will attend the program on April 5. On April 7 students from Butte Central, Anaconda Central, Anaconda Public, Deer Lodge, and Butte High will assemble. About 80-90 students in all, will participate.

The program includes a lecture by Professor Frank Kelly, a lecture by the Montana governor, and a talk by the Iowa director of the Circle K club. The participating high school students will also be given a chance to attend at least three college classes, and will be taken on tours of the campus buildings. They will be given lunch by the schools.

Besides Dave Kneebone, the general chairman, co-ordinators for the event are Boyd Williams, program, Tim Baas, class schedule, and Joe Wallace, dance; Mike Chapman, refreshments.

Fees raise produces strong controversy

Henry Scholz, president of the Student Council, called for a vote of $15.00. There were 250 students who voted yes for the new constitution fee. The way the students defended the measure at the A.S.M.T. Constitutional meeting showed a strong response to the appeal of the petitioning students.

A convention, which was an open student council meeting, was held on March 6, 1967 to discuss the proposed raise in student activity fees.

President Johnson announces draft changes to be made

President Johnson told Congress March 6 that he would seek to end exemptions in the draft by calling 19-year-olds first, establishing a random system, and tightening of deferments. His Special Message on Selective Service came as an official report of his National Advisory Commission on Selective Service.

Although the President has not yet made a decision on undergraduate deferments for postgraduate study, he gave his support to the 1967 cleanup. Montana Tech received the following:

"The grant was presented at a lunchcheon by Norman G. Kittrell of Denver, the firm's division president, and George W. Taylor of Butte, district sales manager for Montana."

The President also listed other actions he would take. He would direct the Secretary of Defense to deferment for medical, dental, and other members of the health professions to volunteer for service. He would make all scholarship students eligible to deferment until they completed their academic work. He would order a random selection system, first to be called during this period will be eligible until their 35th birthday, and then be called in that order of selection. All men would remain eligible for the draft in the following year's group of 19-year-olds. All men would remain eligible for the draft in the following year's group of 19-year-olds.

The program includes a lecture by Professor Frank Kelly, a lecture by the Montana governor, and a talk by the Iowa director of the Circle K club. The participating high school students will also be given a chance to attend at least three college classes, and will be taken on tours of the campus buildings. They will be given lunch by the schools.

President Koch added: "The program will cover salary increases, additions to the faculty and staff, a slight increase in the tech's tuition funds, as well as gifts and bequests, which will be related to long-range planning for institutional development.

Tech budget for 1967-69 is listed

For the 1967-68 school year, Montana Tech will have a budget of $3,131,500, a 28.2% increase over the $2,022,850 for the present school year. According to President Koch, the increase for the coming year will cover salary increases, additional faculty and staff, a slight increase in the tech's tuition funds, as well as gifts and bequests, which will be related to long-range planning for institutional development.

President Johnson announced that the grant will be used to provide a portion of the funds necessary to acquire additional modern equipment for the general laboratory of Tech's petroleum engineering department. Dr. Herbert Warren announced that he would then be selected in that order to fill draft calls placed by the Department of Defense. Those not called during this period will drop to a position behind the following year's group of 19-year-olds. The new system would then determine their order of call for that year.

Although a decision has not yet been made concerning undergraduate deferments, the President's commission gave a majority decision to end these or occupational deferments with the following four exceptions:

1. Under appropriate regulations which will prevent abuses, students who are in school and men who are in recognized apprentice training when their senior year goes into effect will be permitted to complete the degree or program for which they are candidates. When those deferments terminate, they will be placed in the selection pool with the 18-year-olds whenever the authorized strength of the units cannot otherwise be maintained.

2. Thereafter, men who are already in college when they are randomly selected for service will be permitted to serve and be permitted to complete the degree or program for which they are candidates. When those deferments terminate, they will be placed in the selection pool with the 18-year-olds whenever the authorized strength of the units cannot otherwise be maintained.

3. Men who enroll in officer training and military service. Those should be deferred, provided they agree to serve in the Armed Forces as enlisted men if they do not complete their officer programs.

4. Hardship deferments, which defy rigid classification but which justify deferment, are not considered by the President's commission.
Who has the more complete education?

by STEVE BAUER

In this era of gap consciousness, when the missile gap and the credibility gap receive considerable attention, another gap is being studied — the education gap. There are basic differences between it and the others and make its understanding more important.

In a way, a gap in knowledge is unavoidable. At one time in the past, it was possible for an intelligent person to understand a little of everything that was known at the time. However, the technical and educational advances of the past several decades is an impossibility. Although more people are better educated than ever before, the growth of knowledge has far outdistanced that of education. A person needs to specialize, to spend more time on aspects of his field and less on unrelated topics.

From these pressures, our present educational philosophy has evolved. Although scientists and engineers must cope with the problems of the physical world, they must also face the demands of the social world. Therefore they are expected to have a familiarity with general courses as a supplement to their specialized training. On the other hand, non-technical students are not expected to deal with professional problems, there is no reason for them to take technical courses.

There is a serious error in the last bit of reasoning. True, a scientist cannot have the real world and still live a normal life. But neither can the average person live in ignorance of physical concepts that help shape his life in this technical era. The requirements of a technologically advancing society demand more than the type of education that was adequate for the average person to grasp or remember, wouldn’t the knowledge that a car travelling twice as fast as normal can produce four times as much noise be useful? Certainly it is as susceptible to the physical laws of our world as is the scientist.

In fact, the society itself could not have developed with meaningful courses in science and mathematics. Certainly they would not have to be so rigorous as those taken by a scientist in training. Understanding those essential differences in the way basic science and technology are being developed, students have an easier way of understanding the basic features of technical fields in order to keep pace with technological changes in our society.

Under the present system, only a scientist can understand the technological innovation and its social implications. Unfortunately, leaders are rarely scientists. Unless the goals of education are changed, we will experience more problems like those we had with the advent of nuclear energy.

Tech’s future may depend on student initiative in recruiting new students

What will Montana Tech be in 1960? Two words may be in mind: science college in the world of Butte and Great Falls Junior College? Both possibilities exist. The writings of Plato may help a deceiving trained person to understand the world he lives in, but it is not likely that he will ever have to recall any point in particular. Although concepts of physics may be difficult for the average person to grasp or remember, there is no reason that he should not have at least a familiarity with the basic features of technical fields in order to keep pace with technological changes in our society.

Perhaps the present system, only a scientist can understand the technological innovation and its social implications. Unfortunately, leaders are rarely scientists. Unless the goals of education are changed, we will experience more problems like those we had with the advent of nuclear energy.

Large, more efficient equipment enables the mining engineer to plan on a larger scale. Shown is a rotary blast-hole drill in the Berkshire Pit with shovels and trucks in the background.

Wide range of opportunities available to mining engineers

Mining Engineering is the oldest and one of the best established branches of mineral engineering. In an integrated mining company, the responsibility of guiding all facets of the mineral-producing operation is usually given to a mining engineer. Therefore, it is important that a mining engineer have a broad educational background. The mining curriculum at Montana Tech does offer a broad educational background. It is evidenced by the fact that recent mining graduates have been sought after and employed as metallurgical, mining, manufacturing, and petroleum engineers.

It is intended by the faculty of the Department of Mining Engineering that all mining engineering graduates become Registered Professional Engineers. During the latter part of their present mining faculty, all mining graduates who intended to seek employment in the United States have taken and passed the engineer-in-training test, which is the initial step in becoming a Registered Professional Engineer. Because of the importance of the mining engineer to the entire mineral industry, leadership and academic excellence are stressed as evidenced by the fact that many student body presidents and top-ranked graduates are mining department students. A recent top-ranked graduate in mining engineering, Lee Saperstein, was awarded a Rhodes scholarship and will receive a doctorate from Oxford University this spring.

Four mining engineering students testify physical properties of rock.

mining graduates recognize very early that they have managerial ability and the desire to enter a management position. It is from our engineering graduates that top executives are usually selected.

There is a great demand for research engineers in the mineral industry. Most research is performed by colleges, and state and federal mining research as well as equipment manufacturers.

A few recent graduates have taken positions in research engineering with mining companies. This is very rewarding work for those who love travel and meeting people.

For those who are academically inclined and are interested in obtaining advanced degrees, there are numerous opportunities. Because of their broad background, mining engineers are widely sought by other industries. This is one reason for the current shortage of mining engineers in the mineral industry.

Starting salaries for 1967 mining graduates will average slightly over $725 per month. Because of the general shortage of engineers and the rapid growth of the industry, advancement is rapid.

For those who are capable in telecommunications, mathematics, and the physical sciences and truly enjoy action, a career as a mining technician will involve exciting challenges and gratifying rewards.

These men are dwarfed by an 85-ton truck. Such equipment helps mining engineers cut mining costs and expand operations.
Tech faculty members and students are participating in beryllium project

How beryllium might be produced in a more ductile state than is possible in commercial processes now used is one of the current projects of the Metallurgy Department. The process being worked on makes use of a mercury cathode. A possible advantage of a mercury cathode over a solid cathode is that the mercury may retain some of the impurities, leaving a pure beryllium product. When the mercury is filtered these impurities remain in the mercury leaching prior beryllium than is possible with a solid cathode. Another foreseen advantage of the new method is that the beryllium can be produced continuously at a lower operating temperature and with a minimum number of steps. This process is going forward with consultations from Dr. R. Kopelman, the inventor of the new method.

A fused mixture of BeCl2 and NaCl is electrolized with a mercury cathode and a carbon anode. The beryllium collects at the cathode and forms an amalgam with the mercury. The amalgam is then pressurized and distilled leaving high purity beryllium powder. The small grains of powder, when consoliated, form ductile beryllium.

Prime contractor for this research is the General Astronautics Corporation with the Montana Tech Metallurgy Department. Members of the Tech faculty working on the research are Dr. Vernon Griffiths and Dr. Fathi Hashish. The project is being financed by NASA. The Extractive Metalurgical Research Division of the Anaconda Company is lending assistance in the use of its lab. Program manager is Mr. G. T. Hanssen of the General Astronautics Corporation. The Anaconda Company has also loaned one technician, Mr. P. Moses, for assistance in the project. Also assisting in Mr. Klein, who has been hired by the school. Graduate students who are helping in the project are Robert W. Tolken (who just finished his thesis), A. H. Hines, and L. V. P. Raman. Consultations are made with Mr. W. G. Lidman, Technical Director of General Astronautics Corporation.

The production of the beryllium goes on at Anaconda while evaluations of the finished metal are made in the Tech metallurgy lab. The methods of evaluation include X-ray diffraction, electron microscopy, and X-ray fluorescence.

Anonymous Tech students are thanked

An open letter to two Montana Tech students

On Monday, March 6, I was attempting to walk and catch my bus to work, but it was snowing and during the most awful wind and snow storm I've ever experienced in Butte. I couldn't see in any direction so I turned to grope my way back home. I couldn't see if they could help! I was delighted to see anyone and this nice young fellow turned to two young people who have helped me. He wasn't sent here by his country. For example Daktari and Mom had to work the Butte School District, enjoys life in this country, particularly in Montana, which Angus says is a great outdoor state. Although they are experiencing a broadening of outlook here, he feels the university he previously attended was probably the one city of two million people. The hand, facilities and equipment there are more accessible. Also, school life here is more relaxed. School in the Republic of South Africa, taking courses in mining engineering for two years. In 1964, as a recipient of the O'Kiep Copper Mining Company Overseas Scholarship, he transferred to Montana Tech to complete his present studies. While at Montana

Wesley Foundation reorganized at Tech

The Butte Wesley Foundation was reorganized at the Montana Tech campus at the beginning of the 1966 school year. The new officers elected are Doris Hampa, president; Jack Marjorie, vice-president; Carol Fanning, secretary; and Joan Moyle, treasurer. The new board of directors for three years. She also worked as a receptionist for an optometrist for two and one-half years, and she worked as a reservation sales agent for Northwest Airlines in New York. By the time she arrived here in the spring, Dianne really likes Montana Tech because she feels that the students are friendly to each other. Also, she thinks that the administration should be more friendly to the students. She thinks that the school is lack- ing in school spirit.

Dianne was in the Air Force for three years. She also worked as a reservation sales agent for one day a week during the school year. Also, she was a clinical psychologist who formerly worked for the Butte School District. Present a full length motion picture for the school includes two fellas and a wolf! And that the leader of the ski patrol is too tight to buy his own skis and snowboard! (Could be some other reason, too, so I bet ter not make any more comments)

Spring is definitely here. There are kites flying almost every electric wire and tree in town.

I found out that there is something called the Logarithmic Ladder. At 1.25 times its thickness, the Logarithmic Ladder (LSL) is thin enough to blend into a wall.

In spring, and a young man's fancy turns to thoughts of fishing, hunting, camping, field trips, and playing hooky.

'M day is coming up. Actually it is not set up to be just a big beer fest, it is a day set aside to let us students clean up our campus and paint the M and make the people of Butte have just a little more pride in having one of the best engineering schools in the nation in their city.

600 summer jobs open in Montana

Over 600 summer jobs around Montana in 55 state agencies and 7 Indian agencies will be available under the college work-study program, according to Vernon Burt, Tech business manager.

These 40 hours-a-week jobs range over a variety of occupations, some requiring special training, some not. A complete list will be posted in the SUB.

Some work will also be available on the Tech campus.

Students must be regularly registered in one of the 11 universities, colleges, and junior colleges in Montana, and must meet the work-study eligibility requirements.

The program is being administered by the Montana Compact on Financial Aid, an organization made up of the finance officers of the various universities and colleges.

Interested students should inquire at the business office without delay. The deadline is May 1, but each registrant may have more choice of work, Mr. Burt remarked.

L. V. P. Raman, a graduate student from Madras, India, demonstrates the low density of beryllium. The large beryllium object on the left weighs less than the small brass weight. In fact, beryllium is lighter and stronger than aluminum.
Finagle's Laws on experiments presented

In a previous issue of the Amplifier, the Finagle Factor of Finagle's Laws was, well, presented. Here are Finagle's Laws themselves as introduced:

**FINoggle's LAWS on EXPERIMENTS**

1. The first four laws are the only times dignified by number. Note the beauty and simplicity of the first law. Also note that the remaining three laws refer to men's reactions to Nature—not to Nature itself.
   - **First Law:** If anything can go wrong with an experiment, it will.
   - **Second Law:** No matter what results are anticipated, there is always someone willing to fake it.
   - **Third Law:** No matter what the result, there is always someone who believes it happened according to his theory.
   - **Fourth Law:** They seem to be poor college material.

Dolly LaBranche speaks at Tech

"The Electron Microscope" was the title of the lecture by Dolly LaBranche of the Westinghouse Electric Corporation gave at the meeting of the American Society for Metals, March 9. The talk was about the use of an electron microscope to find what was causing the blisters in irradiated steel. Slides were given along with the talk.

Dean Stolz talks at Wyoming meet

Gus Stoll, dean of student affairs, gave a talk March 8 at a meeting of the Big Horn Basin section of the American Institute of Mining Engineers. The meeting took place in Cody, Wyoming.

"Third Law of Continuing Education." He discussed the organization and development of a continuing education program in the Billings Section of the S.I.E.E., a program on reservoir engineering scheduled to conclude on May 5. A lively question and answer period followed the talk. Most of the questions related to the possibilities of setting up a similar program in Wyoming.

矿物Dressing presents seminars

The Department of Mineral Dressing for the second semester is holding their seminars in Metalurgy 315 at 4:00 p.m. on various designated times.

Talks still to be presented:

- Robert Beers — Topic TBA
- Robert Franze — Topic TBA
- David Travino — Processing of a Silver Ore
- Patrick Doyley — Plotation of Molybdenum
- Joseph Young — Topic TBA

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EIT review sessions are being held

Montana Tech engineering students and graduate engineers residing in the Butte area are taking evening review sessions on engineering fundamentals in preparation for registration as engineers-in-training (EIT). These review sessions, sponsored by the Butte Chapter of the Montana Society of Engineers, began March 10 when Professor Callen conducted a session in mathematics. Other sessions that have been held are Statics by Professor Herndon, Dynamics by Professor Herndon, Chemistry by Professor Ensley, Fluid Mechanics by Professor Young, and Physics by Professor McCaffery.

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Wednesday, April 5, 1967

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**Track in full swing**

The Montana Tech track team, with its practice sessions started on Feb. 27, has begun preparations for the upcoming track season in which Tech hopes to participate in at least three track meets.

Most of the trackmen have already reached top competitive condition but some are just starting the track workouts. Coach Lester has announced that he is very strong in the distance events and the sprinters, he will be strong in the field events.

Those men participating in the track events are the following: 100-yard dash—Lee Staiger; 220-yard dash—Lee Staiger; 440-yard dash—Frank Koskimaki; Jim Pickles, Tim Pickin, and Les Ock; mile run—Les Ocks, Chuck Dickerson, Pete Young, Chris Cross, and Dave Margolin; 2 mile run—Steve Doeb and Pete Young; Relay—Frank Koskimaki, Lee Staiger, Joe MicMains, Jerry Tryball, and Dave Margolin; broad jump—Lee Staiger, Jerry Tryball, and Steve Doeb; high jump—none; pole vault—Lee Staiger and Dan Piazza; hurdles, shot put and discus as of yet are vacant. Coach Lester hopes that more of these vacancies will be filled. All those who still wish to participate in track are to notify Coach Lester as soon as possible.

**Intramural handball begins, golf to start**

**Handball**

Intramural handball got underway early in March with thirteen teams participating in double league play. Of the thirteen teams, twelve have moved into the top sixteen bracket. These are Craig Bartels, Fred Hoffman, Dan Selens, Jim Hendler, Carl Ryan, Brad O'Neill, Terry An-gevo, and John Sutey.

When the other eight players have also reached this top sixteen bracket, they will each be able to compete for the top eight, the top four, until the top two teams are recognized for the championship.

**Golf**

Intramural varsity golf practice began Monday, Feb. 27, with those wishing to compete already in practice.

Regular playoffs have not yet been announced but it is hoped they will be in the near future. All those interested are to contact Coach Lester as soon as possible.

Further information on golf and intramural handball will be published in the next issue.

**Prosperity is something that business men create and politicians take credit for.**

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**Baseball, intramural softball planned**

**Baseball**

Varsity baseball will soon begin its playing season sometime in early April. Baseball practice is now in progress for the players. The players who will be chosen to comprise the Tech team will be announced in the next issue.

**Softball**

Intramural softball will begin play as soon as intramural volleyball has been completed as announced by Coach Lester. Each admitted team will play the other participating teams at least once with a tournament to be held for the top teams.

All those who are interested are to turn in a team roster to Coach Lester as soon as possible.

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**For more enjoyable skiing—**

The task of the Ski Patrol, which is unpaid, is to enforce skiing regulations, block off dangerous areas, and to help anyone who is hurt or all tangled up in his skis. Such is the task accepted by Joe Wallace, assistant patrol leader of the Z-T Ski Patrol, and the other seven regulars and four junior members of the patrol. For a sophomore in geophysics, has been skiing for six years and is fortunate in that he lives only four miles from the Z-T. According to Joe, the ski patrol will be affiliated with the National Ski Patrol next year. Requirements for regular members include being a ski enthusiast, advancement in Red Cross first aid, as well as hours of on-the-hill training, pass the National Ski Patro test and be 18 or over.

To make skiing as enjoyable as possible, beginners to expert, certified instructors are available at the two-year-old Z-T ski school. The certified instructors of skiing are Don Wilson, freshman in geology; Bob Hanson, freshman in mining; and Haskell Cobb, freshman in math. Actually from their comments, they are all majoring in skiing and enlarging the facilities of the Z-T. Don and Bob, skiers for six years, attended an instruction clinic in Brighton, Utah, last year, and all have gone through the instruction clinic at Deep Creek (near Wisdom) this year. Both clinics were given by instructors affiliated with the American Ski Technique, which is taught at almost every ski area in the U.S. Instructors are certified to teach to per person in a group lesson and $13.50 for a private lesson.

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The future will rest in the hands of the same kind of good, capable people. That's why Anaconda seeks technically qualified people of talent and skill for the challenges and opportunities of a growing industry.

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**Prominent figures on the ski slopes at Z-T are (from left to right)**

Haskell Cobb, Bob Hanson, Don Wilson, and Joe Wallace. (Photo by Ernie Bond)

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**Baseball, intramural softball planned**

Gary O'Farrell and JerryTry- ball take advantage of the weather as Gary takes his turn as umpire and Jerry utilizes the catching position.