Freshmen endure soul washing

Peasants, Peons, and others of lowly Frosh come into their own in diverse initiation rites

Peons, Frosh, and other low lives have been baptized and received into the fold of the student houses with the blessings of all upperclassmen. Descendants of the houses we have lived and swum our way through the alleys, thrilled and pierced ourselves into the showers.

Blackber bows

Blackber got after the Frosh last Thursday, issuing distinctive red ties which immediately made the wearers of coats the most sought-after on campus. Eser "Slavedriver" Jacobs claims that he designed the ties, and when again attacked by murderer by strangulation.

Time to retire

As usual Dabney came out with a full report on the activities of the house last week. Dabney found the Frosh more interested in the business of the coming election.

Today Milton Meyer, who for years was associated with the University of Chicago Round Table and during the past year with some of the more social research, Frankfort University, Germany, will speak on the political forces in Europe and the United States. Next week, on Wednesday, October 26, at the meeting of the First Congregational Church in Pasadena, will speak on "Principles and Compromises in Politics." Mr. Wesser is well suited for the task, he has a very intimate and active interest in politics.

Undergrads invited

Although these luncheon forums are open to undergraduates, faculty, and staff, the speaker will not begin until 1:30, so undergraduates can come into the Athenaeum after lunch to hear the talk and question period. If you would like to attend the speaker must answer definite questions after the talk is over.

This procedure helps to keep the platitudes to a minimum, arouse interest in the audience, and save time.

Mock election

Because Gillip was so very interested in the upcoming election, he was wondering whether it can't do better. Therefore, in the very near future, the Y will conduct a mock election to see how Caltech rates the candidates.

Houses get dietician

This year, for the first time, the student houses have a dietician to plan their meals. Mrs. G. R. Bennet, who came from California in July, is insuring balanced and nutritious meals.

The houses

She was born in Winnipeg, Manitoba, Canada, where she lived until she went to college. Her home is in Station No. 111.

She received her BSc in Physical Science from the University of Manitoba and did graduate work at the University of Toronto in Ontario. Her favorite college subjects other than home ec. are nutrition and psychology. Her favorite sports are tennis, swimming, and playing the piano. Pencap being her favorite comp. society.

Her office is located in the basement of the student houses.

Apply now if you haven't taken exam

Deadline: November 1; see draft board

Applications for this year's Selective Service College Qualification Tests are now available at all local draft boards. The tests will be given on December 4, 1952, and on April 23, 1953, in the Seaboard area and in all large centers in the country. The results of this test will be reported to yourSelective Service local board for use in considering your deferment as a student.

Synchrotron sets world speed record

Record electron and X-ray energies, as well as a speed never before attained by man, have been reached at the synchrotron research center here at Tech for the last two years.

At an energy level of 400 MeV, the machine, to be used in penetrating the mysteries of the atomic nucleus, has accelerated electrons to energies of 660 million electron volts, with 80% average operation. Professor Robert F. Bacher reported Dr. Rutherford as director of the eight-man Caltech team cooperating on construction of the synchrotron under contract with AEC.

Speed gains weight

As energy increased, the electrons were more than 500 times heavier, which means that in accordance with the theory, and were traveling only one millionth of a mile per second (or 660 millionths of one per cent) slower than light.

Powerful X-rays made

When a 1.843 inch thick lead plate was put in the path of the electron beam for test purposes, 660 million volt X-rays were created with an intensity that is now being produced by man.

Goal reached

Next stages of work on the synchrotron will involve raising the electron energy to 1 billion volt energy, and up to 100 billion volt energy, and for X-rays, to be increased to one billion volt energy.

Two other high energy machines are under construction—a linear accelerator at Stanford University and a nonferromagnetic synchrotron at the General Electric Co., Scheneck, N. Y.

Previous highs

The previous high in electron energy was between SAE and SAE, and 840 million volt energies produced by synchrotron at the University of California at Berkeley, Cornell University, and the Massachusetts Institute of Technology, and the University of Illinois at Urbana.

Simple theory

In brief, the synchrotron operates as follows. An electron gun shoots bursts of about 100 billion electrons into the instrum,
It isn't so easy...

At the beginning of this term we went through what all of us consider an ordeal, registration. We had to fill out 14 or 15 cards and write our names about twice as many times. The programs that were filled out, we copied from pre-registration cards which we filled out from blakemaster copies last term (except for the freshmen). Unless we are taking extra units we had our programs handed to us almost on a silver platter, so that the whole process of making up a schedule took only 20 minutes.

Not so 'easy' elsewhere.

At many other schools, as a few of us know, the situation is quite different. They must fill out a program without conflicts by consulting the catalog and the professors' schedules. Then when the whole schedule is arranged, it is found that there is a conflict or that one or more classes are filled up, and the schedule must, at least in part, be made over.

Who does it?

We have the Registrar's office to thank for relieving us of this headache. This spring they placed about 600 undergraduate students in 47 sections, arranged close to 100 classes for those sections, and arranged to have instructors and rooms for all those classes. They had to be sure that they did not have one section in two places at once; one professor in two places at once or one room occupied by two classes at the same time. While they were doing this they were also investigating several hundred prospective freshmen, wondering what the Selective Service System was going to do next and arranging for the graduate student's programs.

The California Tech, then, pays tribute to Dean L. W. Jones and the office he directs.

Special newspaper meeting Monday

The newspaper gathering and writing and copying reading departments of the Tech staff may be changed in the near future so that the work of putting the paper together each week will be split more evenly among the members of the Tech staff, former members who are still interested in the continuity of the newspaper, and all other students who are interested in any phase of journalistic activity are requested to come to a special meeting to discuss the proposed changes and to present ideas. The meeting will be held at 11 am next Monday, October 21 in room 206 Danby.

As present there is no feature editor or copy chief. Anyone who thinks that he can handle either job should be there.

In the next issue...

...pump required to operate promiscuously in either direction (i.e. reversible) is...

--Good's Pump Catalog.

The following conversation took place in Dabney Hall after the Pomona game, as Bill Gardiner approached a female form in the obscurity: "Hello, are you a student?" "No, I'm Mary." Pause. "Oh, well, may I have this dance?" "I'd love to, but my husband will be back in a minute.

Ah, Pomona.

The billing class enjoyed Po- mona's last Saturday night -- got quite crowded. From what we hear, the affair was a chance with a Hawaiian theme with every- thing: the decorations were absolutely perfect and didn't get under foot, yet were effective; the band was of a variety amazing—played Hawaiian music that actually moved; the entertainment started out with the traditionn Hawaiian dance done by performers, but ended up with an amusing version of the Hula that literally petrified whenever anyone saw it is asked about it, they assume this state, with a dreamy, vacant expres- sion conveying all that they will communicate about the thing, and nobody will talk about the Punch. Everyone agrees that the stress of the occasion was what made dancing most difficult—it definitely wasn't hummerc- quite distracting the other way--one man who stood by with the extinguish- ing Social Committee, got off made dancing most difficult—other boat's anchor chain during the near future so that the work of putting the paper together each week will be split more evenly among the members of the Tech staff, former members who are still interested in the continuity of the newspaper, and all other students who are interested in any phase of journalistic activity are requested to come to a special meeting to discuss the proposed changes and to present ideas. The meeting will be held at 11 am next Monday, October 21 in room 206 Danby.

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Harmony course now given for credit

The Humanity Division offers a non-credit course in harmony and music theory, to which all students, both graduate and undergraduate, are welcome. It is taught by William Kline, the conductor of the Caltech student orchestra, who also teaches music at the East Los Angeles Junior College. Work is on an individual basis, so students of any degree of musical proficiency can be accommodated. The group meets in Daehne Lounge on Tuesday afternoons from 3-5 o'clock.

SELECTIVE SERVICE

(Continued from Page 1)

are student are either a national factory score (70) on the SS College Qualification Test or specified rank in class (upper half of male freshman class, upper two thirds of male sophomore class, or upper three fourths of male junior class). However, local boards are widely divergent in their application of these standards to educational deferments, and it must be remembered that educational deferment, his board on a person has received an educational deferment, his board is not obligated to redefer him.

Occupational deferments. Of those who graduated from college last spring and are now working, only six percent have been deferred because of occupation. However, according to the Office of Education, three fourths of the deferred group majored in science or engineering.

CALIFORNIA PHARMACY

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Everything for the Photographer

PERSONALIZED PHOTO FINISHING

914 East California

CAMPUS BREWIN'S

(Continued from Page 2)

Bam!

Old man Wilkes, too tired to see any of his own, chaperoned John Goeten's girl to the football game last weekend while the latter was总监ing on the Rose Bowl turf. Seeing the gleam in Wilkes' eye, however, Big John hurriedly engaged Killjoy Jacobs to go along and keep things honest. Further details are shrouded in secrecy.

And then there is the story of Mrs. Hale who called Daehne House on the phone and was answered by a Blankie freshman. The sugar laddie, finding the supply of shower heads exhausted, was probably preparing to remove the phone.

Three can live...

The proverbial candle is having both ends lit, again, by one Durh who sent two billet doux by fast carrier to two different Scripps gals in two different halls. Seems he has too much talent for one gal at a time. Two Schmippsies may be too much for Dick to handle, but at least we know that he can handle himself.

As cheaply

Tiger Mansl wears that frus.

(Continued on Page 4)

THE SPACE BEAVER

By WALT LEE

Ast

The December issue of Astounding, on sale Wednesday, November 15, will have as a lead story a yarn by Raymond F. Jones. The issue will also contain an article explaining the theory that a positron is merely an electron going backward in time.

News notes

Ivan Armor's Gnome Press novel I, Robot will appear in a larger edition this year by Grosset and Dunlap.

Actor's son William Powell Jr. is writing the screen story for Space Island, upcoming space opera from Universal.

Halley's film, Destination Moon is now available for home showing on 8mm machines.

Walter M. Miller Jr., L., Epigone de Camp (CIT alumnum), Paul Anderson, Sam Merwin Jr., and Frank Robinson, have been commissioned by Shasta to do original novels, most of which will be printed in three or four months.

Also scheduled for fall publication is a fantasy magazine "like the old Unknown." This from Lester del Rey, editor of Space Science Fiction.

MOVIES

Willy Ley and Chesley Bonestell's king sized space primer, The Conquest of Space, has been purchased by Paramount and turned over to George Pal for production. Paramount has also bought Turmoil from Lester del Rey.

Columbia started work on the Atom Outpost June 3. Vyse Suy P. Suyde Padgett is essentially ready for release. Arch Obier filmed it in 17 days—edited for 3 months. It was originally scheduled as part of a three story movie, but it evidently stole the whole show.

SYNCHROTRON

(Continued from Page 1)

other heavy metals and thus produce X-rays. These X-rays, in turn, will be used to bombard various materials, for experiments on atomic nuclei, the "cores" of atoms where most of their weight and energy are concentrated. The research will be aimed at a better understanding of the structure of these cores and the tremendous forces that keep their constituent protons and neutrons locked together.

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keen to last Saturday night but when he offered to display his query, he lowered his sights on Jay Kinnald's gin. Things went well during the last dance when he offered to display his summer muscles, she covered his shock by retreating heartly with Jay.

Too tall

Leney and Gisela would each have given their left eye-baall for a pair of Adele elevator heels. Hugh could, at least, look into his girl's eyes, but the only gas about enough for Gisela was already being entertained, in no small manner, by Schulte.

Ranged up

The Sunday Beach outing provoked many memorable incidents for the men of Dabney. When froshes King and Pixton arrived with the firewood they found that the party had resorted to bottled warm- to escape the fate of a freezing death. After exploring the dubious comforts of rocky caves and sandy washes the couples journeied their aching backs homeward. The sad note sounded when Billings and Arnoi- son returned to Tech with their gumshilles crudely modified by holiday traffic. Schulte had his date quaking in fear when he was stopped by the local Gestapo on suspicion of driving a stolen car, and being under age—with out shoes, yet.

FROSH ENDURE

(Continued From Page 1) the fracas.

In Blacker the get-wet-faster theme went to the ultimate when the pledgemasters had the peaks running in and out of the Mon- day evening meal with buckets of water in order to fill up a large trash can so one of the frosh could jump off from a plank into it.

— or consequences

The unlucky frosh who lost their distinctive apparel went "humorous" assignments ranging from persuading PCC girls to sit at the student houses to measuring the cubic capacity of the race-hase disposal boxes in the house medicine cabinets, and woe to the frosh who did not complete his assignment!

Into the fold

Within the house initiation has served to unite the frosh within the house, and made them known to all the upper classmen. Through the brawls, animosities have undoubtedly developed between individuals, but we hope this will pass in con- sideration of the best of the men.

SYNCHROTRON

(Continued from Page 3) We will try to find out what par- ticles are created when nuclei are bombarded with very high energy X-rays. These may include a number of particle produced by cosmic radiation, which streams into earth from space. Which particles the synchrotrons will be able to produce, beyond the relatively few mesons, is com- pletely an open question, he added.

One interesting research proj- ect will be an attempt to deter- mine what processes cause the photon-meson cross-section for hydrogen—or the probability of meson production from hydrogen by energetic X-rays. The nu- cleus of ordinary hydrogen is known to consist of just one proton, which has long been consid- ered a fundamental particle in nature. But mesons weighing about one-tenth as much as a proton can be produced by bom- barding such nucliei, and a fur- ther study at higher energy promises to be illuminating in understanding the proton and its structure, Dr. Bacher said. The photo-meson cross-section for deuteron, or double-weight nuclide, will also be studied.

500 m.e.v. for year

The synchrotron will operate at the 500-millions-volt level for perhaps a year or two while ma-}
Athlete of the week

Pat Fazio

To run a T-formation football, a good ball-handling quarterback is a necessity. Filling the bill for the Beavers this year is Pat Fazio, two-year veteran and a letter winner last year.

Friday GAME Mr. Musselman Boris Taylor

Headquarters of Caltech Bowlers

Gale goes over for TD


Friday I. H. Cross Country, 1 ½ miles.

Saturday, Varsity Football, at Flagstaff.

Frosh spark

Friday Football, Oxy, here 200. (Let's get out & cheer)

Tech practice

Tuesday, I. H. Cross Country, 2 miles

F. H. Baseball, Ricketts vs. Fleming, Blacker vs. Throop.

Special Notice: Only 8 more weeks till the athletic banquet.

Pigskin Prognostications

Comming attractions

Thursday, I. H. Baseball, Fleming vs. Throop.

Dalbey vs. Blacker.

Friday I. H. Cross Country, 1 ½ miles

Saturday, Varsity Football, at Flagstaff.

Frosh spark

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Tech practice

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Frosh spark

Tech practice

Indications of a great Frosh barrier team were shown last Friday. The first two Technicians to finish in a practice meet with Pasadena Nazarene were Frosh, both of whom were young, although they were not competing in the race. The Frosh will be asked to meet the Varsity team this week, and it is expected that the Frosh will put up a good showing.

Over the wall

By John Wall

The running was great, the passing good, and the kicking was fast; but the score was awful. That sums up Pomona-Tech game last week.

The Beavers gridiron showed great strength in their running attack with little Pat Fazio at the helm, and Walker, Johnson and Gehle doing the backing. The showing of Ed Gehle at full back was a jolting surprise to me for although it was not out record breaking, it looked tremendously improved over the Redlands game. If this trend continues, big Ed may yet fill the big shoes of graduated halfback Ward. The special area of merit goes to Big Ed for his fine extra-point work.

The story is the same always falls to the line. Despite the loss of the "fear of Tech" Hugh Taylor, the offensive line performed nobly in opening the holes for the ball handlers. The biggest loss was still a passing attack. Ward hit a few good ones, but his ball handling is still strictly small time.

For those who would get well, there is news. The swimming pool is just over the pile of steel headed this way (we hope). We can see to the plugging sometime this spring (early class of '53).

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Fresh Apple Cider

SPECIAL CLOTHES

"Men's Distinctive Fashion"
A sensitive instrument designed to measure long-term strain changes in the earth's surface has been installed by the Seismological Laboratory here at Caltech. It is known as a linear strain seismograph.

The new instrument will consist of a 200-foot length of two-inch burial pipe that is fastened to a pier sunk in the rock. It will be anchored by a number of flexible supports. Mounted on another pier at the free end of the device, is a specially designed electronic apparatus to measure any strain that occurs with respect to the pier.

This will be the first attempt anywhere in the world to plot the large-scale strain pattern of the earth's surface. The work is the responsibility of Dr. Beno Gutenberg, Director of the Laboratory.

Electron synchrotron? The installation will be experimental, to determine whether such a machine can be constructed and measured in this way. If this proves to be possible, the science of seismology will be strengthened. And at some distant date-perhaps some day in the future-these measurements combined with other studies of the same sort of intensive study as the laboratory has conducted on the San Andreas Fault, California, may bring sismologists within reach of the remote but elusive goal: earthquake forecasting.

Dr. Beno B. Benioff, Caltech professor of geophysics, has been chosen to handle the project for the Geological Society of America for designing and supervising the construction of the new instrument. He has already assembled a number of its components. The first section of the device will begin construction at the mountainous site.

With the sensitive fused quartz strain meter designed by Dr. Benioff, large-scale strain changes in rocks of the order of one part in a million can be detected over a distance roughly to a one-to-1000th inch compression in two miles of rock-on a scale that is between the U.S. east and west coasts.

For long-term strains, the meter will be installed in a very special place. A tunnel was driven through a granite mass in the Gabriel Mountains near the Big Dalton Reservoir, about five miles northeast of Glendora, through the cooperation of the Los Angeles County Flood Control District. The tunnel was bored more than 100 feet into the rock mass in order to determine the nature of the rock structure. The device is called a double-beam interferometer, which the Daily Star was able to be attached.

The instrument will be used to determine the sagittal movement of Caitlin's Tech. This is the linear strain meter, and it is a way of measuring and recording the tectonic strain in the earth's crust. The movement of the tectonic plates is responsible for the most devastating earthquakes and tsunamis.

**CALIFORNIA TECH**

**Thursday, October 16, 1952**

**Wise building**

This year marks the 20th anniversary of the old same l来说那座建筑物，结构上没有什么大的改进，也没有受到任何损坏。

Many weakly constructed brick buildings have been destroyed by the shock, as have buildings badly damaged by the quake. The earthquake caused a number of materials to)(ned unsharpened, indicating that earthquake safety in the laboratory was not up to the standard of building wisely.

**Seismological stations**

The laboratory so far has had only time to skim the cream from the volcano of reports on this earthquake. These include perhaps the world's most comprehensive analysis of the number and pattern of aftershocks. For one hour of the period of the earthquake, the laboratory received the earthquake-active area of the Pacoima District and southern Sierra Nevada, as well as the temporary seismic activity report.

To set up records of 17 separate locations (including the permanent auxiliary networks). From them, the seismologists will derive data on the occurrence of quakes and the location of active faults in that area as well as the speed of the waves and the structure of the earth's origin.

**Seismic shocks**

The question of how long after-shock activity will continue is difficult to answer at present, until 80 hours, the length of the linear strain meter. The new instrument combines the measurement and recording of large-scale strain pattern with the large-scale strain pattern. The Benioff linear strain meter, it is designed to provide precise information of the amount of spreading or compression at a location near Glendora will be about 1500 miles from the San Andreas fault.

**Eventual network**

Dr. Benioff predicts that the tests are successful and eventually will be able to establish a network of such meters throughout central and southern California. The complete network would make it possible to obtain an overall picture of the strain pattern and its development in the area.

Seismologists then may determine the magnitude of the stresses causing earthquake-promoting behavior. They may not be able to predict when or where an earthquake may occur. Dr. Benioff emphasizes, however, whether they may be a step closer to that day. When they have enough data to determine the amount of strain in a particular area and sufficient evidence, they will study what strain level the atmosphere has been able to, its possible to estimate roughly when a quake can be expected, however, will require many decades of study, and perhaps centuries.

**Earth tides**

The new device will also be used to measure tidal strains of the earth produced by the earth's tides. The moon and sun have a significant effect on the earth's surface, just as they cause ocean tides. The period of the swell, like that of the tide, is about twelve hours. In other words, the earth's tides can result in a noticeable rise and fall of the ocean level.

A third purpose of the linear strain meter is to measure and record long-period seismic waves beyond the range possible with existing instruments. Such waves, sometimes called long-period waves, occur violently after large earthquakes. An early Benioff strain meter has recorded long waves from the 1933 Japanese earthquake with a period of three to four seconds, which were initiated by large quakes. An early Benioff strain meter has recorded long waves from the 1933 Japanese earthquake with a period of three to four seconds, which were initiated by large quakes. Such waves, sometimes called long-period waves, occur violently after large earthquakes.

**Structure down 600 miles**

Waves of these periods are produced by the structure of the earth at the epicenter and may indicate the direction and magnitude of the disturbance. The new instrument is designed to record and measure such slowly developed distortions and other manifestations of the great upheaval. These long-period waves can be recorded by portable equipment at any location within reach of one of their effective goals: earthquake forecasting.

When买的strain energy is concentrated to the point of rupture, it may be possible to detect some sort of intensive study as the laboratory has conducted on the San Andreas Fault, California, may bring sismologists within reach of the remote but elusive goal: earthquake forecasting.

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**CALIFORNIA TECH**

**Thursday, October 16, 1952**

**Wise building**

This year marks the 20th anniversary of the University of Michigan. Clearly, this is a big deal in the world of science. Construction of the machine was speeded up by the fact that the University of California had already designed and demonstrated a working model of the electron synchrotron with a proton beam. The machine was designed for earthquake forecasting. It is impossible to tell, however, whether or when there might be a seismologist who will cause another major California quake.

**SYNCHROTRON**

**The Kern shock of July 21, 1952**

The Kern shock of July 21, 1952, was a major earthquake on their greatest emergency hunt for earthquake data since 1934. The target area was the western part of the state, which was found to be more than a quarter of the state's area. It was also found to be more than a quarter of the state's area. The target area was the western part of the state, which was found to be more than a quarter of the state's area.

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