EPC Polls Sophomores In Annual Math 2 Rebellion

The annual Math 2 gripe session (at least it seems to have become an annual event) is now well under way. In response to the rumblings of mutiny which resulted from a statement in the EPC minutes that Math 2 seemed reasonable this year, the EPC polled sophomores in the course.

The results indicate the same problem that always seems to plague the math major-non-majors do not, as a rule, like the theory and abstraction that mathematicians love. Of the 50 that returned their polls, 31 thought too much theory was being taught, 11 thought about the right amount, and 8 thought too little theory. Most of those who replied to a question about the usefulness of the course were unable to say for certain. Math majors complained that it duplicated Math 5, while non-majors complained that general applications were not being taught. The general consensus was that it might be useful.

The natives are restless

A suggestion that the course be split into two sections, one theoretical and one applied, as was done last year, received a 42 to 8 vote of approval. Of those who were in favor of the split, the course would probably join the theoretical section. Second term last year, the theoretical section, taught by E. C. Dale, who lectured first term, had about 10% of the original class. 

Dissatisfaction also arises from the mid-term exam, which was considered too hard.

Dr. Charles Babcock, Jr., of the aeronautics department has announced a new course in the understanding of techniques for the construction of thin-walled rocket boosters. Thin metal shells three times as strong as any developed in previous experiments were one result of a series of experiments for the National Aeronautics and Space Administration.

The past, metal and spacecraft designers had to be conservative in their strength estimates because of the lack of clear explanations between theory and application.

Did they try corn bikers? According to Babcock, previous attempts to explain the loss of strength did used theoretical metal shells, "had not matched the assumptions used by the theoreticians. An explanation is not far off, so it was like comparing apples with oranges." Indeed, many have found that the new shells yield better results. Moreover, the Caltech group proceed to construct, with the help of the blackstrap metal, shells as free of imperfections as possible. These were made by plating copper onto a wax mold.

Dr. Babcock, who, in his course, requires of each student an explanation of the problem being worked on, foresees important studies in language analysis.

"What's in the brain, that ink may characterize?" asked William Shakespeare in one of his sonnets, and Dr. Fred Thompson asked the same question Monday night in the final fall lecture of the series. Thompson, trained in mathematics, is a researcher in semantics, and holds the post of Professor of Philosophy and Applied Science, under joint sponsorship of the Division of Humanities and the department of Applied Science.

Thompson discussed the problems of semantics and syntax in regard to understanding, trying to say exactly what one wishes to say. Everyone has had the problem of expressing his exact feelings or emotions, and is aware of the limitations inherent in language. Semantics hope in the near future to combine recent discoveries along with advances in linguistics, to form a new science of precise language analysis and construction. Such precision is attainable by the definition of "language," of mathematics, and the definition of "language." Mathematics comes from this type of descriptive syntax to richer forms more applicable to the real world.

Proper language

Emile Post, a famous mathematician, predicted that all languages could be produced by a series or rewrite rules, whereby each element of language may be rewritten according to a set of form rules. These rewrite rules could be used to generate words, sentences, and even complete texts. However, the problem of precisely defining the rules that govern the formation of these texts remained unsolved.
Student Ghettos

Every year a new fresh class is introduced to the rigors of Institute life. The eager arrivals are not spared any detail of the Spartan life: 30 hours of class a week, including no less than 8 hours of study, lol, of which the most unholy blasphemy of academic life: the eight o'clock class.

To help the fresh through these trials, the Institute has decreed that all fresh, whether married or single, should spend at least one term in the Student Houses. There is quite a bit of interrelating concepts of unlim- every company in its bounds, every ship is associated with a location be difficult. But although much progress is being made, Thompson expostulated as the eventual success of making spaced kickoff (precise and defined). As far as the number of spheres may not be written on tablets of clay.

Dubridge Lauds New Technological Gains

"Many people seem to assume that the best things in life are bought from the enemy rather than from the friend of people. What a shortsighted view," DuBridge said. "The President's Report and continued to explain that technology has not yet experienced upperclassmen. It is in those areas of the world that technology has not yet touched the poverty and suffering prevail." DuBridge covered the Institute's academic and financial situation, emphasizing that technology has not yet experienced upperclassmen. It is in those areas of the world that technology has not yet touched the poverty and suffering prevail.

In the field of research, Dubridge covered many of the science developments that reasonable progress has been made. The 60-inch telescope planned for Palomar Observatory will be the most modern photometric telescope built to date and will perform functions that will admirably supplement the Hale 200-inch. In radio astronomy, major the high precision capability of Palomar Observatory will be augmented by a new 130-foot radio telescope now being built at the same location the proper study of mankind.

Dubridge feels that the Institute is prepared to push forward rapidly in the molecular analysis of the structure of genes which will lead to major steps in the breaking of the genetic code. "We do not understand of behavior patterns may be attempted through study the molecular basis of the behavior of nerve cells and "the prospect the future are most encouraging. Dubridge also reported on the work of Caltech and announced that assets increased from $14 million to $16 million and that its endowment fund asset increased from 74 to 78 megabucks.

ASCIT Board Tightens House Subsidy Policy

The notorious Lloyd House alliance, the Red Moun- tain, and the Mackenzie House presented material similarities between the adjacent upper-floor aisles of Peterson and Gish. Led by fresh Hill Atwood, the Peterson triumphed over Raccoon, the team by 18 votes of 57.5% to one (1) each.

The Derby, which consists of an indoor cross-country race punctuated with a complex pattern of eight ounces of fruit of the vine each lap, used up mid fruits at a fair rate. Barring no serious damage in the next 30 minutes, it exhausted the supply of red rot-gut forth minutes ahead of schedule, and the contes-
tants were forced to continue with drafts of liquid solace.

Your friendly editor

In addition to the superhuman Bill Atwood, the Penthouse team was also complemented by Jeff Garvey, Jeff Himes, and Mike Henerey. The Penthouse team was also its own worst enemy: the eight o'clock class. Many in those areas of the world that technology has not yet touched the poverty and suffering prevail.

The ASCIT Board at their December meeting.

Editors: Every year the ASCIT Board has made a $100 to defray the cost of Introductory Dinner with understanding that each House would put forth a good effort, $50. The House subsidy would not be adequate to cover the costs of renting a hall for the intro dinner. The remainder comes from student dues. The express purpose of the ASCIT Board is to encourage the Houses to make this an outstanding campaign social event which Alumni and townspersons, as well as members of the Caltech Community, can attend.

The Board feels that the overall results are of prime importance for greater than the exact number of people working or total expenditures, in living up to the expectations of the Alumni and others.

The Board strongly disapproves of the formation of out- side organization as a major part of Interhouse, as was done last year.

The Board want to emphasize strongly that the purpose of the House subsidy is to help the Houses as much as possible to carry on the program of the Board.

The Board hopes that this year was only a temporary exception and that in 1967 it will fulfill this commitment in the future.

The ASCIT Board of Directors
Pierre Describes British Woes At Hands of US

by Len Derorne

“The British bomb was aimed more at Washington than it was at Moscow,” concluded Andrew Pierre, in the last of this term’s HS lectures on the topic the British Nuclear Force, Politics and Technology.” Pierre was born in Austria, raised in Kansas City, educated in Miami, Ann Arbor, and Columbus, worked at the Institute of Strategic Studies in London, and is presently with the Hudson Institute. He talked basically on history of British nuclear weapons development and attitudes.

Congress blew the job

During WWII, the British were considering the use of atomic weapons. At that time the US specialized on atomic power for peaceful purposes, but became convinced in 1940 that the bomb was feasible, and a joint research effort was launched here in the US. In various secret parts, the two governments agreed to full collaboration on military and peaceful aspects of nuclear power after the war. However, in 1946 the Congress, unaware of some of the agreements, passed the McMahon Act which in effect stated that the US had discovered the secrets and would not share them. At this time England was in a dangerous position. The US seemed to be going into a state of Isolationism. It cancelled lend-lease one week after the war. Fifteen months after the McAm Act, the British decided to manufacture their own bomb, a bomb that they had already manufactured one of the greatest world powers, and felt that not to build a bomb would be to retreat from power. After their bomb was built, US made several amendments to the Atomic Energy Act which allowed starting nuclear secrets with nations already possessing the bomb.

Because of this episode, the British recognized the need for having the bomb as an independent deterrent. They were fearful that the US might not use the bomb when she felt it was needed, and her own nuclear retaliation to aggression could trigger a larger, more effective retaliation by the US.

Washington once more

The British have long looked to the US for help in delivery systems. At first, they shared in the Blue Streak program and when this program was canceled, the Labor government was in trouble. Later, the Nassau conference, which had been called to discuss such matters as the Congo, became centered about the cancellation of the Skybolt Program. They first rejected, and then accepted, the Polaris Program, which is now being replaced by the Poseidon missiles which will be launched by the Polaris submarines.

Pierre sees the continuance of the independent British nuclear force or an independent Anglo-French nuclear deterrent.

**Y Finance Drive Will End Soon**

As of Saturday, December 5, 1964, results of the YMCA Fund Drive for undergrads stood as follows:

<table>
<thead>
<tr>
<th>College Students</th>
<th>Faculty Members</th>
<th>College Libraries</th>
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<tr>
<td>201</td>
<td>15</td>
<td>10</td>
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**EPC Polls Math 2**

(Continued from page 1)

proof of three out of fifteen theorems on the same list. The complaints of such memorization was voiced by those at all levels of instruction, especially those who understood all or most of the material. One student replied that a monkey could have memorized the proofs and definitions. The final is going to be of the same sort.

The EPC is not contemplating too much action on this roll because there will be a new instructor next term, but the results will be brought to the attention of the math department.

The EPC is planning to conduct a course-instructor evaluation poll for all courses early. This poll will be similar to the one this year. Students taking or having taken a course will be given the opportunity to evaluate the professor.

EPC meetings are held Thursdays at 7:00 p.m. in Chandler. Anyone is welcome to come and make himself heard.
Basketball Team Opens Season; Shows Promise for Next Term

The variety basketball team started the season on a bright note, winning two of their first three games. The game on Thursday saw Caltech scoring an impressive 107-75 victory over Life College with three players having over 20 points. On the following night the team traveled to Southern California College only to lose to strong opposition 68-89. Meeting Life again on Friday, the Beavers once again won easily 91-60.

In the first game the team looked defeated for the game to warm up, but managed to end the half with a 13-point lead. Coming back for the sec­ond half they got hot and hit 65 percent from the floor. Jim Stanley was high scorer with 35 points; Terry Bruns and George Fox both had 23. The team also shot well from the line, making 37 of 32 attempts.

Friday night the situation was quite different for Caltech in the Southern California College, having one of the highest-scoring small college teams in the country last year, had more height, bulk, and numbers. The Beavers, however, sub­sequently ran the Beavers, who had only two substitutes, into the ground through with his usual fine effort, but 25 points were not enough to turn the tide.

Caltech started the second game against Life with a big flurry and jumped off to a 42-27 lead. The shortage of players proved a difficulty once again. The team got into foul trouble early in the second half and their effectiveness was cut down so they could just keep even with Life in scoring. By the end of the game Bruns had scored 25 points and led out and three other players had four fouls each. But the big mar­vel of the first half was more than enough for Tech to win. Bruns was again high with 26 points, while Stanley jumped in 21 more.

The coach picked junior Terry Bruns of Ruddock as the out­standing player of the week. In three games he has hit a total of 74 points and also has an average of about 12 rebounds a game. Bruns, as Coach Preisler pointed out, is probably the best shooting center of the decade. According to a true authority on Caltech basketball, the man who has seen more games than anyone except the coach, the junior, this is the best team he has seen in his years here. The team shows much promise and spirit. The new freshmen, Tom Dickerson and through Three­ weat, have already shown enough talent to help the team. Sopho­ more George Fox is starting and shooting well. These are the only additions to the team, as seniors Pearson and Ed Hisl join Juniors Stanley and Bruns return from last year’s team. The team is hoping that 6’6” Cliff Tucker will get in shape so that he will be able to help them next term.

Meanwhile, the junior varsity has won one of their three games. They split two games with Rio Hondo and lost one to Southern California College.

In the first game the team had the services of Threewit, who is a strong player for them, but their lack of experience led to a 61-73 defeat. The team got rattled easily and turned the ball over much too often. Their shooting was fine, but they couldn’t control the ball. Half the team got lost on their way to SCD, so Tech had to play the whole game with only five players. Even so they came close, and only lost 54-57. With the experience of two games behind them, the team finally played true form on Tuesday and Thursday.

(Continued on page 3)
The time trials for the Interhouse swim meet were held on Tuesday amid driving rain. The weather was so bad that each participant had to wait in the gym for his race, run out and swim the race, and then rush back inside. It would have been sure pneumonia to stay out any longer.

After two hours of stiff competition, Fleming emerged ahead and shoulders above all the other swimmers. They took three firsts and placed at least one person in each final, two or three in some. Ralph Kimbrell had the best time in the 50 and 100 yd. freestyle races, and Tom Miller was first in the 50 yd. butterfly. Other best times were turned in by Spence Pearson of Lloyd in the individual medley, Jim McWilliams of Ruddock in the 50 yd. backstroke, and John Healy of Page in the 50 yd. breaststroke.

If everyone repeats their times in the preliminary trials, Fleming will win easily. Ruddock, Page, and Lloyd are so close together in their battle for second place that the swimmers will decide the final outcome. Dalney, Blacker, and Rickbels will probably finish in that order at the center of the standings. The meet starts today around 4:00 p.m.

Crowning About It

Who has scored 51 points and grabbed immovable rebounds while also playing fine defense. The practice games wound up with a game against Biola yesterday, the SCIAC season opens on January 6 with Caltech hosting other Houses. They took three firsts and placed at least one person in each final, two or three in some. Ralph Kimbrell had the best time in the 50 and 100 yd. freestyle races, and Tom Miller was first in the 50 yd. butterfly. Other best times were turned in by Spence Pearson of Lloyd in the individual medley, Jim McWilliams of Ruddock in the 50 yd. backstroke, and John Healy of Page in the 50 yd. breaststroke.

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Musicale Provides Haven For Aficionados of Classical Taste

The Caltech Musicale, one of the less well known organizations on campus, presents an excellent opportunity for students to listen to classical music. Each member has a key to the Flemings' listening room, and free use of its stereo facilities and recordings. There are no meetings, or duties for any member; the only Musicale activity is listening to music.

The Musicale began many years ago in Throop, but it eventually died. It was resurrected four years ago in a little room under Fleming, and now has a membership of between 80 and 100 graduates and undergraduates.

Tom Beale of Page House, president of the Musicale, maintains the Musicale, instructs new members on the use of equipment, and directs the acquisition of records each spring from funds supplied by the Institute. A poll sent to Musicale members determines the new record selection.

Dr. Lagerstrom of the Aeronautics Department, the faculty advisor to the Musicale, represents the Musicale on the Faculty Music Committee, and makes sure it has its way. At present, the Musicale listening room has a few hundred long playing records, and a few shelves of old 78 albums, all "classical" in variety. The room has a stereo system which includes a Prysak preamp and amplifier, rated at 70 watts, a Dual 1019 turntable, and two EMK speakers.

To join the Musicale see Tom Bowle at the Musicale room between 7:30 and 8:00 on any Thursday night except the ones during finals. A key to the listening room, which you may use at any time, costs one dollar.

Eventually it is planned for the Musicale to have a room of its own in the new humanities building, all sound proof, and furnished to the chilling notes of the band practice room.

More Strong Tubes

(Continued from page 3) thereby eliminating seams and voids which weaken the structure. The group used molasses to prevent permanent deformations of the steel, and thus a point was reached which would support the typical shell, a copper cylinder 5.100 lbs. of an inch thick and eight inches long, can support more than a thousand pounds without buckling. A normal shell will buckle at only one to three hundred pounds.

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A Rodgers and Hart song, "She Was Too Good To Me," and the standard, "Good as Gold, Bollow," one number, "Broadway Street," is reminiscent of some of the comediene-songs Mitchell used to do while with the Trio.

Chad Mitchell has an excellent, rich voice, and easily packs the room every time into his selections. This is especially evident in "Marika." A sad lament over a lost love, in a mixture of French and Flemish, in which Mitchell's singing carries the song's deep feeling across the barrier imposed by language.

All-in-all, the record is an excellent package, and it very definitely demands your attention.
Like, I'm splitting, baby. I got a whole new bag for next year.

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