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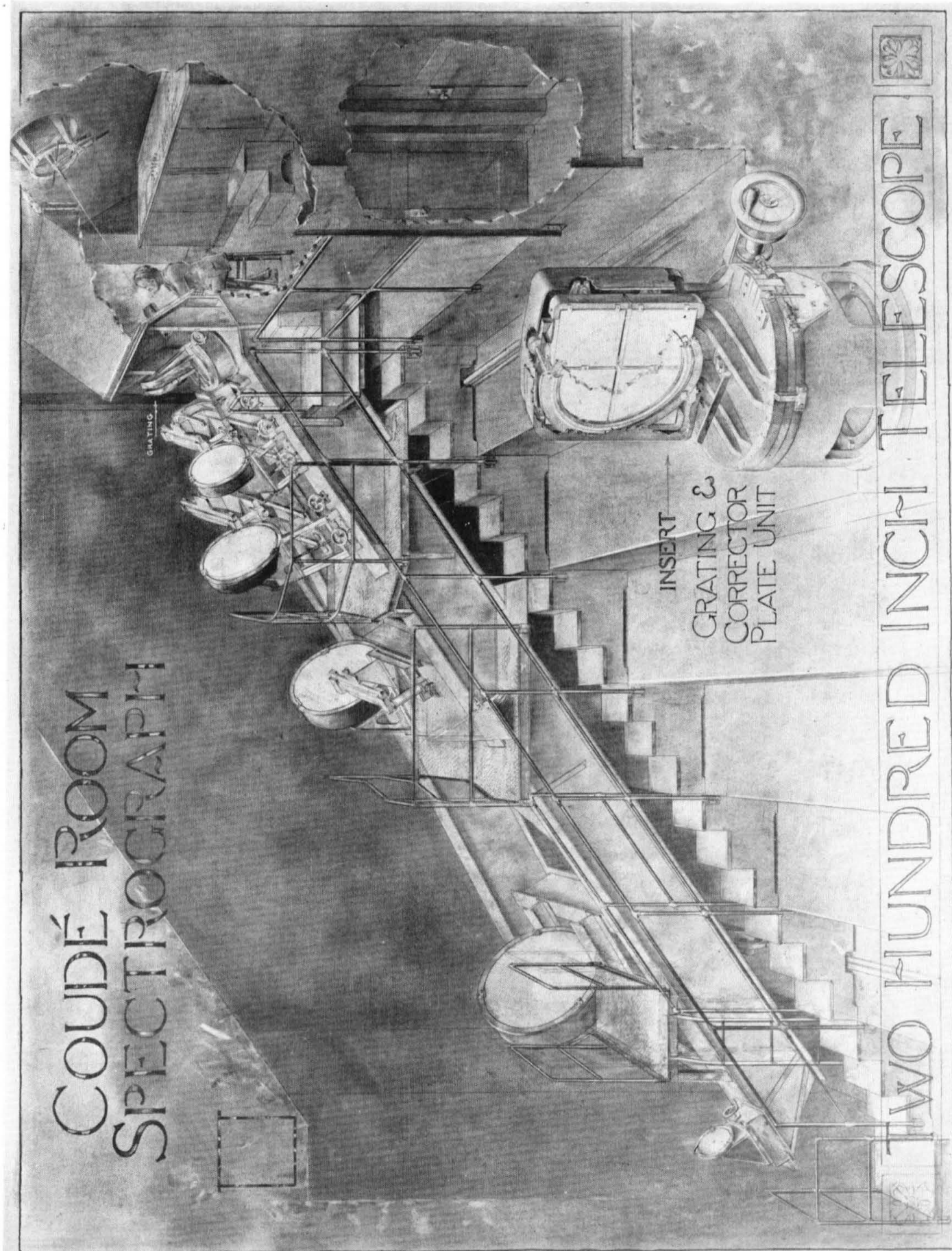
HUMOR



The 1949 BIG T

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DEDICATION

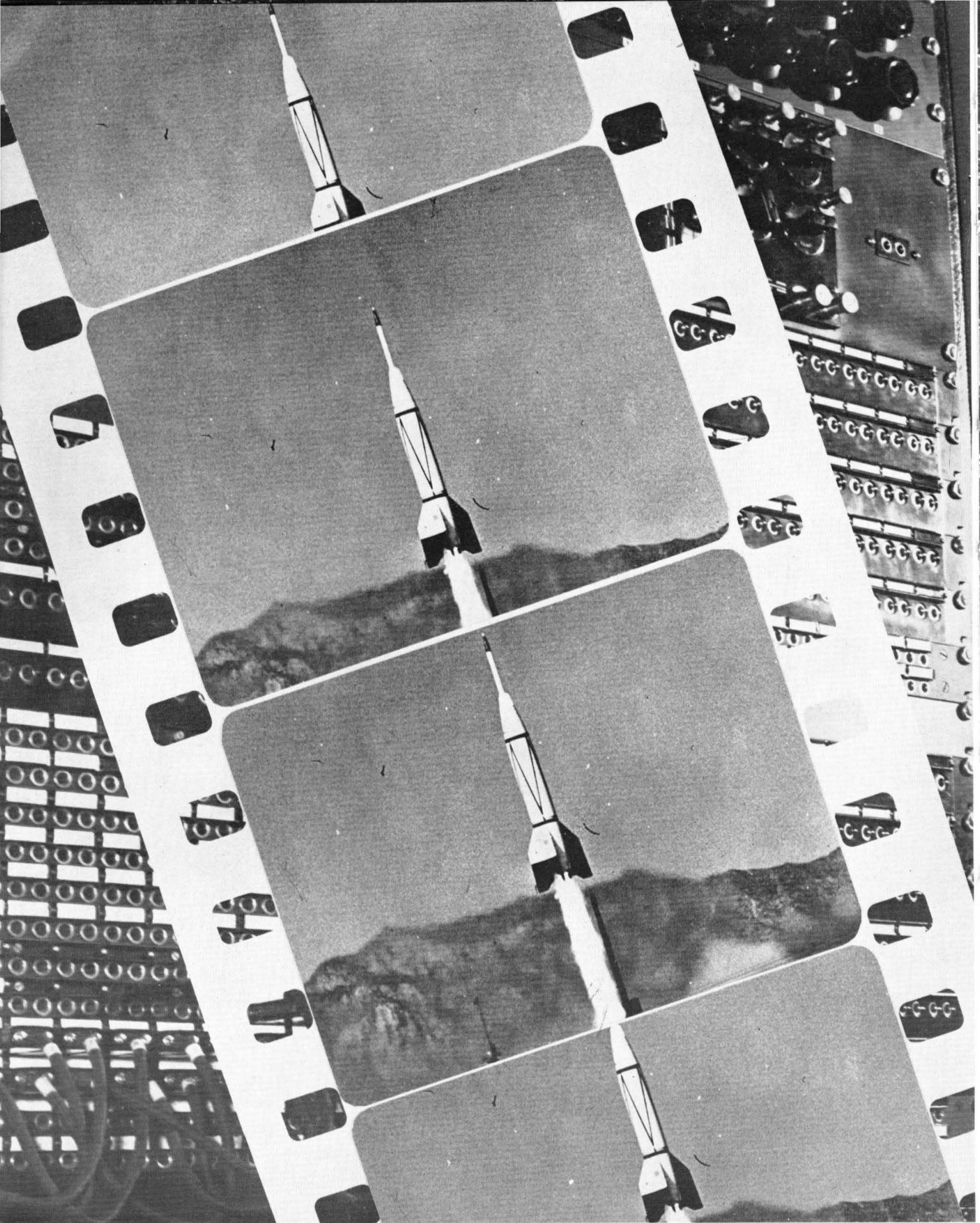
This volume of the BIG T is respectfully dedicated to the late Russell W. Porter, Artist, Instrument Designer, and Inspiration to thousands of amateur instrument makers. Dr. Porter passed away February 22, at the age of 77. His last drawing appears above.



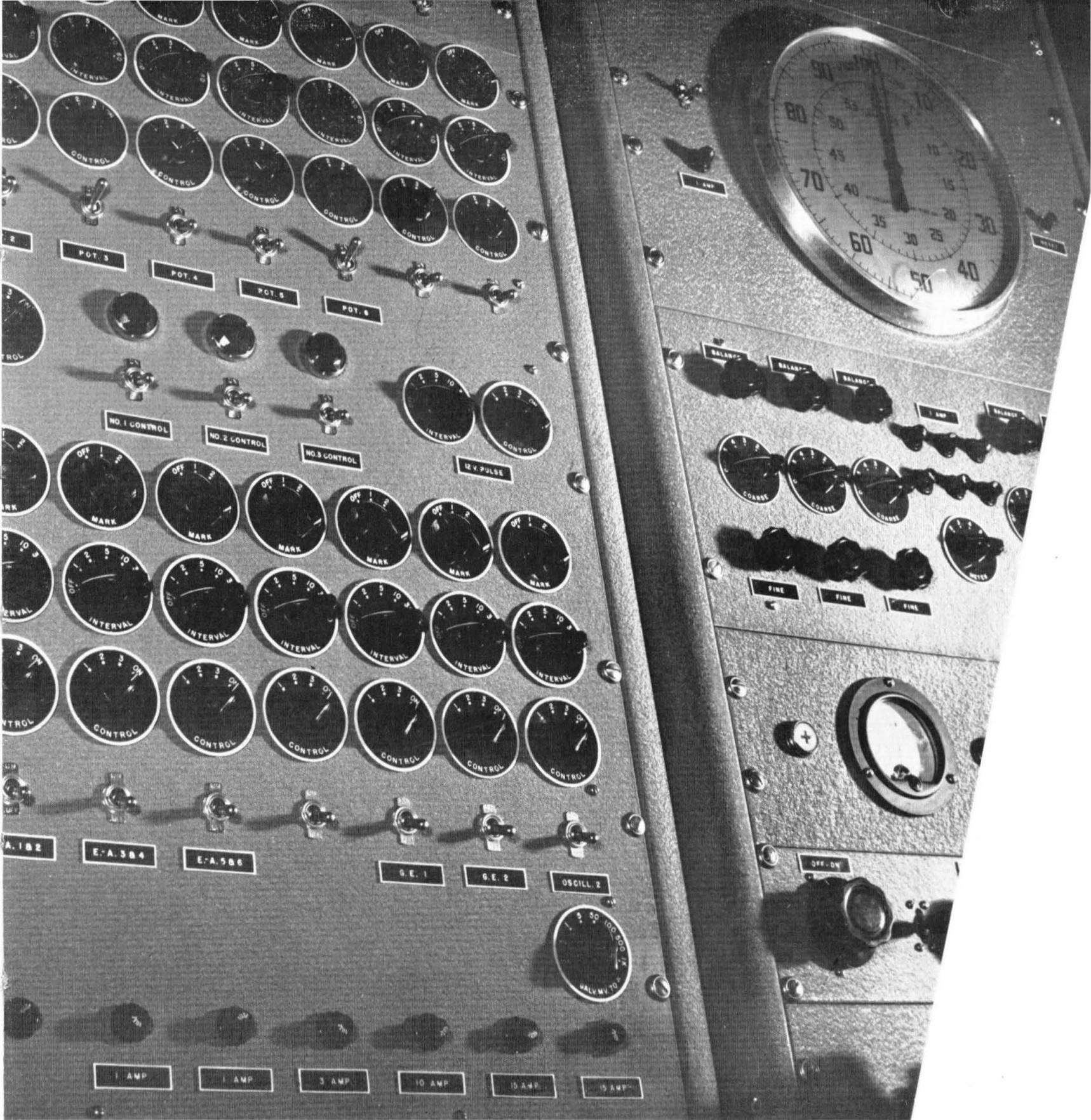
IN MEMORIAM

ARTHUR P. BANTA
COL. E. C. GOLDSWORTHY
RUSSELL W. PORTER
RICHARD C. TOLMAN

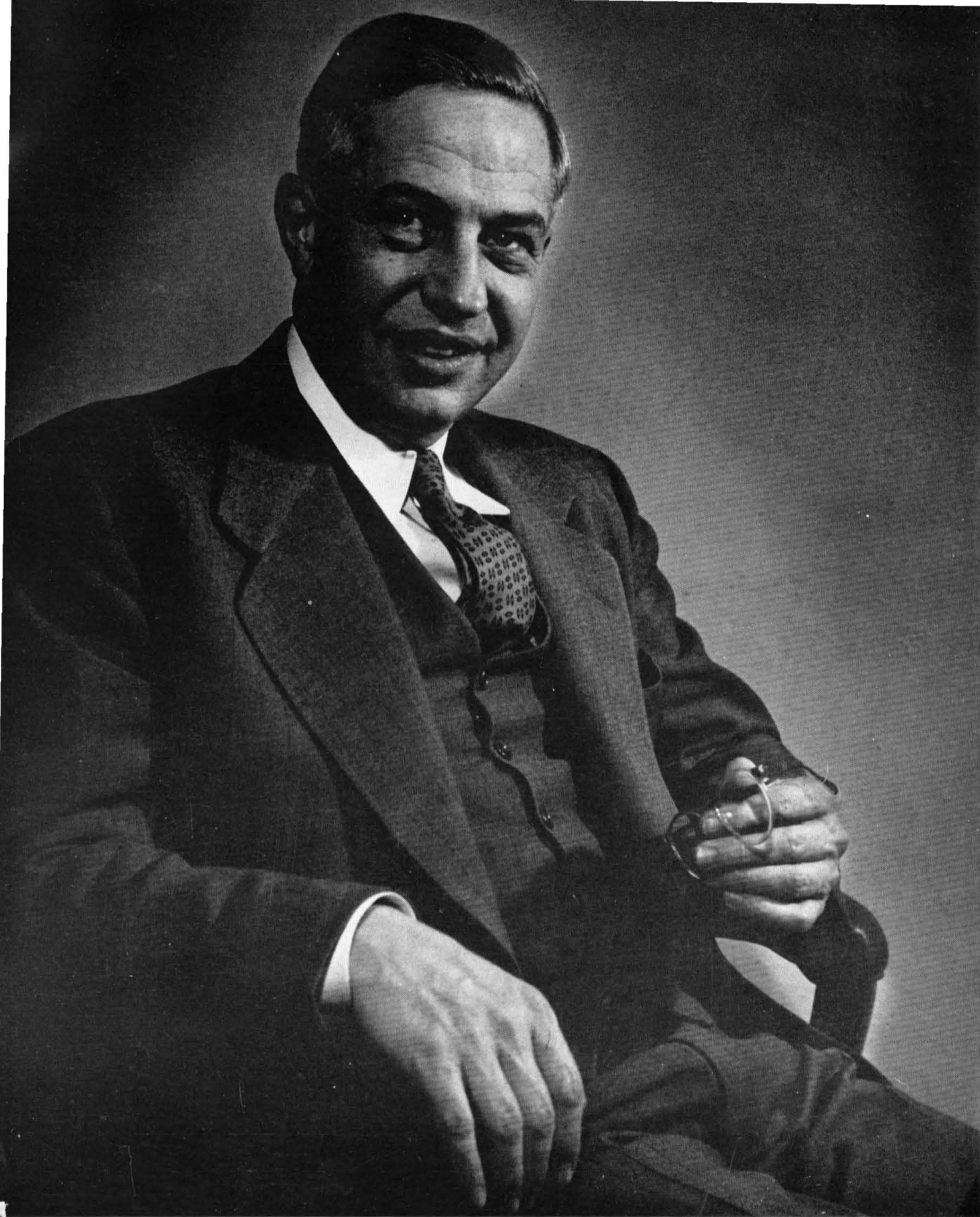




JET PROPULSION LABORATORY—ARROYO SECO

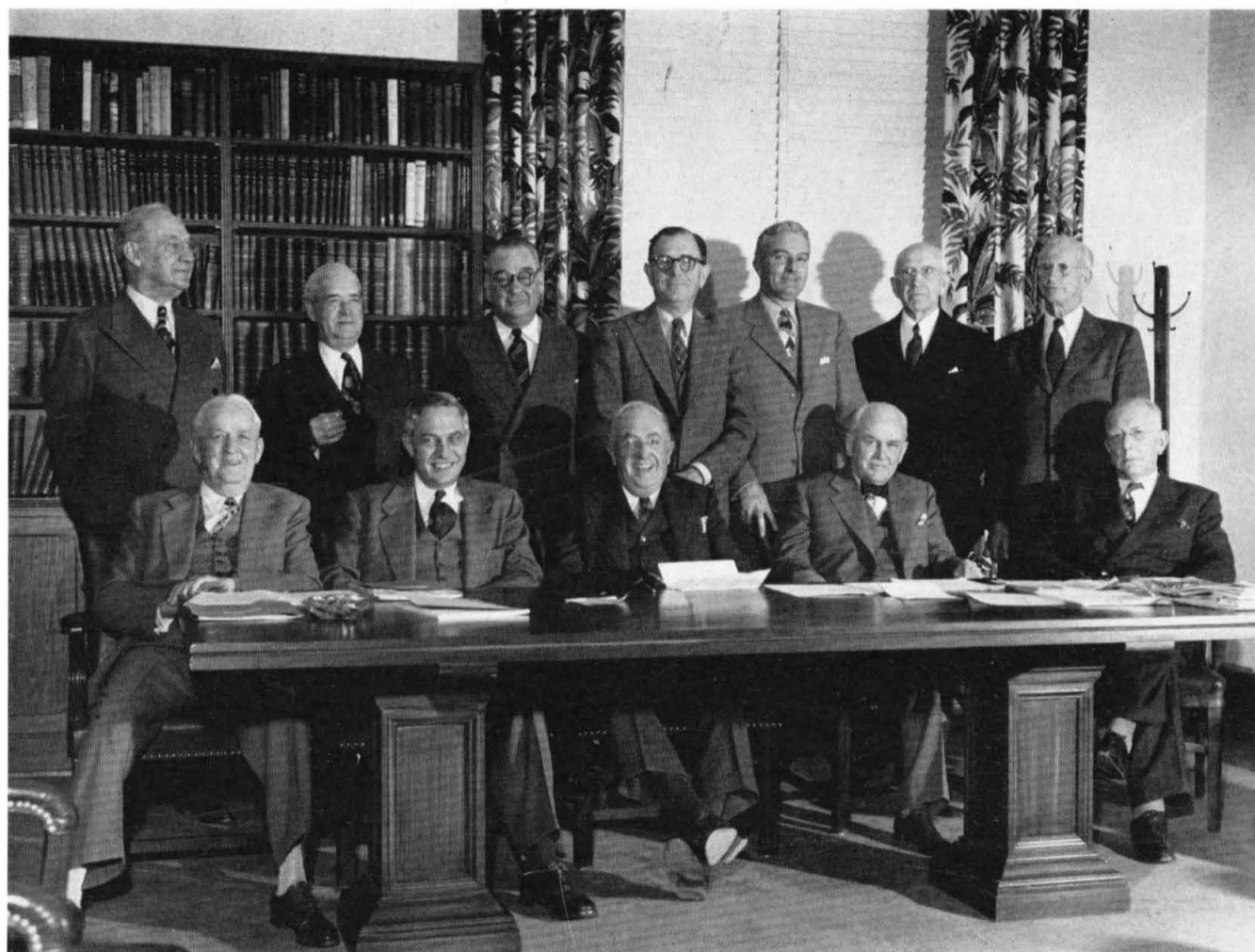


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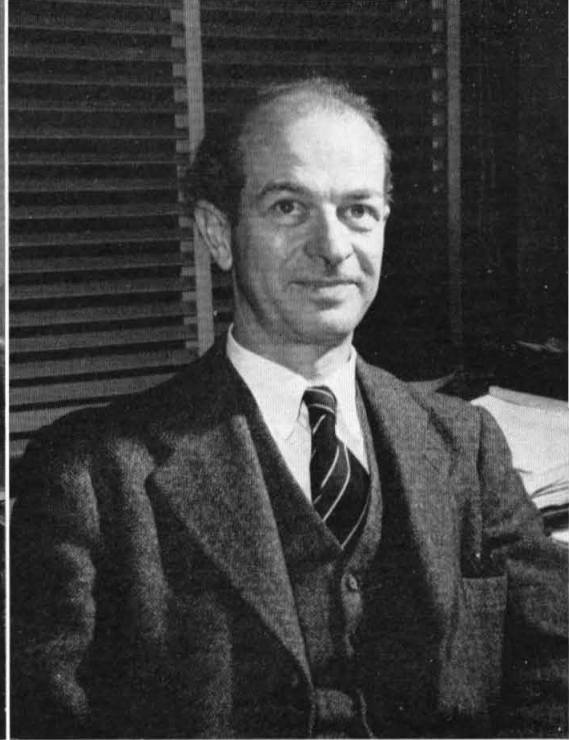




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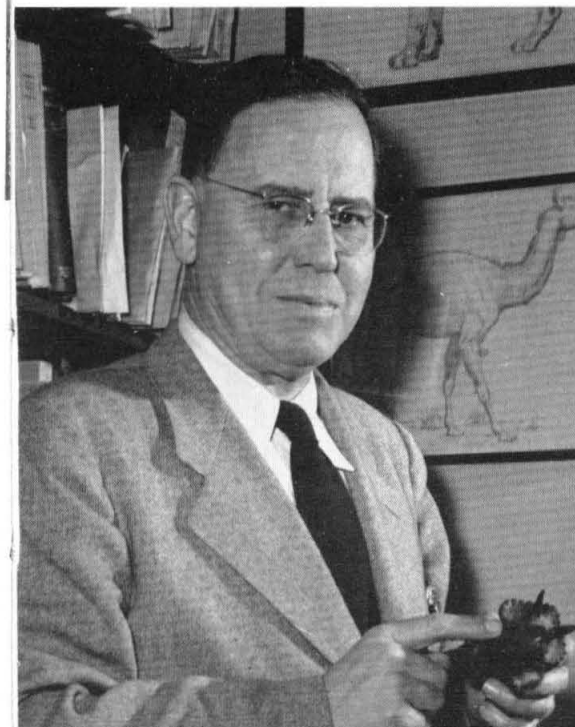
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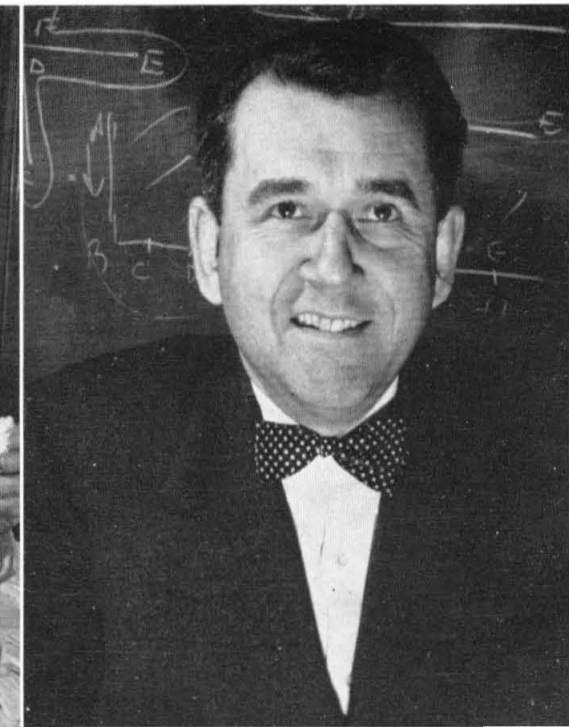
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STUDENT-FACULTY RELATIONS

HARVEY EAGLESON



One Monday afternoon each month a group of students and faculty members meet to discuss problems that relate to both the students and the faculty. The house presidents, ASCIT officers, and other "big wheels" in the student body handle the student's interests, while representatives from the faculty handle the Institute's side.

Under the able leadership of Harvey Eagleson, the Student-Faculty Relations Committee spent a year that was an undeniable success in maintaining harmony between the students and the faculty.



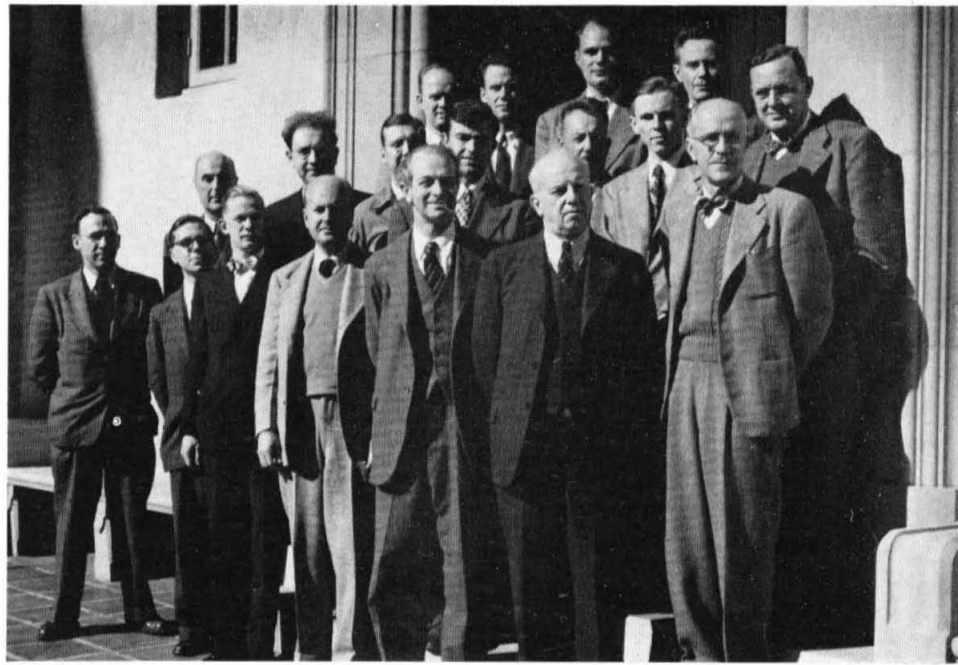
J. KENT CLARK, BEACH LANGSTON, GERÖGE R. MacMINN, CLINTON K. JUDY, WILLIAM HUSE, ROGER STANTON, HARVEY EAGLESON, L. WINCHESTER JONES, PAUL C. EATON

HUMANITIES

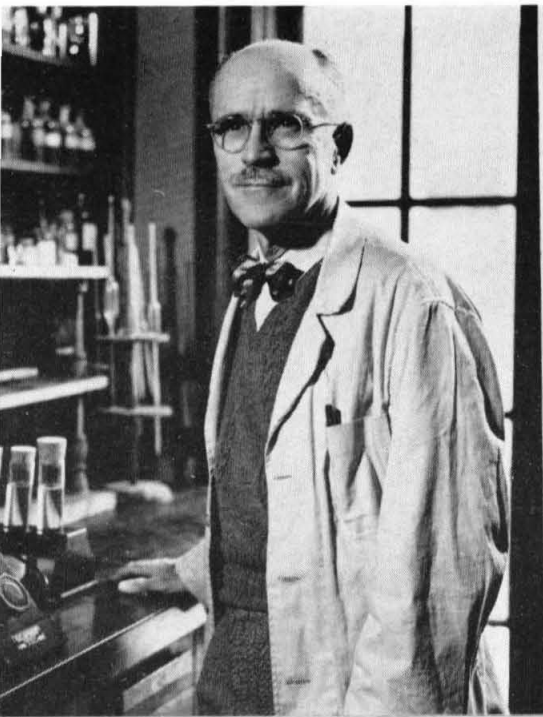
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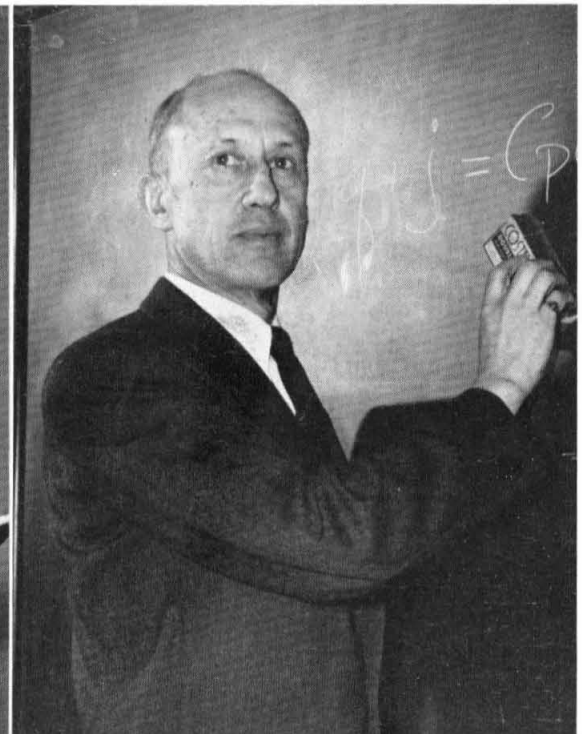
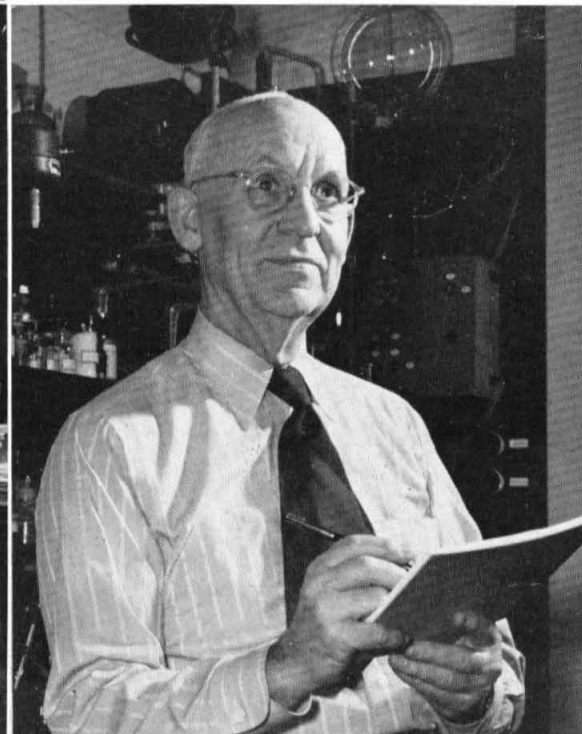
CHEMISTRY

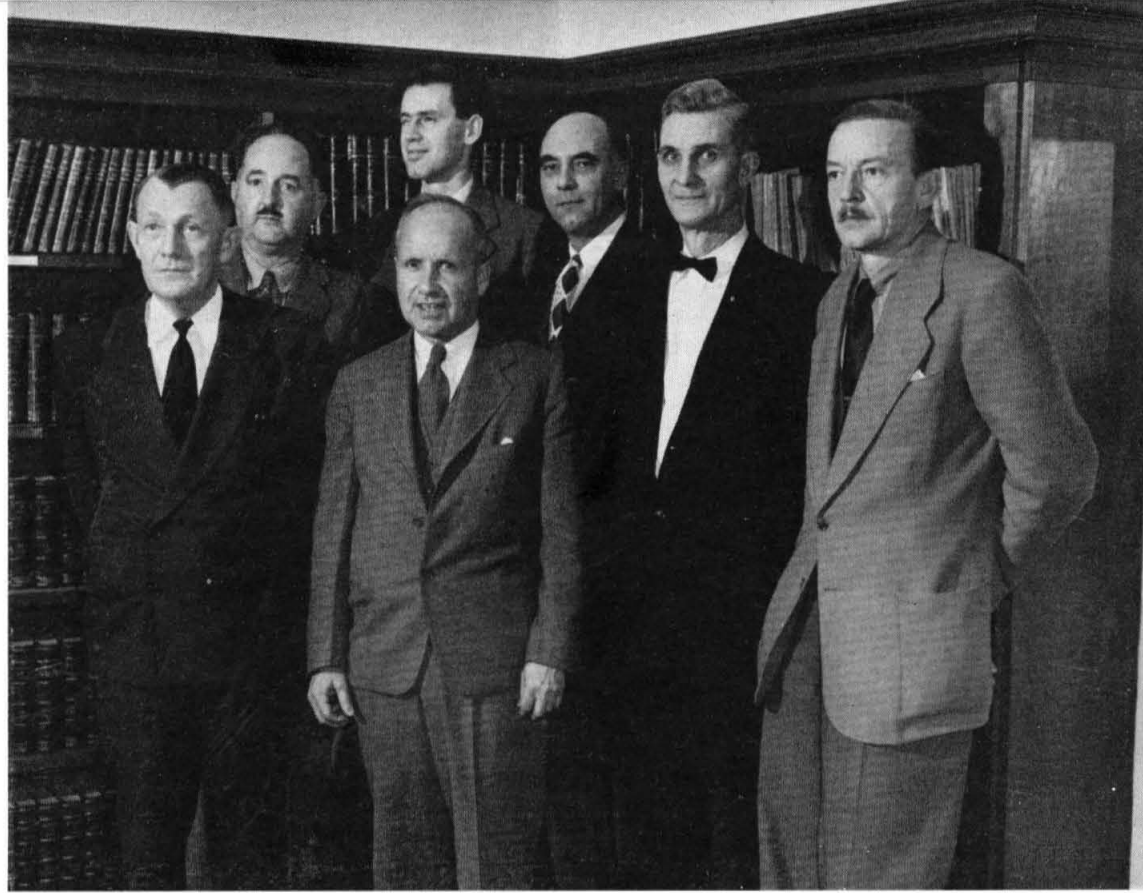


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ERNEST SWIFT, LINUS PAULING, HOWARD LUCAS, WILLIAM LACEY





CHARLES C. LAURITSEN, H. P. ROBERTSON, R.F. CHRISTY, ERNEST C. WATSON, CARL D. ANDERSON,
WILLIAM R. SMYTHE, ALEXANDER GOETZ

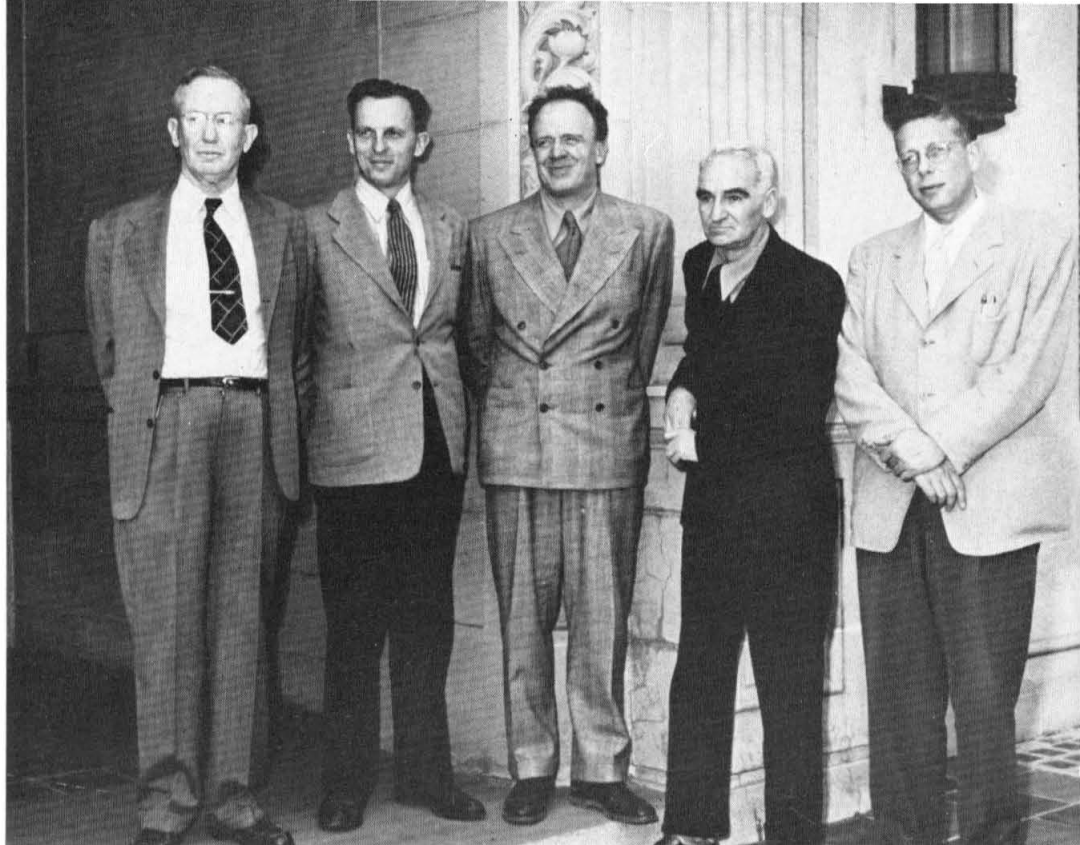
PHYSICS

LEVERETT DAVIS, ROBERT B. LEIGHTON, H. VICTOR NEHER, FOSTER STRONG, WILLIAM A. FOWLER, PAUL S.
EPSTEIN, THOMAS LAURITSEN





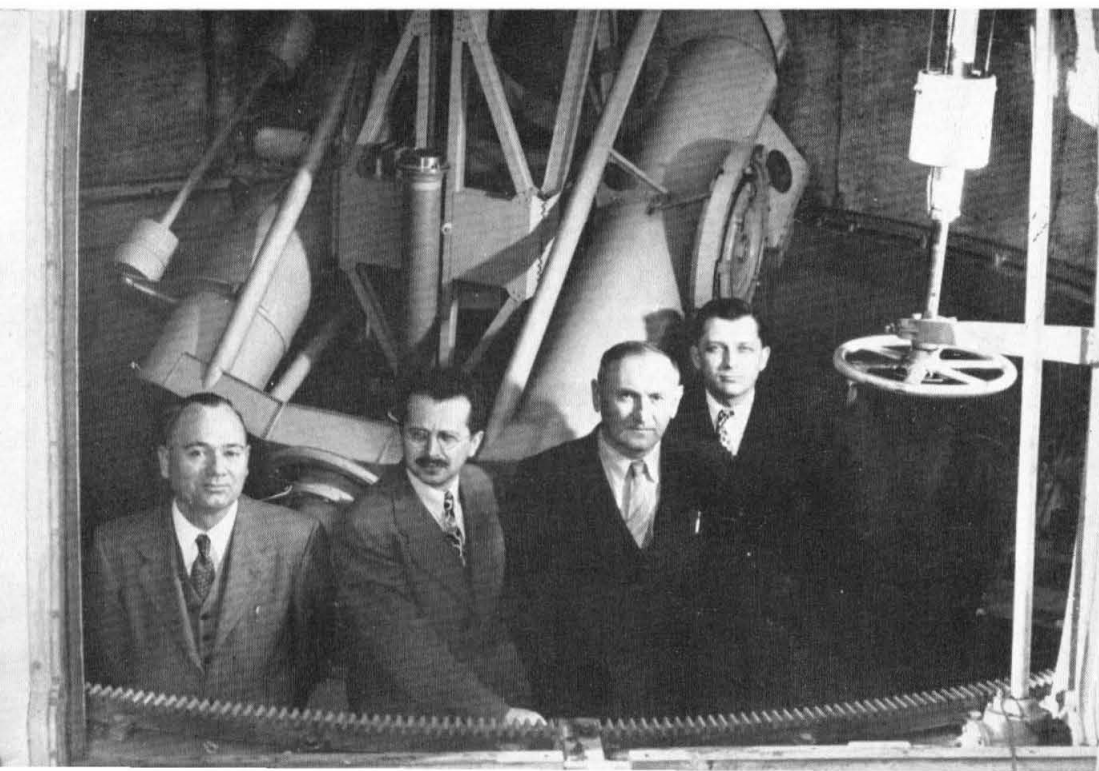
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LUTHER E. WEAR, ROBERT P. DILWORTH, MORGAN WARD, ERIC T. BELL, H. F. BOHNENBLUST

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FRITZ ZWICKY, ALBERT G. WILSON

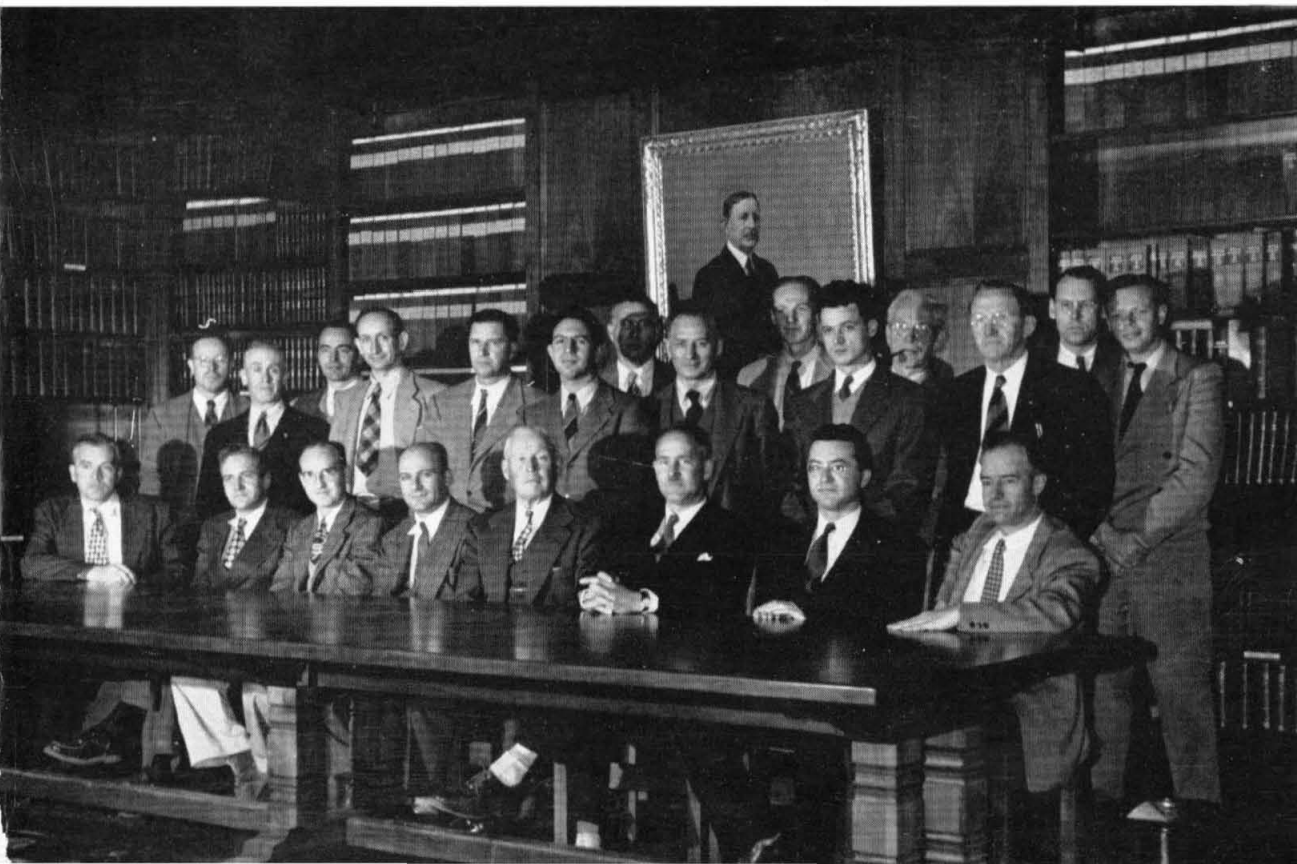
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IAN CAMPBELL, JOHN BUWALDA, BENO GUTENBERG, CHESTER STOCK, CHARLES RICHTER, CLINTON STAUFFER, GENNADY POTAPENKO, DANA RUSSELL, ROBERT SHARP, RICHARD JAHNS, JAMES NOBLE

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FRITS WENT, RAY OWEN, SAM WILDMAN, JACOB DUBNOFF, CHARLES BRADLEY, GEORGE BEADLE, NORMAN HOROWITZ, GEOFFREY KEIGHLEY



BIOLOGY



FRANCIS MAXSTADT



WILLIAM PICKERING



GILBERT McCANN

ELECTRICAL ENGINEERING

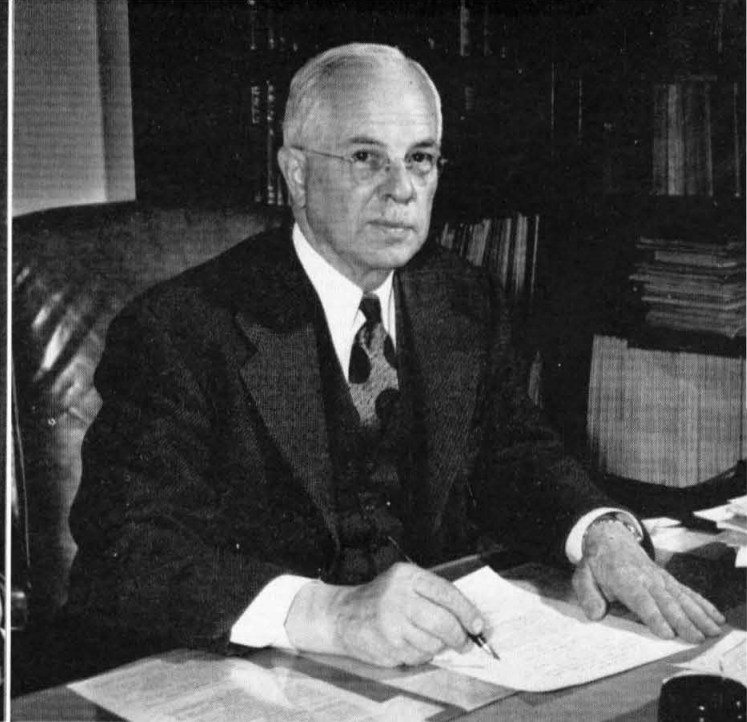
CIVIL ENGINEERING



R. R. MARTEL, FRANKLIN THOMAS, GEORGE W. HOUSNER, WILLIAM W. MICHAEL, W. J. BOBISCH, FREDERICK J. CONVERSE



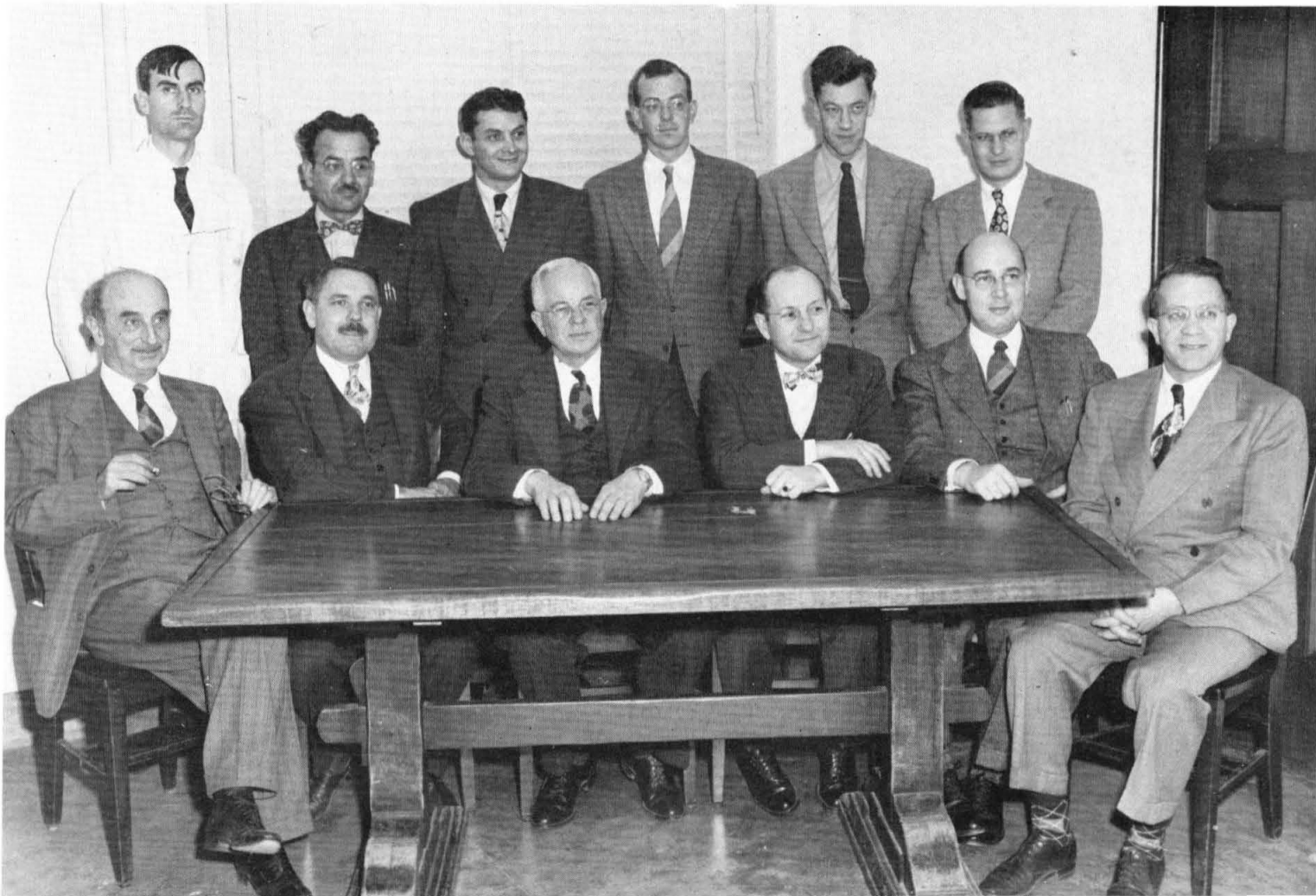
DONALD CLARK

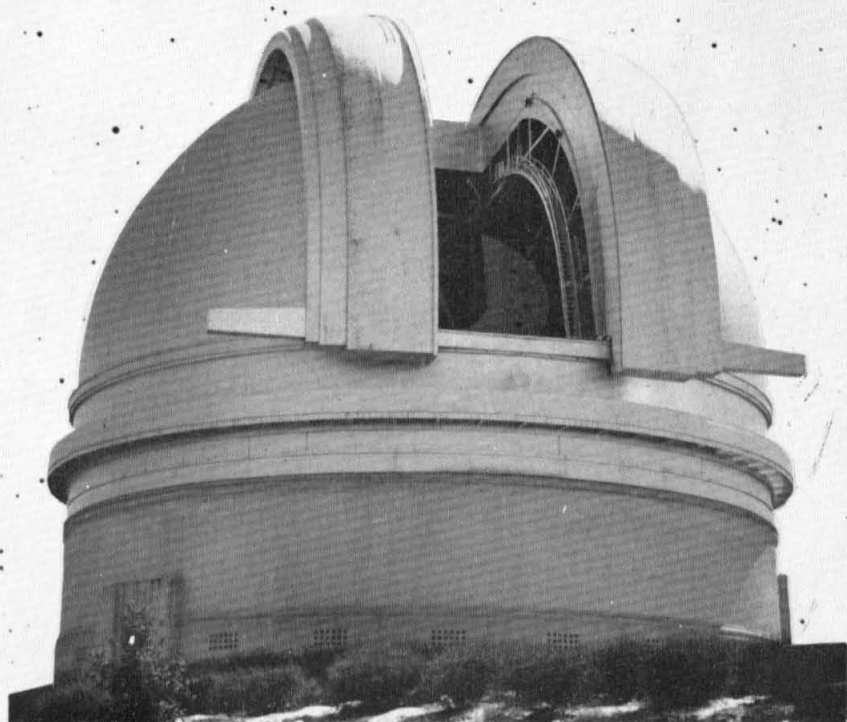


ROBERT DAUGHERTY

MECHANICAL ENGINEERING

PETER KYROPOULOS, VITO VANONI, DINO MORELLI, FRANK McCLINTOCK, DUNCAN RANNIE, DONALD HUDSON
ALADAR HOLLANDER, ROBERT KNAPP, ROBERT DAUGHERTY, DONALD S. CLARK, WILBER R. VARNEY,
WARREN WAGNER

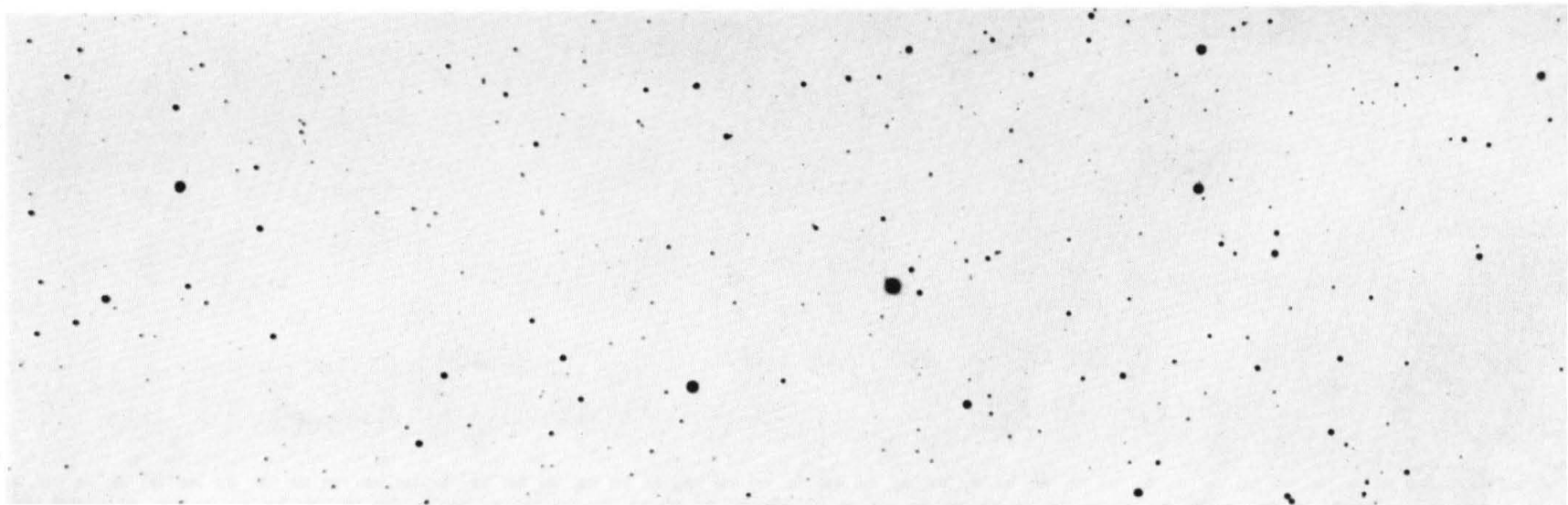


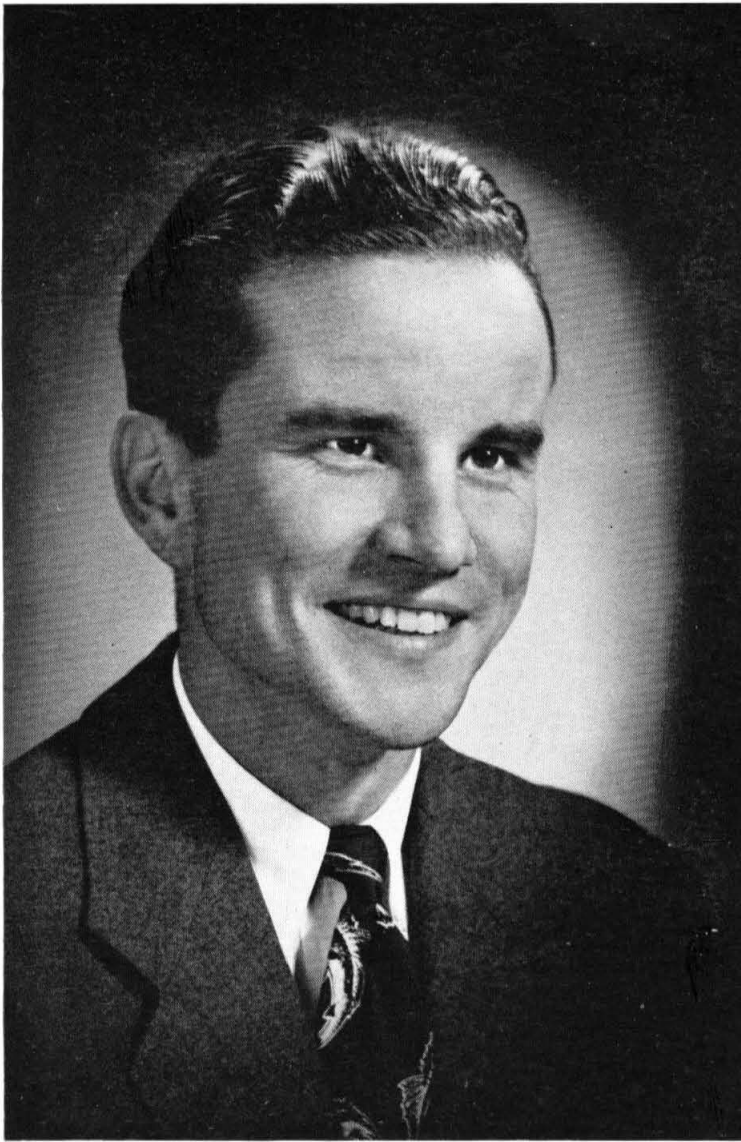




PALOMAR MOUNTAIN OBSERVATORY

CLASSES



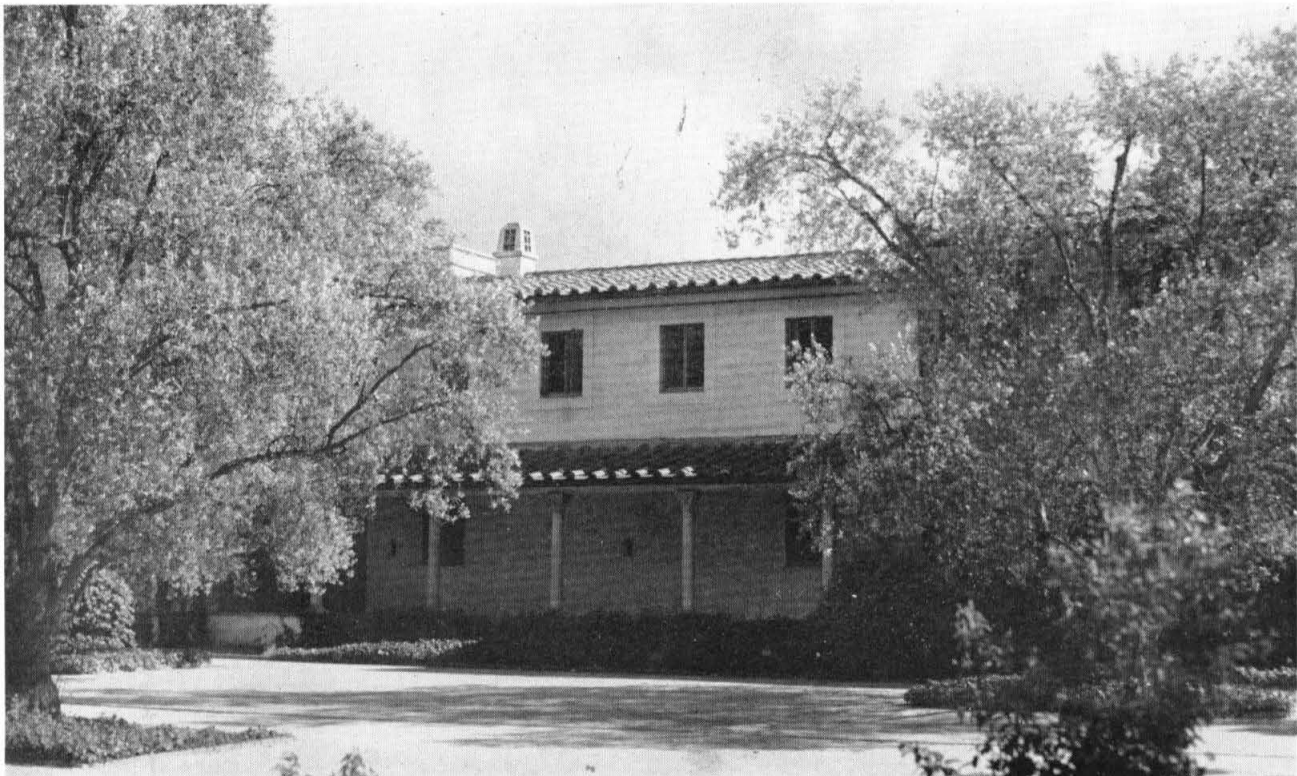


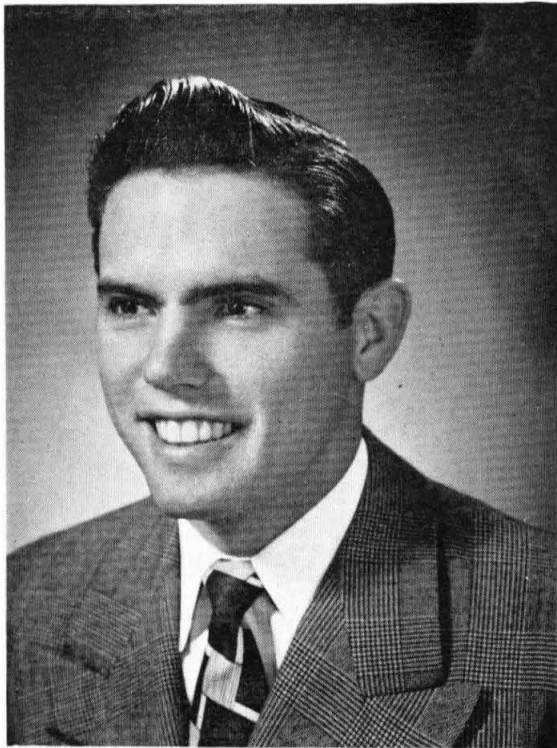
Chuck Forester, President

The gigantic class of 1949, some two hundred and twenty strong, has reached the end of the trail in the quest for knowledge. The men whose pictures appear on the following thirty-two pages are no pink-cheeked crew of school-boys; no, for more than three-quarters of this group are hairy eared individuals who wrestled with life and the elements in the various branches of the service during the Great War.

Led by such outstanding exponents of executive decentralization as class president Chuck Forester (an old railroad man); Vice President, Bill Simons; Secretary, Erle Brown; and Treasurer, Roy Gould, the class undertook an ambitious program.

The ivy-covered tradition of the class gift was cast aside, when the '49ers voted to donate \$500 to the Alumni Gymnasium Fund, with the hope that succeeding classes would follow suit and get the darn thing built quicker.





Bill Simons, Vice President



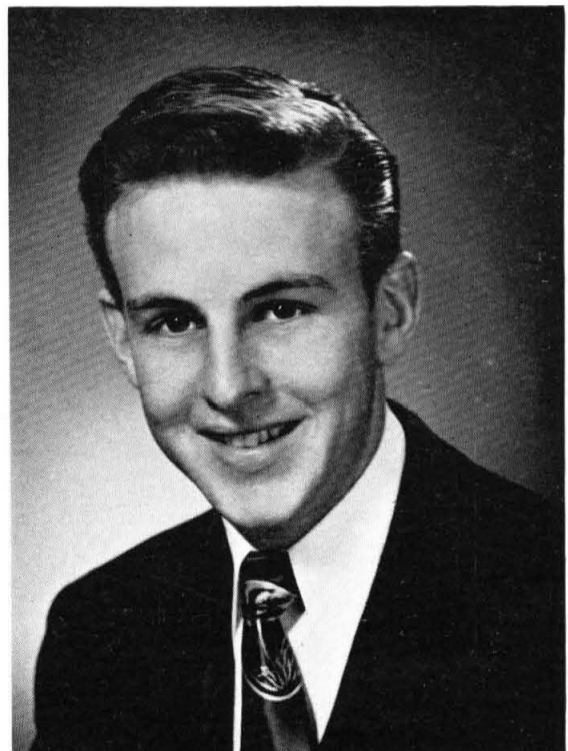
Erle Brown, Secretary

SENIORS

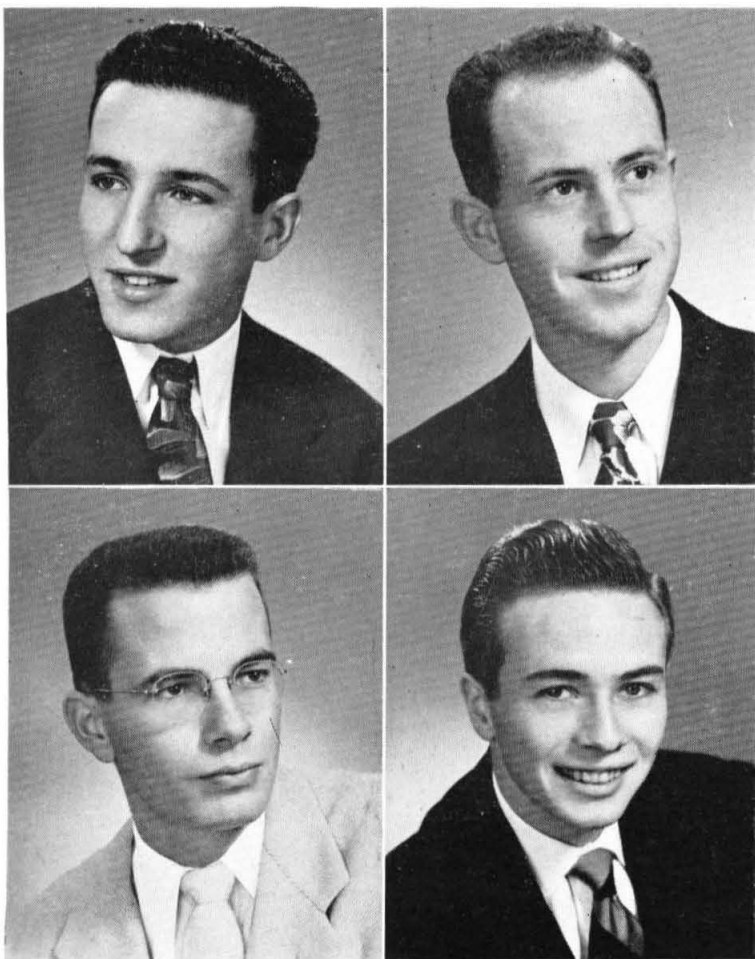
Outstanding social events of the third term were, naturally, the Junior-Senior Garden Party and the Prom. Bob Stewart was head man on the Garden Party committee, helped by Bob Pilling, Jack Marshall, Jay Lindeman, and Bill Palmer. Bill Woods was chairman of the Prom committee, with Carl Price helping him. The big brawl of the year was the Senior Ditch Day, where everybody forgot his troubles under the direction of Ken Gardiner, Jim Malone, and John Kariotis.

At the Senior-Faculty baseball game, you couldn't tell one group from the other without a program, since the ages of the two teams were approximately equal, and the players proved to be equally senile.

Thus ends the saga of the men of '49; Goodbye and Good Luck!



Roy Gould, Treasurer



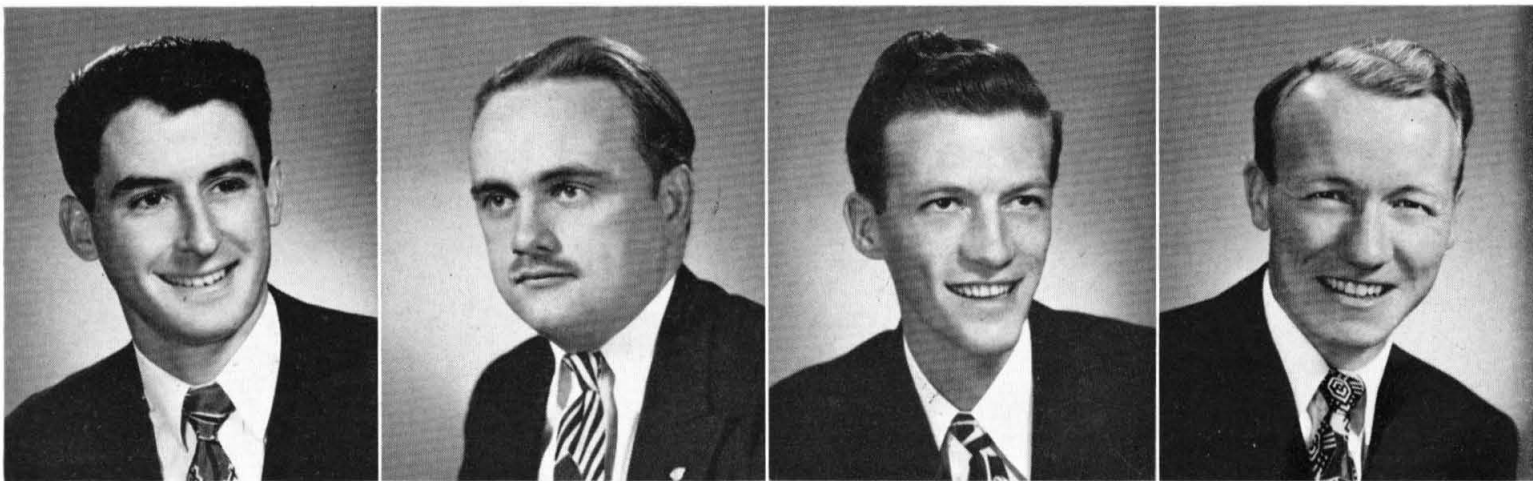
ED ALEXANDER
FLEMING, TBPI, T¹
 Ed transferred from Redlands in his Soph year, and took command of the Tech tennis courts. Winner of the Scott Trophy each year, he is a three year tennis letterman, and captain. Spent two years in the Army, and is always seen playing bridge in the Fleming lounge.

WILLIAM ARCHER
RICKETTS, ASME
 Red headed Bill hails from the fair city of Long Beach. A strong supporter of Ricketts interhouse teams, he is also interested in hunting, fishing, and, strangely enough, archery. One of the younger seniors, Bill plans to go right to work.

STAN BARNES
FLEMING, TBPI, HONOR KEY, T¹
 The Barnes has been ASCIT President, Athletic Mgr., and 2nd Rep. In his spare time he has earned one Cross Country and Four Varsity Track letters. A member of Fleming waiter's union, College of Cardinals, and UYF. He spent 2 happy years in the Navy, returned to the Beavers and 2 Honor Keys.

CARLOS L. BEECK NAVARRO
DABNEY, ASME
 Carlos is a Tech through the courtesy of the Peruvian Air Force. One of Dabney's best interhouse athletes, he was house treasurer, member of the Beavers, and active in the student shop. Crazy about art and photography, he must tear himself away from Tech and return to active duty.

MECHANICAL ENGINEERING

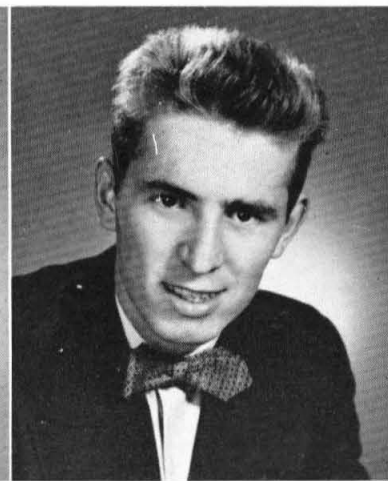
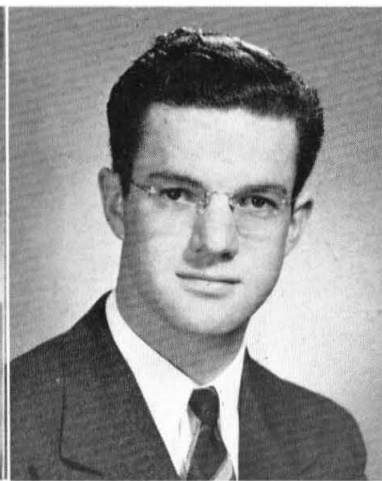


BOB BENTON **THROOP, T**
 Bob is married, with a small Benton running around the house. A member of the Beavers, and a three year Golf letterman, Bob also owned Thoop Club, having served as Secretary, Vice President, and finally President. Dislikes any mention of his three years in the Navy.

FRANK BRADY
THROOP, ASME, TBPI
 Frank's tour at Tech was interrupted by three years in the Army. A family man, living in L.A., he found time for the Y's Radio Roundtable and work in Hydro Lab. Active in Frosh Sports in 1941, he has settled into the AmVets and American Rocket Society.

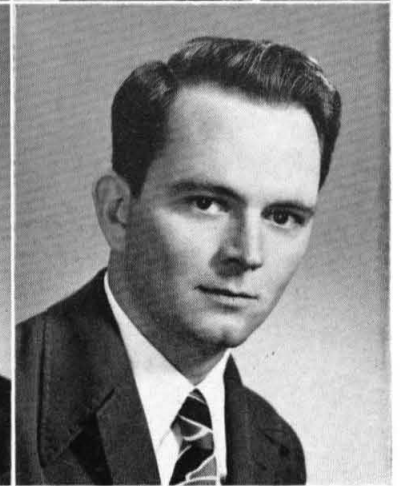
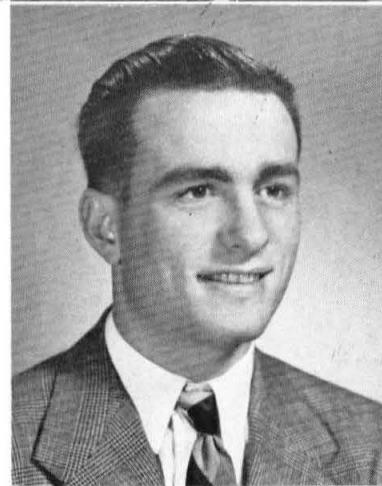
E. R. BRAYFORD **DABNEY, T**
 Bob claims Salt Lake City as his home. Showing an active interest in sports, he earned two Baseball Letters, and is red-hot in Softball. Was a dry land sailor for two years in the Navy during the Great War. Plans to go to grad school.

ERLE J. BROWN JR.
FLEMING, HONOR KEY, T¹, ASME
 Ancient Erle was Secretary of pre-war Soph Class, and of present class in Junior and Senior years, was Fleming Vice President. Earning one Frosh and three Varsity Track letters, he played around at JV Football and X-Country. Sports Editor of '48 Big T, and Senior Editor of this one, claims 2 Honor Keys, spent 3 1/2 years in AAF.



GEORGE JAMES BROWN JR.
ASME

Brownie will be remembered as a Debater supreme, and a pole vaulter passable. Married and proud parent, he earned 2 track letters while commuting from L.A. A Veteran of 3 confusing years in the AAF, he now spends all spare time in auto repairs. Plans to attend grad school.



JOSEPH R. CANTWELL
TBPI, ASME

Joe came up from Downey to Tech after five foolish years in the AAF. He considers his hobbies to be tennis, music, and fishing, but he also dabbles a little in philosophy on the side. He takes school seriously, but he wants to get right to work so he can retire early.

HUGH CARTER
DABNEY, HONOR KEY, ASME

Omaha's gift to Southern California, he is known as "moneybags" because of four as ASCIT Treasurer. Little T editor in '46 he was co-editor again in '47. Also ASCIT publicity manager in '46. Guardian of general library on evening shift, he owns and operates an impossible automobile, the "Rocket."

ALVIN L. COHEN
RICKETTS, ASME

Al came to Tech and Ricketts from Denver, Colorado, by way of the US Naval Academy in 1948. Interested in golf and red Ford convertibles, he manages to find life quite pleasant at times. Al plans to go to work upon graduation.

JOSEPH M. CONOVER ASME, SAE

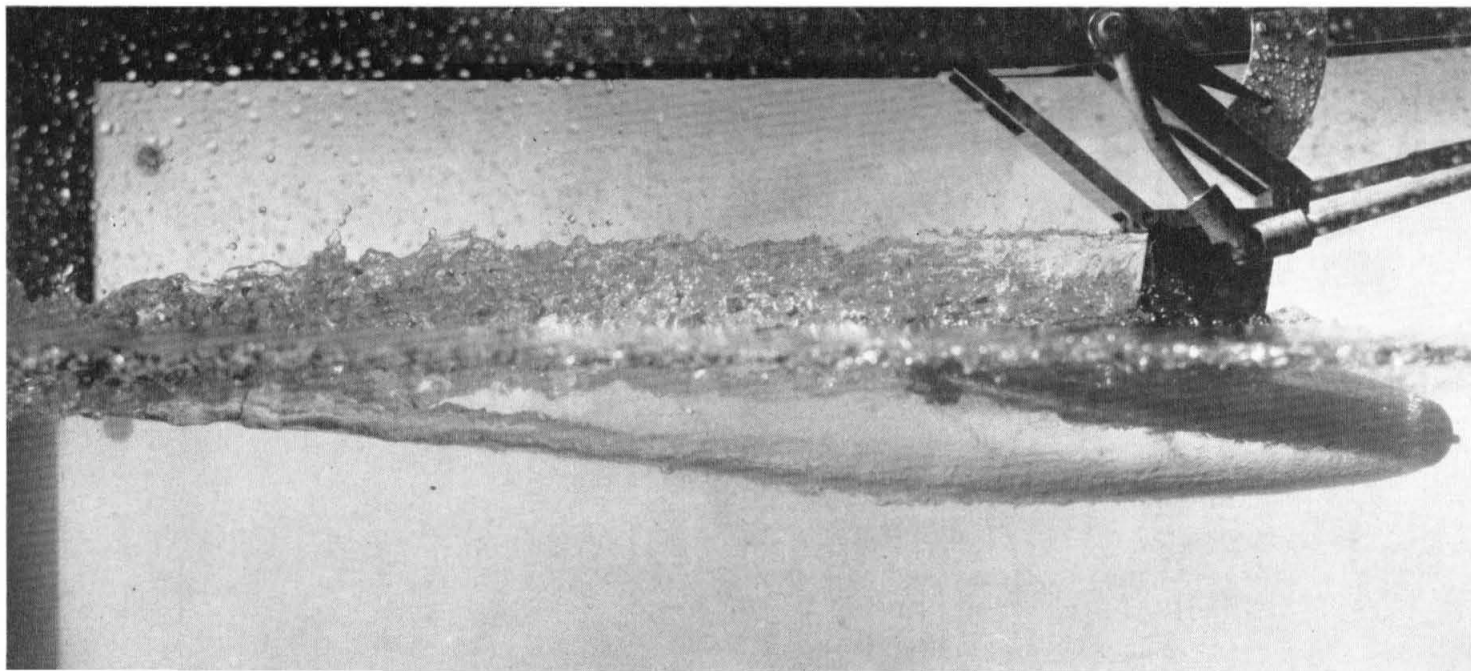
A local boy from Pasadena, Joe plans to enter industry directly upon graduating. After three years in the Air Force, he is primarily interested in flying and fishing as outside activities, and hence is seldom seen on campus after classes.

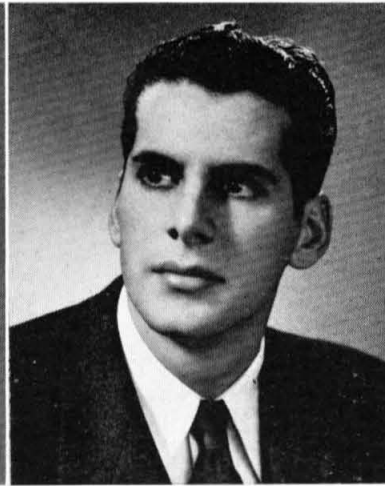
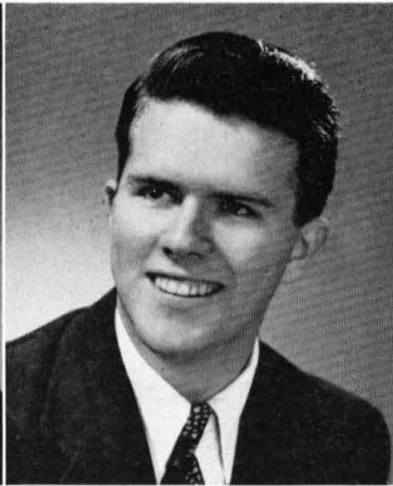
ROBERT N. CURTIS THROOP

"RN" was a pre-war Tech man, who spent three years in the AAF, then went to Yale and got a BS in 1947. Now back at Tech again he toots a mean horn in the band. A real Liberal Arts man, he belongs to University Club, and Army-Navy Club, carries stock market reports around.

JOHN H. DANNAN RICKETTS

A quiet, serious, studious type fellow, with a droll wit on southern drawl, John spent a few years in the AAF during the war, and airplanes have been with him ever since.





FRED J. DARMS JR.
THROOP, T²
Fred hails from Arcadia, and thus commutes. He played three years of football, earning two letters at guard. Spending two rather unhappy years in the Army, he is anxious to get to work in industry and earn a million or so.

SAMUEL FONG DABNEY, ASME
Snaking Sam, the Santa Barbara man, is one of the more serious students. A former hot-pilot type, he still knows his way around. Three years in the Air Corps has enabled him to rise above the call of campus activities.

WILLIAM N. HARRIS FLEMING, T²
Bill can give a pretty good imitation of a seal, in the water and out. Three Varsity Swimming letters plus two in Water Polo give him a good start. Made big time all-Coast in the latter. Wrote for paper, sports that is.

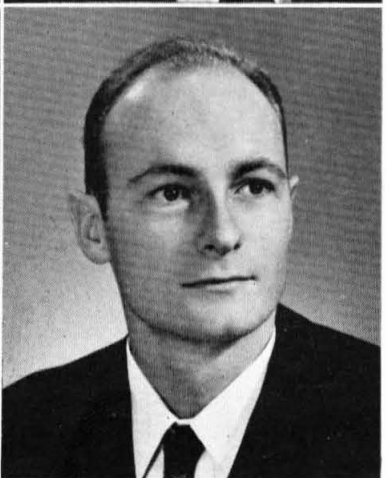
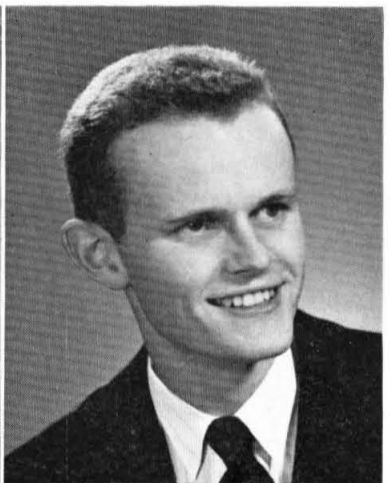
ROBERT ALLEN DARROW RICKETTS, ASME, SAE
Bob was one of Ricketts dependables in Interhouse competition. House Athletic Manager in his Senior year, he also got married in March. His home was Playa Del Rey, Los Angeles to the peasants. Photography is his hobby, and he plans to go to work upon graduation.

HENRY FASOLA JR. DABNEY, ASME
"Big Hank" will be remembered for his model airplanes, the talk of Dabney house. Also he owns a small, low, foreign car which always attracts a crowd. An RT in the Navy, he is also handy with radio and women. Glendale is his home town.

JOHN HANN ASME
Johnny is from Los Angeles, is a family man, and rather proud of it. In fact he plans to concentrate on his family in the future. A veteran of 3 years in the Navy, happy years that is, in the Pacific. He lists music as his chief hobby.

ANDREW V. HARRIS BLACKER, ASME, SAE
From Fresno to Tech was not far in Andy's little MG. That is his hobby, small cars. Known as the "Boy Engineer" he is 20 years old, tall, and smooth. Served as Blacker Secretary in the summer of '46, and has been a small wheel ever since.

DAVID K. HAYWARD DABNEY, ASME
President of Dabney House, and member of Beavers, Hap, claims Pasadena as his home town. A veterans of 4 years in the AAF in the CBI gave him a mature outlook. He likes skiing, sailing, fishing, and interhouse sports. Dave plans to work in heating and ventilating.





WAYNE M. HERZIG
DABNEY, HONOR KEY

From Santa Ana came smiling Wayne, big gun in Dabney inter-house sports, Athletic Manager of the house, trumpet tooter in the band, and model plane builder supreme. President of both In-stituters and ASME, he also worked on the '48 Big T. Spent 2 1/2 glorious years in the Army.



PAUL WILLIAM HUBAY
BLACKER

Paul is an Old Tech Man, being President of Blacker House in 1942, hailing from New Britain, Connecticut. A member of the Beavers, he made Frosh tennis letter in '40, Varsity in '41, '42. He spent 5 1/2 years in the good old AAF, returned as a Senior, family man, with on daughter, and proud of her!



FRANK G. HYLTON
ASME

Frank is a little older than most of his classmates. He is married, with two children, and is 37 years old. Still he was on the ski team in '46 and on the swimming team in '48. He plans to enter industry upon graduation.



JAMES EDGAR JOHNSON
BLACKER

Big Jim is an example of the hard-working, playboy type of fellow, who never let his studies interfere with his education. From Coronado, California, he plans to go East for grad work. Jim prefers that his three years in the AAF be forgotten, since it was un-happy.

MECHANICAL ENGINEERING

RAYMOND A. JOHRDE
ASME

Claiming Pasadena for his home town, Ray is a married man. He earned two letters in varsity Football. Spent three happy years as a fly-boy for Uncle Sam, European Theater, but is now more interested in shopwork and model building. Also in outdoor living, camping, and hunting.

FRANK W. KEINONEN

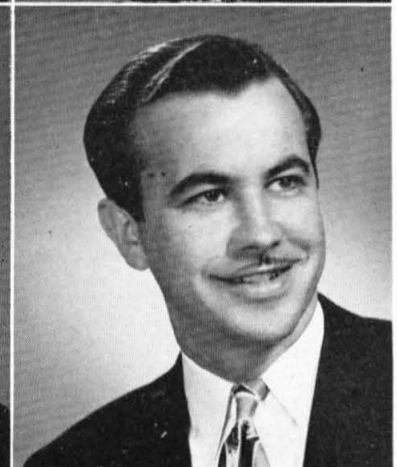
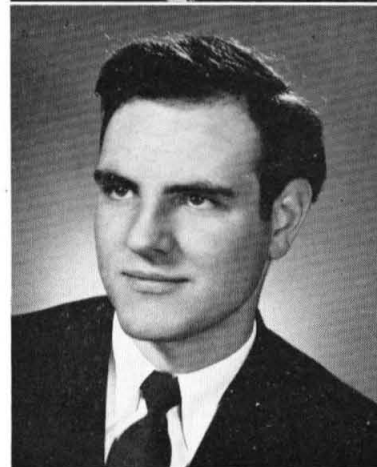
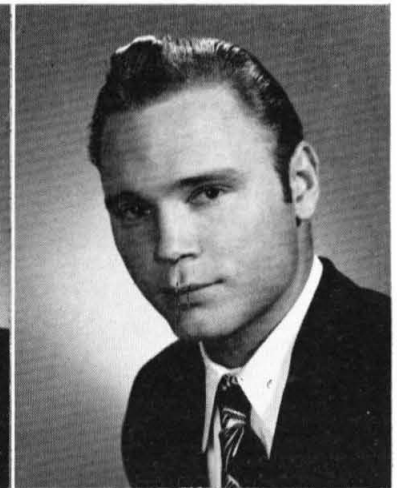
Hap hails from Baltimore, Maryland, is married, and one of the more serious students. Spent three years in the AAF. Plans to enter industry upon graduation from Tech. A smooth dresser, the executive type.

JIM KENNEY
ASME

A Debater and Radio Round Table expert, Jim came down from Lompoc, California. Woodworking is his hobby, but his wife claims more and more of his time. A veteran of 2 1/2 sad years in the AAF. Jim plans to go to grad school. His ambition is to have 5 kids.

ROBERT W. KERMEEN
ASME

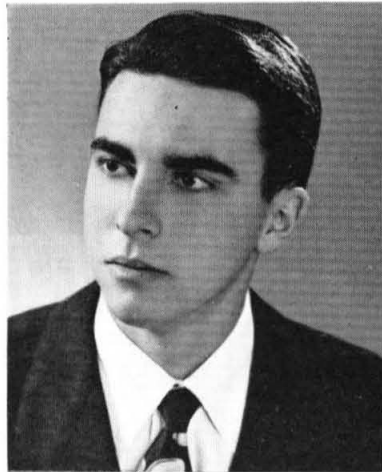
Bob lives in Los Angeles, is married, and commuted to school. Admits to three happy years in the salty Navy Air Corps. He has carried this over into a civilian hobby of flying on his own. Plans to go right to work upon graduation.



KEITH D. KOHNEN

DABNEY, ASME

Keith is easy to get along with, always pleasant, and smiling. He claims he played last string on Dabney's House teams for 3 years. From Pacific Grove, Cal., and Jamestown, N. Dakota, he is loyal to both. Plays tennis and swims in his spare time, also nuts about photography.



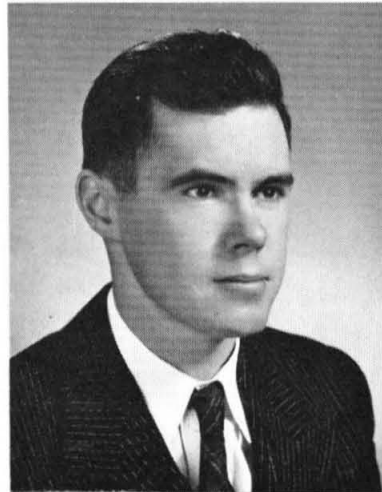
HAROLD J. LINDERMAN
FLEMING, ASME

Eager enough to get both ME and CE degrees by going summers at Stanford and Utah, Jay rules the Fleming dining room with an iron hand as Head Waiter. Also excellent Fleming Secretary, and Vice Chairman ASME. Spent 3 happy years in the AAF, ETO. Changes his plans about future work every week or so.

HENRY A. LONG

DABNEY, TBPI, SAE

Hank's hobby is auto mechanics, with a sideline of music. Quiet and agreeable, he was Chairman of SAE on campus. Spent 3 unmentionable years in the Army, CBI. Plans to give the automotive industry the big break upon graduation.



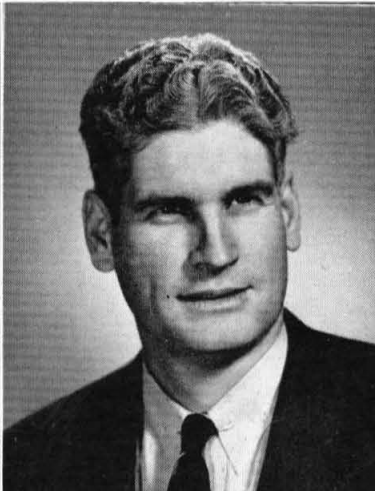
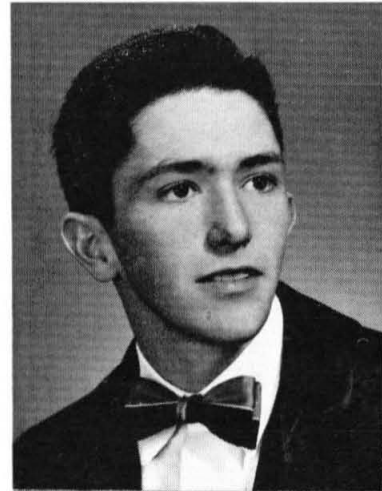
DAVE W. MADDEN
FLEMING, T, ASME

Fleming house UCC and senior statesman, Dave also was great on the Soccer field and printer in Track. From Lomita, Calif., he hates the Southern California climate, smog, and attitude. An ME with EE tendencies, he took many extra courses just for kicks, and never let his studies bother his education.

JOHN C. MARSHALL

BLACKER, HONOR KEY, T, TBPI

Jackson is Tech's version of the All-American Boy. Three year cross-country letterman, twice co-Capt. Two year track letterman, band, glee club, Assistant Publicity Manager, and most anything you can think of. Smart and smooth, from Grosse Pointe, Michigan, he plans grad school in Aeronautics.



ORSON L. MITCHELL ASME

One of the oldest Tech men, Orson spent ten (10) years in the very salty Navy. Married, with two little off-spring, he plans to concentrate on earning a living for a long time to come. Hobbies are machine and wood shops, and ham radio.

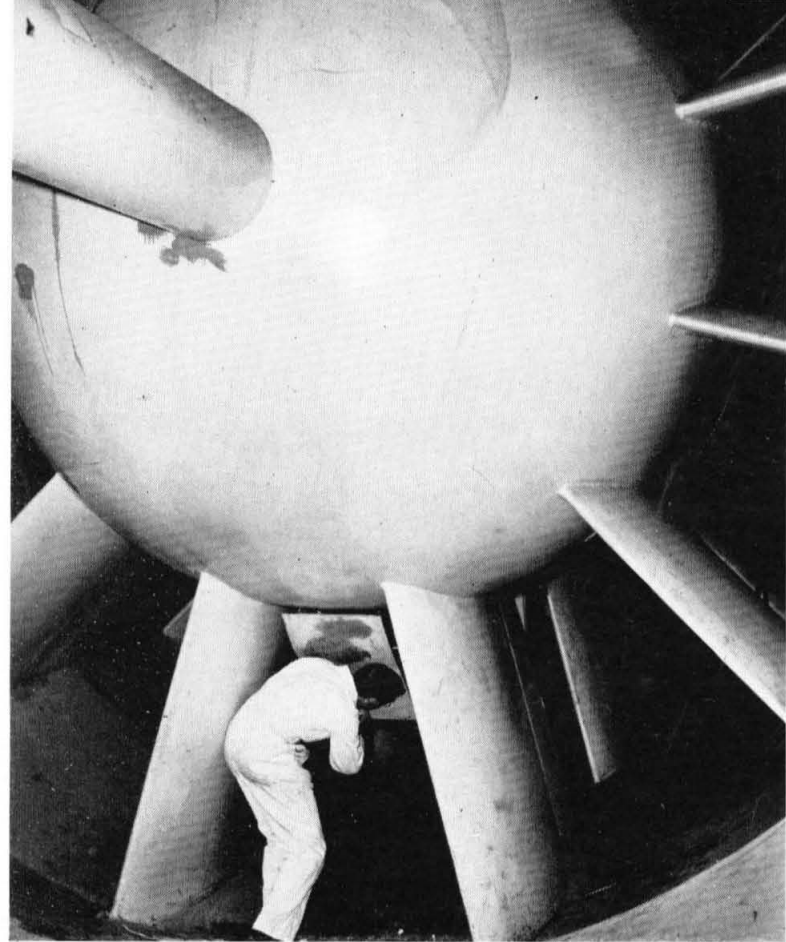
JACK MONES

Came to Tech in 1940 and then proceeded to spend the war years in industry and the Army. Now married, Jack's ambition is to be consultant engineer and/or be a writer. Has collected a sizable list of books, will read them some day.



G. RICHARD MORGAN

Dick claims no home town, he just grew up. Known for his short red butch haircuts, he spent 4 years concentrating on PE. Also interested in the student shop, model airplanes, photography, and astronomy. Doesn't know what the heck to do, come June.



**NOT PICTURED
GEORGE M. HREBEC**

From Texas, suh, George is married, with two children. A serious student, with no time for campus frivolities, he is rarely seen after 4 P.M. Spent 5 unhappy, unmentionable years in the AAF. He is uncertain about the future.

**NOT PICTURED
GIBSON OAKES ASME**

Gib is an old Tech man, starting in the pre-war years. Lettered in swimming in '39 and '40. Spent a few years in the AAF, at Wright Field. Plans to attend grad school and really get an education.

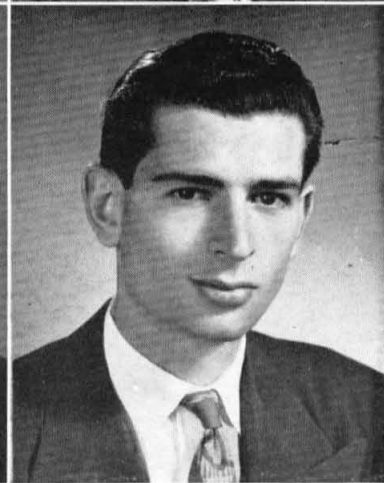
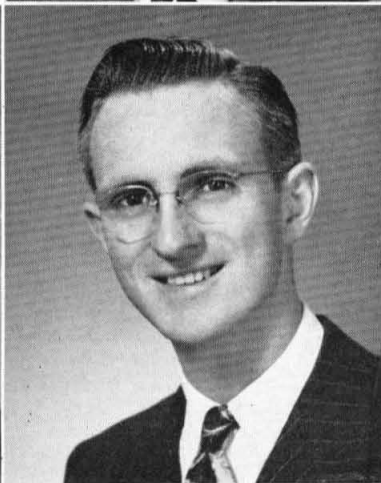
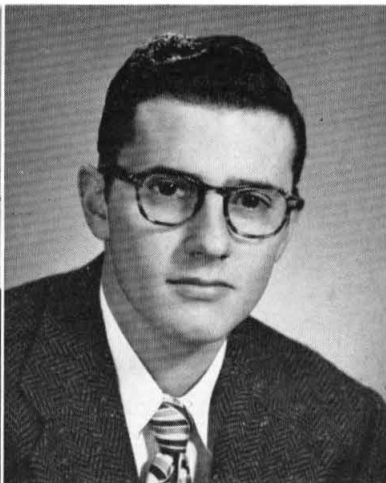
RIDLEY MYERS FLEMING, ASME

Ridly started in Tech in 1943, but the War interrupted, and he found himself in the Asiatic theater instead, in the Navy. A local boy, from Los Angeles, he is quiet, unobtrusive, easy to get along with. Plans grad school.

CHESTER B. ORR ASME

Chet is a married man, lives in Los Angeles. A veteran of 4 years as a pilot in the AAF, he considers his service years worthwhile. His hobbies are hunting and fishing, but he finds he will have to go to work upon graduation.

MECHANICAL ENGINEERING



**WILLIAM E. PALMER
BLACKER, HONOR KEY, T³, TBPI**

Butterfly Bill lettered 3 years in both swimming and water polo, and was captain in both. From Sioux City, Iowa, he was house athletic manager, ASCIT Board of Control member, in Glee Club, and Instituturs. Spent 3 unhappy years in Army, ETO, but he doesn't want them mentioned. Plans grad school.

RICHARD POLLAK BLACKER, SAE

A local lad from L. A. who spent 3 lovely years in the AAF. Rich eats and sleeps airplanes. Builds models, and plans to go to Aero grad school. Blacker Librarian, he played on the Varsity baseball goon squad.

**WALT PREVOST
BLACKER, SAE, ASME**

From two home towns, Grants Pass, Oregon and Compton, Cal. Walt is a frustrated EE who turned ME after the Junior year took its toll. Has juke box in his room. Will enter industry upon graduation.

THEODORE W. ROSE

A married man from Union City, Pennsylvania, Ted has had no time for the extra-curricular stuff. His hobbies are woodworking and models (inanimate). Plans to work in the aircraft industry. Smokes his pipe at all times, can't talk around it, so is rather quiet.



LELAND H. SATRE
THROOP, ASME

A family man, with one offspring, Satre is from Lisbon, North Dakota. With three years in the AAF, ETO, behind him, he still would like to go to grad school. For hobbies, there is always the one of telling people how to pronounce his name, and he also likes photography.



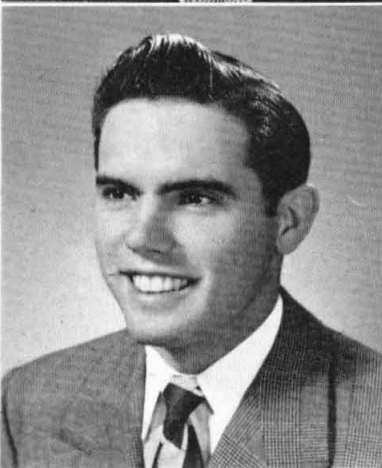
ALLEN M. SAUNDERS ASME

From out on Route 66, from Claremont to be precise, Mac commuted every day, leaving behind his wife and small daughter. He is anxious to go to work in industry upon graduation. A veteran of 3 years in the AAF, he builds ship models.



CLYDE R. SEITZ

A veteran of 3 years in the Marine Corps, Clyde is now a married man, living in South Pasadena. Serious, hard working, his hobby is doing shop work. He plans to enter industry upon graduation in June.



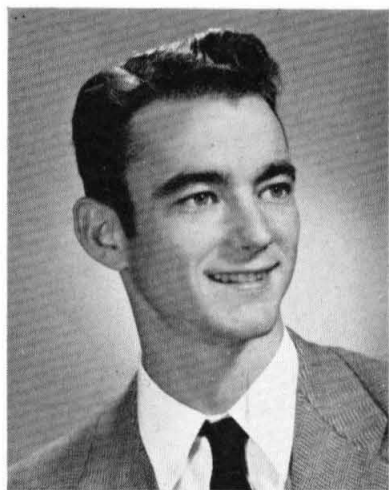
BILL SIMONS
DABNEY, T¹, TBPI, ASME

Herb is Vice President of the big Senior Class, and a four year Track letterman. He also played 2 years of JV football, warps a mean ski, and is pretty good in water fights. Can't decide between work, grad school, or Siberia. Lives in the deep South, San Marino that is.

NOT PICTURED
ROBERT F. STAPPLER
BLACKER, TBPI

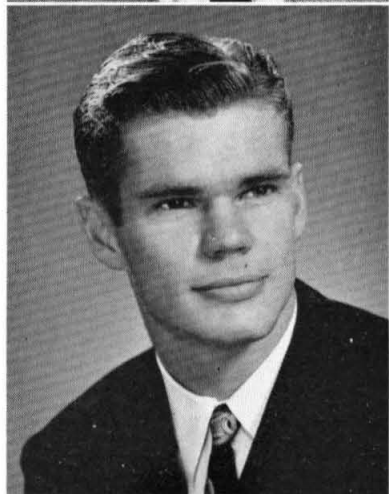
Bob is a serious, hard working, old Air Corps veteran. Known for his ability to work up a sweat just concentrating, he spends his idle hours making freehand sketches. Active in Tau Beta, he worked part time while in Tech.

MECHANICAL



ROBERT L. STUBBINS
THROOP, ASME

Bob entered Tech as a transfer student in his Sophomore year from Cornell. He is a member of PKD, debater, and on Y radio forum. A married-man, he says his 4 1/2 years in the Navy were thrilling; has had enough of school, would like to go to work if anybody will pay him enough.



WILLIAM A. SYLVIES
BLACKER, T², ASME

From sunny Honolulu comes Bill, who believes in doing things slow and easy. A Blacker UCC, and member of Instituturs, he earned 1 football letter and 2 track letters. He prefers not to mention his 2 years in the Navy, and hopes to go to grad school this fall.

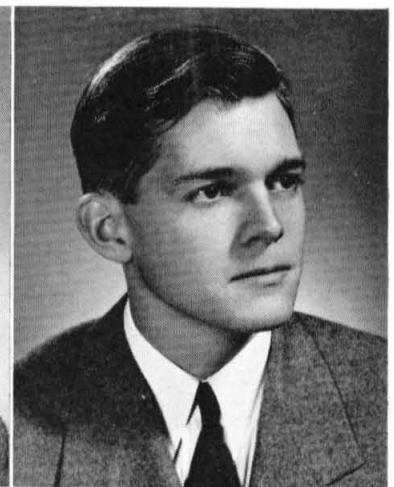
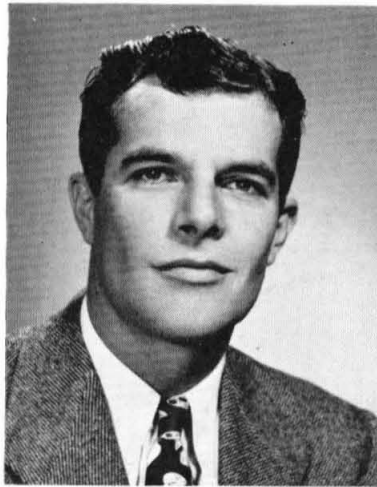


DONALD EUGENE TRYK
THROOP, TBPI

UCLA's gift to Tech, Don came here in '48. Married, with one small Tryk, he finds time for photography and skiing on the side. After his 3 years in the Army, he wants to settle down to a job and be a family man.

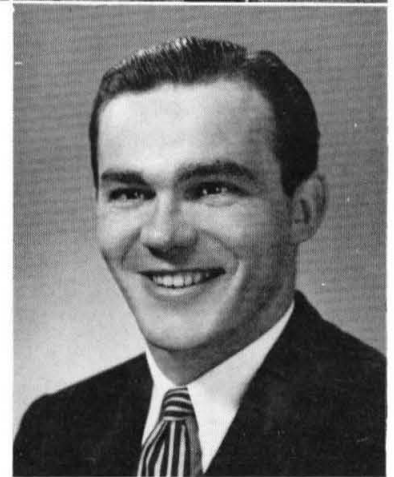
THOMAS H. WAKEMAN JR. ASME

Tom is from San Pedro, married man with two children. He is interested in photography and in flying when there is enough green stuff available. Spent five years in the AAF, with service in the ETO.



WILTON WELLS WEBSTER JR.

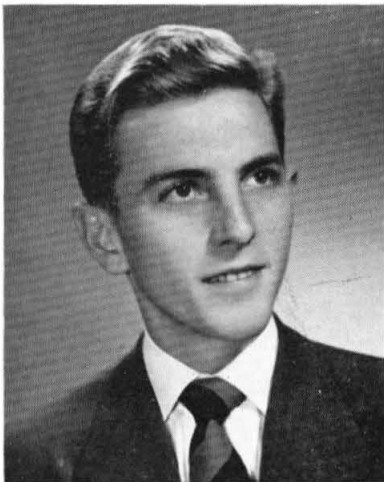
From nearby Monrovia comes Will, who claims participation in four years of P.E. A married man, he is primarily interested in finding a job upon graduation. Lists electronics and lawn mowing as his hobbies.



JEAN F. WIREN RICKETTS, ASME

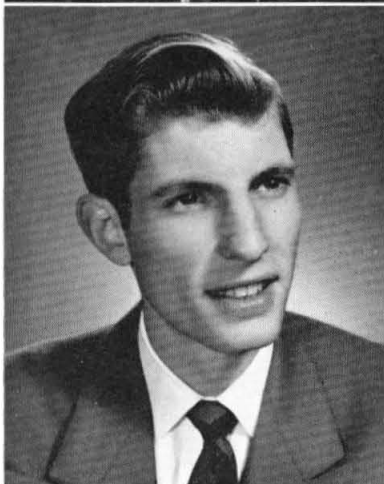
One of the Ricketts old men, he was an interhaus sport. A vet with four years in the AAF, ETO, he wants to get out and make lots of money, the more the better. For hobbies, he mumbles something W6AJZ.

ENGINEERING



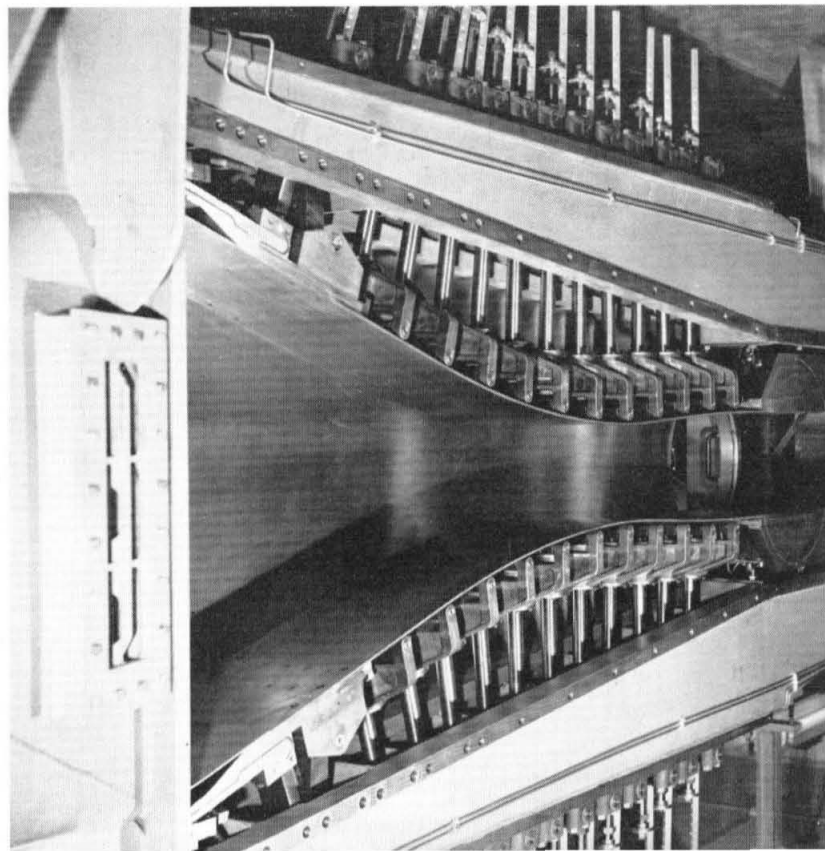
MILTON C. VOGEL SAE

From San Gabriel, Dee had to commute to school. This was no problem for him, since he is nuts about hot-rods. Auto racing is his hobby, along with swimming and skiing, but he bemoans the fact that there is never enough time for the latter two.



THAD VREELAND JR. T

A married man from Portland, Oregon, Thad lettered in Basketball in his junior year. He spent three always happy years in the Army, and plans to go to grad school. The outdoor type, fishing and hunting are his hobbies. Also he enjoys photography and shop work.





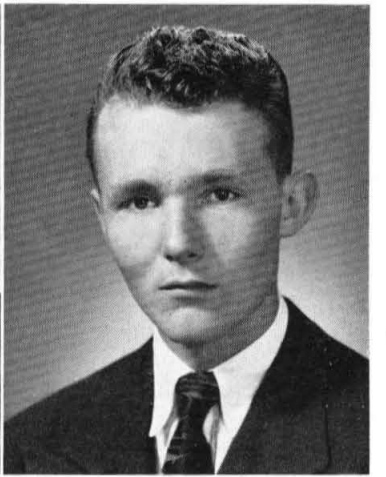
OSCAR J. ANDERSON JR. AIEE
 Andy is from Roscoe, California, and is interested in model airplanes in addition to EE. He has had enough of Tech, and plans to go to work directly in industry as soon as possible. He found his three years in the AAF rather unhappy also.



LAURENCE I. BAUMANN TBPI, AIEE
 Larry is interested in ham radio, operates W6AKJ on 10 meters. He spent 3 1/2 years in the AAF, ETO, and considers them worth while. From South Gate, California, he finds himself undecided on what to do when June rolls around.

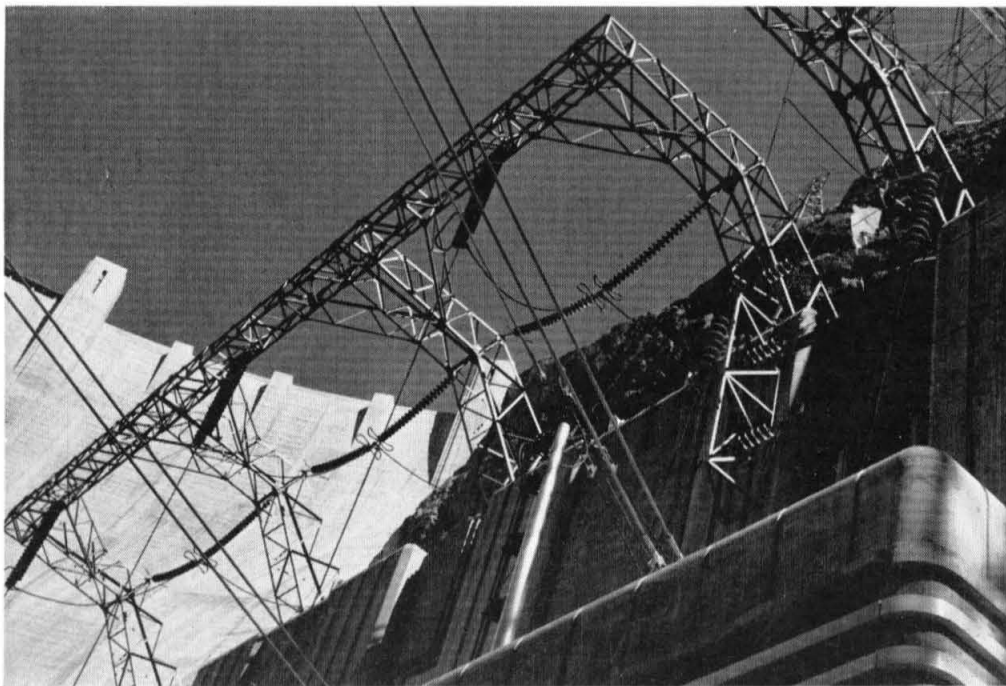


FRANK H. BEARDSLEY AIEE, IRE
 A married man with two small off-spring, Frank hails from Altadena. His hobby is the usual amateur radio. He says his 3 1/2 years in the Navy were not particularly happy, and he has decided to go to work.



GEORGE W. BERGSTROM DABNEY, AIEE
 George is secretary and treasurer of the AIEE, active in the Institute and in the student shop. He likes to fiddle with radios and amplifiers, and also enjoys hiking. Spent 1 1/2 years in the Navy, Stateside.

ELECTRICAL

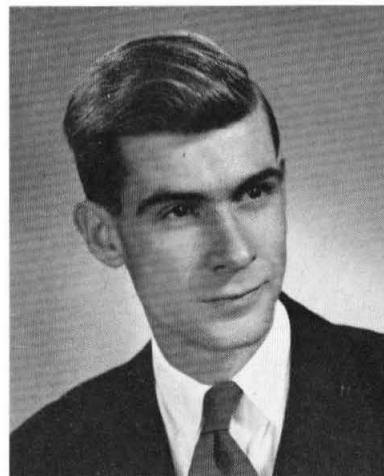


ERNEST W. BLAIR JR. AIEE
 Bill is from Fallon, Nevada, is married, with one child. He is interested in radio and electronics, also in home gardening, but can't seem to find a way to combine the two. A veteran of three happy years in the AAF, he now desires to earn lots of that big money in industry.



EDWARD O. BULKLEY THROOP
 Ned came to Pasadena from Long Beach; had his stay at Tech interrupted by 3 years in the Army Signal Corps. Now he has built his home here, and will go to work if necessary. A married man, he drives a mean truck, is interested in Ham radio and photography.

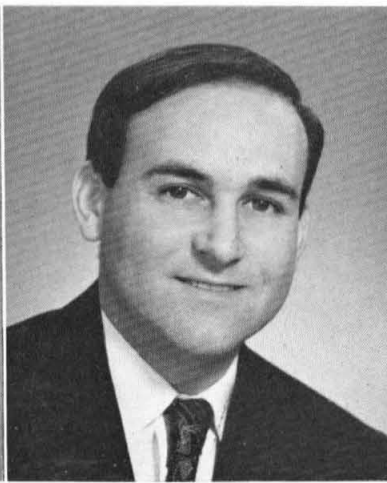
MILTON BLOUKE CARUS RICKETTS, HONOR KEY
 Cello playing Blouke was Business Manager of this Big T. From La Salle, Illinois, he is a big wheel in Southern California Inter-collegiate Ski Union, and two year letterman on Tech ski team. Spent one year in the Navy, and plays a mean game of tennis. He sees no alternative but to go to work.





EDWIN J. DOLAN
FLEMING, AIEE

Portland, Oregon's gift to Tech, Ed ruled Fleming Alley 2 with an iron hand as UCC. He is nuts about Ham radio, and belonged to the radio club. On the big red team, he terrorized the interhouse league for years. He gets bitter when you mention his 5¾ years in the Army.



WM. ANTHONY DOOLIN
BLACKER

Tony came south from San Francisco, after 2½ years in the Army Signal Corps. He was active in the Newmon Club and the Glee Club. Claims two dormant hobbies: model railroad and stamp collection. Desires to earn at least a million dollars.



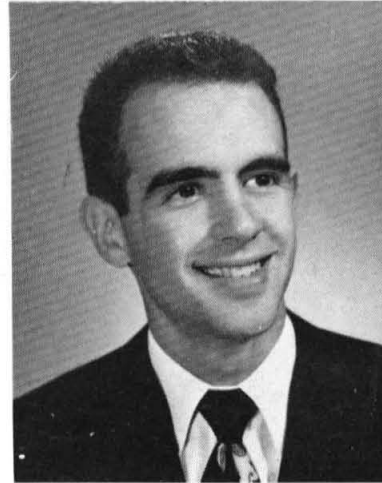
ALEX G. DRAPES
RICKETTS, AIEE

As the president and director of the Glee Club in '47 and '48, he added to the cultural side of everybody's education. Alex spent 3 happy years in the Infantry, and took it out on the troops as Ricketts head waiter. From Great Falls, Montana, he likes outdoor activities, and plans to go to the Northwest to work.



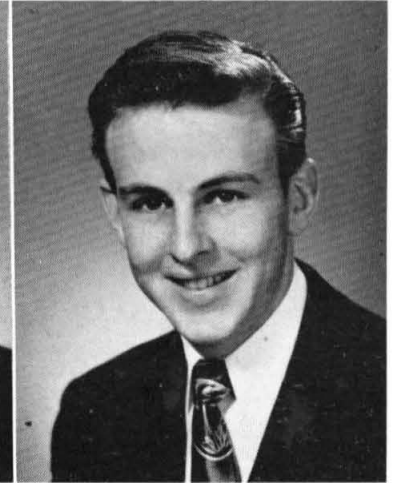
M. FRANK GIFT JR. AIEE

Frank is a married man from Glendale, who spends a lot of time keeping his wife employed. After his two rather unhappy years in the Navy, he has decided to settle down and raise a family. Can't decide between work and grad school.



NATHANIEL GOULD
DABNEY, AIEE

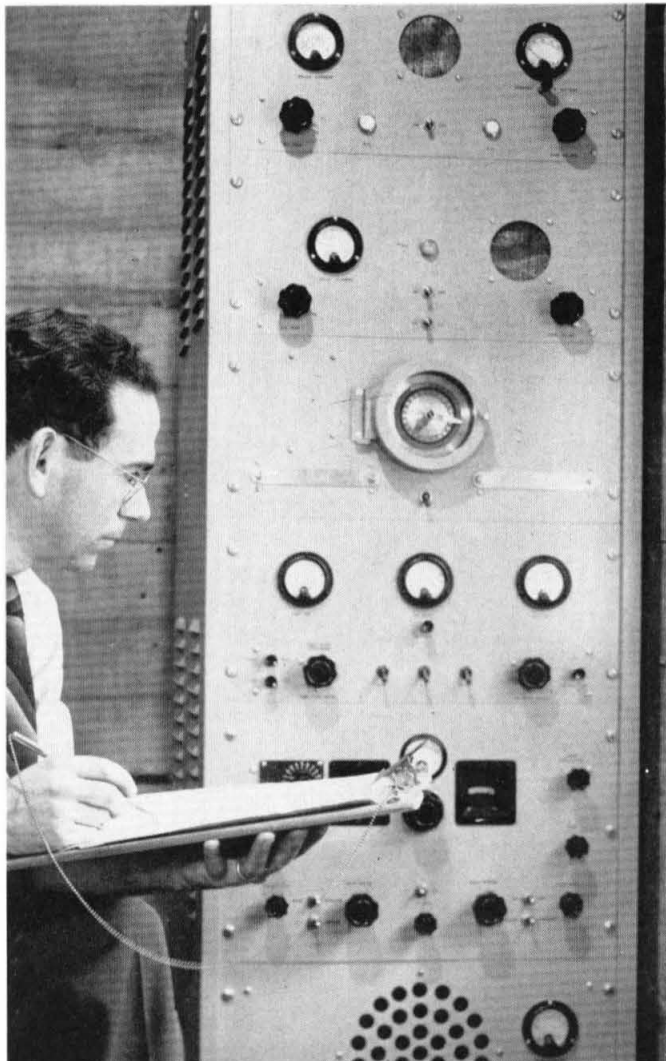
Gnat's career at Tech was interrupted by 18 months in the Army. Before leaving he was Frosh VP, Sophomore President, Vice President of ASCIT, and a Beaver. Since returning, he has concentrated on dreaming. His home is in L. A., and he plans to try his hand at working.



ROY W. GOULD
DABNEY, TBPI, IRE

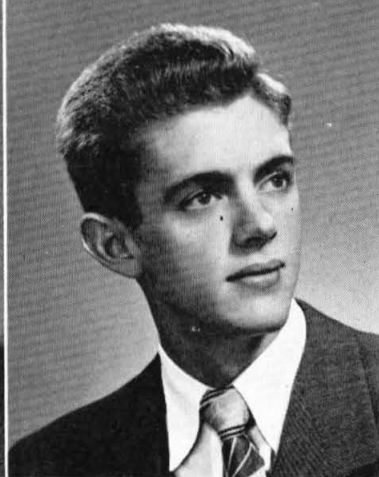
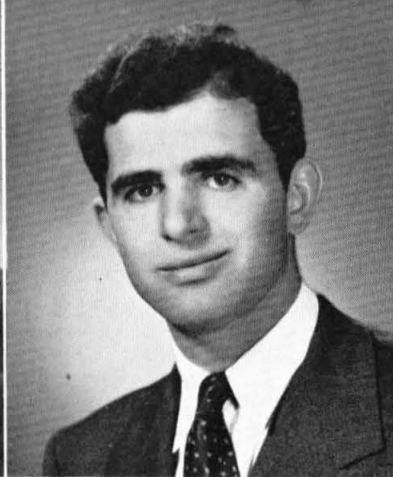
Roy is Senior Class Treasurer, and not very unpopular because of it. He plays a wicked clarinet in the band, and was Radio Club President in his Soph year. His hobby is W6UKX and collecting records. Spent a year in the Navy, and plans to attend grad school.

ENGINEERING





ELI KATZ IRE, AIEE
 Eli claims Los Angeles as his home town, but is not sure if L.A. will claim him. He is bitter about his 2½ years in the Army, ETO, and prefers not to mention it. He will apparently go to work upon graduation.



DANIEL W. KING RICKETTS, AIEE
 Dan was secretary of the IHC, and always screamed about not getting paid. Also a noble UCC in Ricketts, he was all out for interhouse sports of one sort or another. Played one year of football, and lists photography as his hobby. Will be forced to go to work or starve.

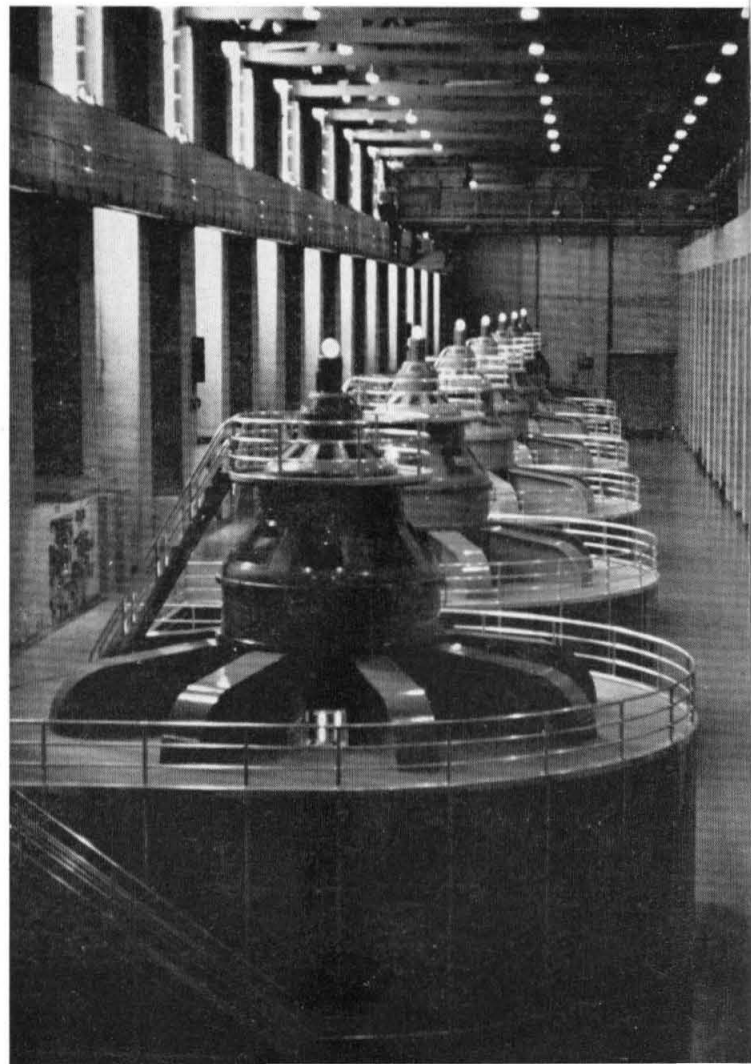
WALTER J. HIRSCHBERG TROOP, TBPI, IRE, AIEE
 Eager is the word for Walt, who can always be seen recruiting members for IRE. He transferred from Cooper Union in 1946 after 2 happy years in the Navy. Claims L.A. as his home town, he plays piano and accordion, and will attend grad school.

NAOMI KASHIWABARA
 From Los Angeles, Kash switched from CE to EE after his Soph year. He also got in a lot of ME courses. His career at Tech was interrupted by the war for several years. He will enter industry upon graduation.

LOUIS KATZ IRE, AIEE
 Lou entered Tech from UCLA in 1948, and thus is not in a rut yet. He is interested in amateur radio as a hobby. There were two happy years in the Navy in the Pacific, but those days are gone forever, we hope.

PAUL HOWARD KIDDER THROOP, IRE, AIEE
 Paul was born and raised in Erie, Pennsylvania, but now lives in Altadena. He is married and is the proud father of 3 sons. A debater, and member of the Newman Club, he is interested in amateur radio, W6YWT. He spent 5 years in the 8th Air Force.

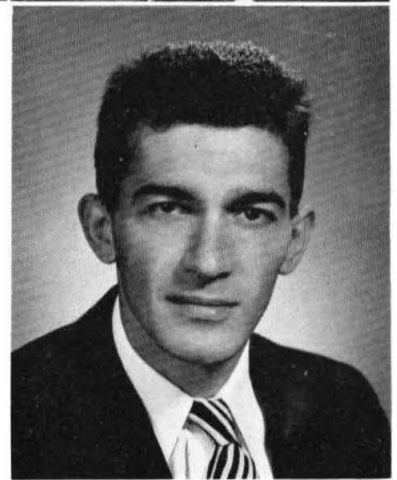
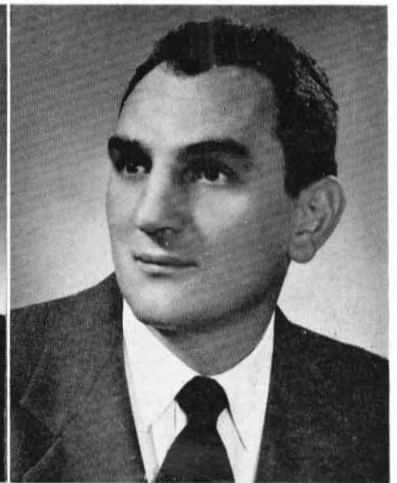
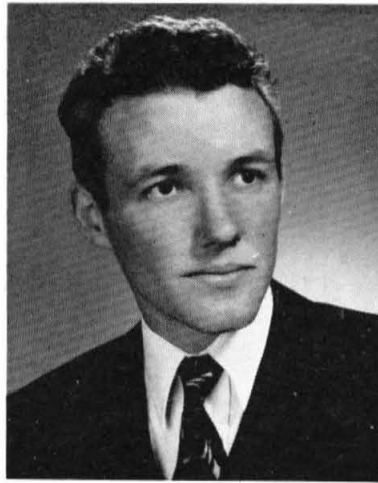
NOT PICTURED
FRED E. KRASIN IRE, AIEE
 Fred entered Tech as a transfer student from Phoenix JC in 1946, and found the local weather none to pleasing. Spends his spare time in tennis and drawing. Spent a 2½ year term in the Army, but found it equally unpleasant. Plans to enter industry.



RICHARD G. KING
DABNEY, HONOR KEY, TBPI
 Dopey is from Orange, Cal. He worked on the Calif. Tech. Big T of '48, Beavers, Glee Club, Board of Control, and was Election Committee chairman. Also in IRE and AIEE. One of Dabney's big interhouse sports, he spent 2 happy years with the fish in the Navy. His hobby is model railroads, and he will be trying grad school next.

JOHN FRANCIS KOSTELAC
THROOP

An old married man from Steelton, Pennsylvania, Kosty came to Tech to play golf and push Throop as their athletic manager. A vet of four years in the Navy, he is quite happy while cooking or punching a bag. He plans a year of grad work, then into power.



IRVING KRUMHOLZ AIEE

Irving is from Passaic, New Jersey, is married, and has two small children. He worked on the Y radio roundtable. Came to Tech after five years in the Destroyer Navy, and now wants to get better acquainted with his family. Cabinet work is his hobby.

CLAUDE ALLEN LANE TBPI

From Cut Bank, Montana, came this married man, father of three children. His hobbies are, strangely enough, his children, but he manages to get in some golf, tennis, and chess. He was in the AAF for three happy years, but now must go to work.

EDWARD LEVONIAN AIEE

Bud commuted to Tech from Los Angeles. He served as transportation and publicity chairman for the AIEE. He was tolerably happy during his three years in the infantry, but now spends his full time evading work. Outside activities are hiking and photography.

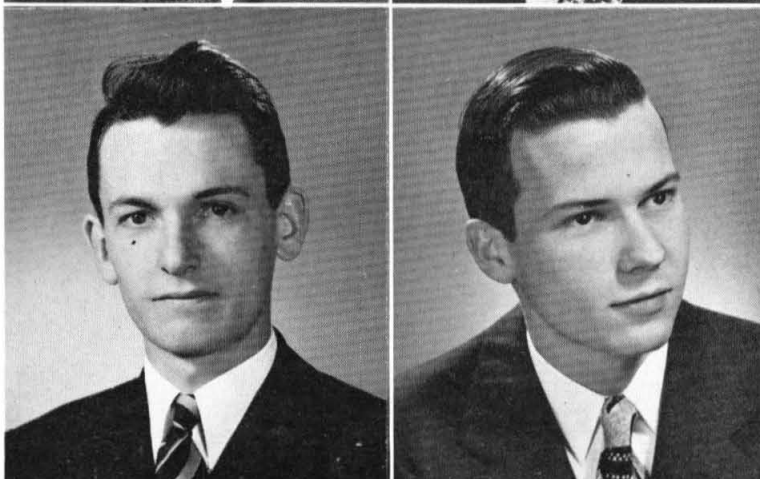
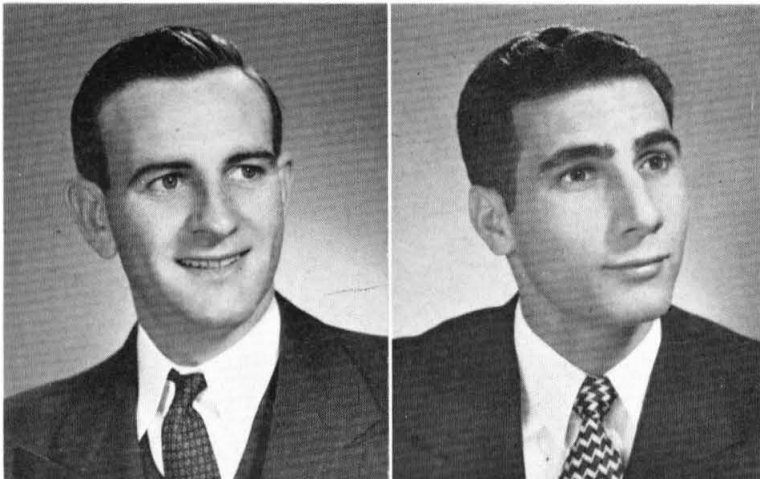
JOHN RICHARD LOVE

After three years in the Army, John still wants to travel if possible. His home is Montebello, California, and he is interested in photography and music. If there were some way to combine work and travel, he would be happy.

HARDY C. MARTEL TBPI, AIEE, IRE

A local boy, from Pasadena, Hardy went no further for his education. He served as secretary for Tau Bate, and adopted Fleming House. He regards his year and a half in the Navy as worthless. Naturally, he will go to grad school, and plans to continue his hobby of woodworking.

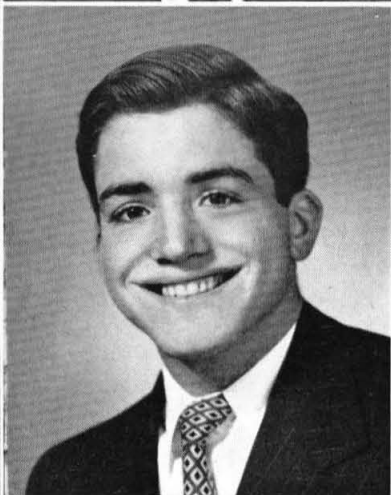
ELECTRICAL ENGINEERING





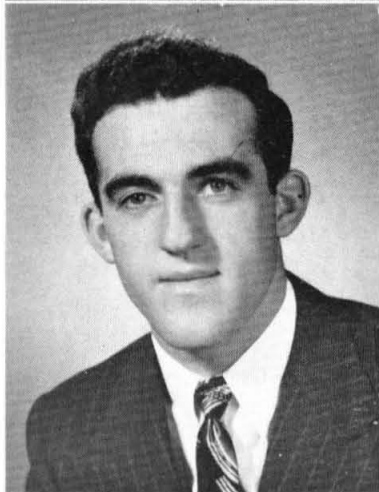
J. A. Mc PHATE AIEE
Mack is one of the older members of the class, he was born about 36 years ago in Mississippi, but grew up in Santa Fe, New Mexico. Was a radio operator in Merchant Marine during war. He is married and plans to take power training program.

MERLE L. MORGAN
TBPI, IRE, AIEE
Merle transferred to Tech in 1940 from Fullerton J.C. He spent four years in Civilian Public Service and a couple of years in electronics before returning for Senior year. His home is in Whittier, and he will be back for grad school.



WALTER MUDGETT FLEMING, IRE
Walt has worked on the Calif. Tech, Big T, and Drama Club. He was Radio Club president, and soccer manager in '48. He is interested in amateur radio and dynamite trucks. Spent a year and a half in Navy. Considering going abroad to school.

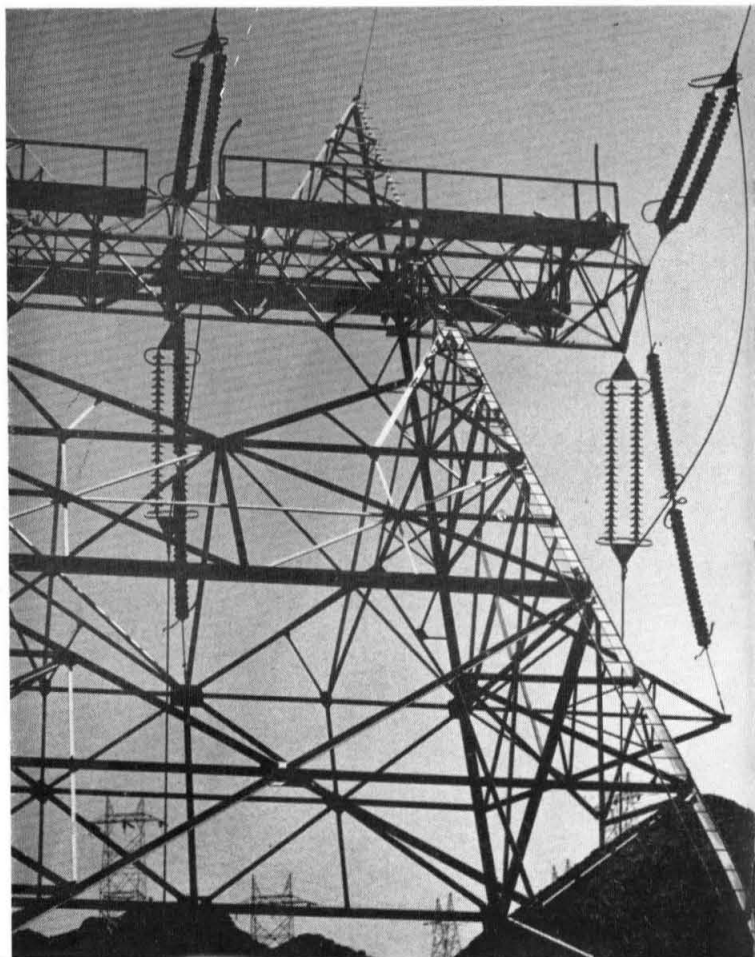
MARVIN B. RUDIN
TBPI, AIEE, IRE
From Glendale, California, came Marv, one of the more eager students. His outside interests include bridge, ping pong and chess. He spent a year and a half in the Navy, and claims they were happy. Wants to work for G.E.

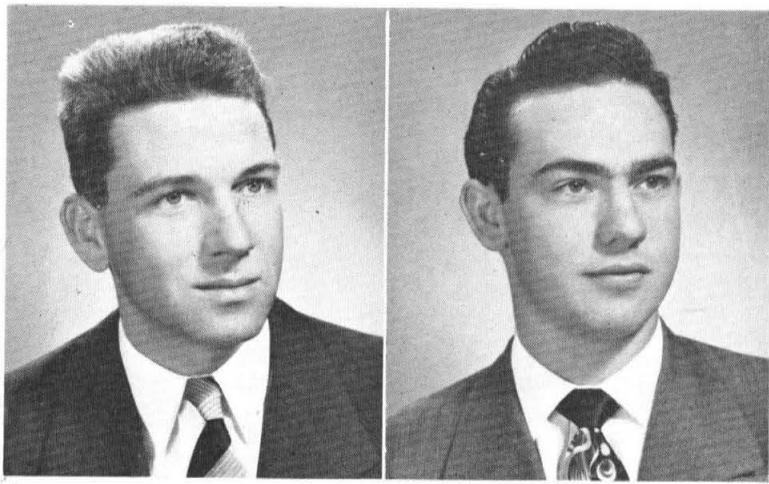


WILLIAM I. RUMER AIEE, IRE
The Guffer is from Van Nuys, and is known for his red shirts. Played two years of basketball, three of football, made one letter in the latter. A member of the Beavers, he wants to get on the gravy train. He spent a couple of years in the Navy, and spends his spare time tinkering with his Model A.



BURTON BENJAMIN RUTKIN RICKETTS, AIEE
Burt entered Tech in 1944, but took a short time out for the Navy. Strongly in favor of more humanities courses, he would like to work in those far away places with strange sounding names. He is interested in radio and electronics.





DALE D. RYDER

Besides keeping his wife happy, Dale likes to spend his weekends flying around California, showing his wife the practical side of his two years in the Air Force. His hobbies are woodwork and metalwork, both of which he uses to good advantage around his home. After graduation he plans to settle down and raise a family of future fliers.

C. J. SAVANT JR.

THROOP, AIEE, TBPI

As chairman of the AIEE and a member of the debate team, IRE, and TBPI, Clem finds his spare time fairly well filled. Being in the Navy for two years helped him to decide that Navy life wasn't for him; but four years at Tech seems to have made little impression, as he plans to return for grad work.

FRED C. SCHNEIDER

THROOP, AIEE

Originally from Chicago, Fred came all the way to California just to get away from the smoke of the Big City. His principle sports are swimming and water polo, while his hobbies of photography and folk dancing keep him busy during the rest of his spare time. His plans for the future are to attend grad school in business administration.

ROBERT ALLEN SINKER **AIEE**

Being a married man, himself, Bob finds that a wife takes almost all the spare time a man has. However, he still finds some time for active membership in the AIEE and for his hobby of radio controlled model planes. He plans to take business administration at Stanford as soon as he graduates.

ELECTRICAL ENGINEERING



VERNON L. SMITH **YMCA**

A transfer student from Wichita, Kansas, Smitty finds that Tech is not the only place to get an education. His spare time is spent on the Y Cabinet and as chairman of the Radio-Forum. If you ever find him in deep meditation don't be too startled—his hobby is philosophy. His future plans are to go to a grad school in economics.

BOB WALQUIST

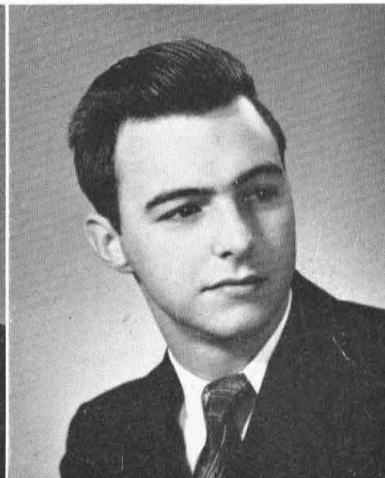
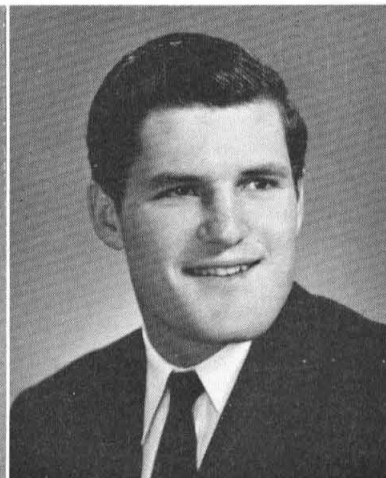
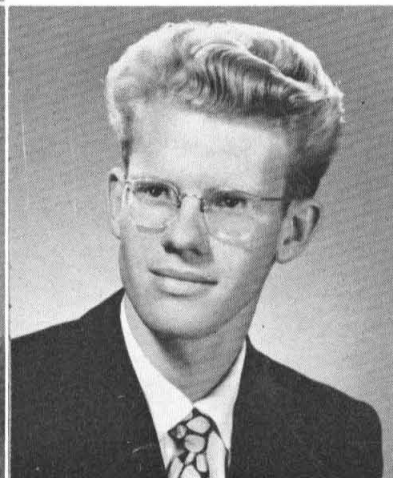
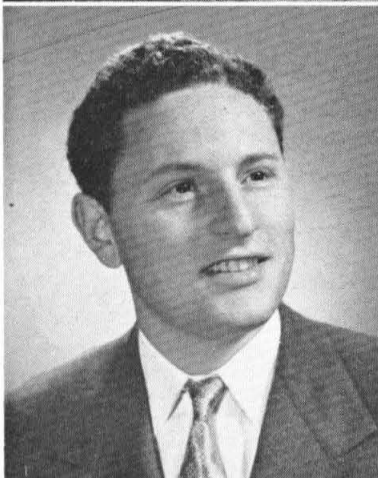
FLEMING, T³, AIEE, TBPI

Known to his friends as either "short-circuit" or Herman, he was on the football team. He also lettered in water polo and was treasurer of both his class and Fleming. Varsity Club, Ski Club, AIEE, and TBPI help to fill the remainder of his spare time. His plans for the future are work at first with graduate study later.

ROBERT R. WATERS

DABNEY, T³, AIEE, TBPI

Hailing from San Diego, Bob is an ardent swimmer, helping Tech out in many a water polo game and swim meet. Besides swimming, he likes to spend his spare time on model railroading and radio tinkering. After four long years at Tech, Bob is turning down his freedom in June and is planning on returning next year for grad school.





WALLACE A. BARNES JR. ASCE
Wallace transferred to Tech from PJC in his Sophomore year, and has never had it so good. He considers his 2½ years in the AAF as not unhappy, but spends most of his time being a married man. Will go to work upon graduation.

**DAVID BARON
BLACKER, ASCE, ASME**
From Compton, California, by way of LACC. Dave showed up to Tech in 1946. He was Editor of Calif. Tech, Blacker Pope, and member of the Beavers. His three years in the AAF, ETO, were rather pleasant. Will try for some of that big CE money.

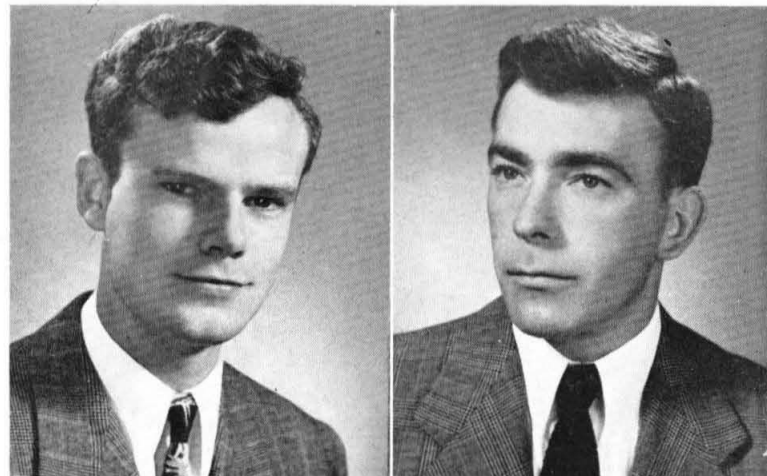
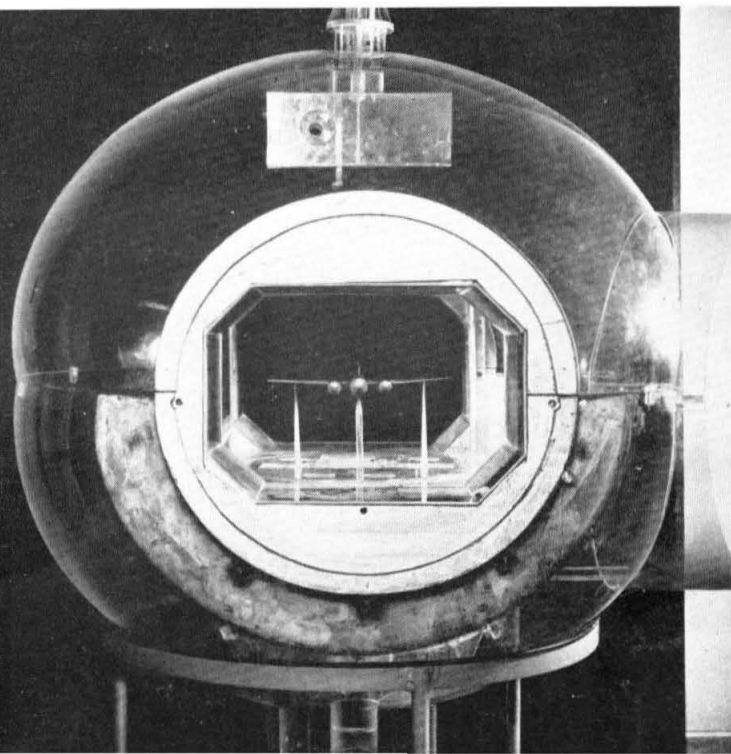
**ARTHUR E. BRUINGTON
BLACKER, T**
President of Blacker House, happy Art also led their athletic teams in Interhouse competition. He played Varsity basketball in '46 and '49. Originally from San Gabriel, Art fears he will have to face the cold, cruel world upon graduation, that is, work.

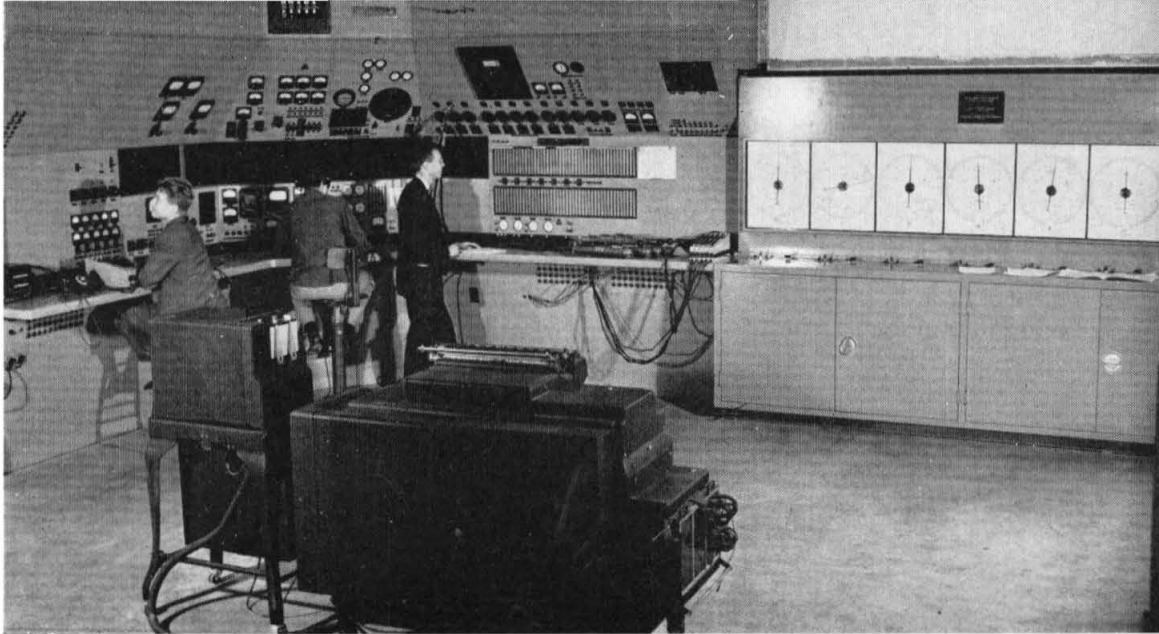
DAVE BROWNE JR. RICKETTS
A married man with three children, Dave left them in Escondido and came to Tech. Was 2nd Rep. Pres. of Sophomore class, and President of Ricketts House, member of the Beavers, and wheel in Interhouse sports. A veteran of two years in the Navy, Dave will return to his family upon graduation and go to work again.

CIVIL ENGINEERING

**RAY DAVIS
RICKETTS, TBPI, ASCE**
Ray transferred to Tech in '47 from UCLA by way of PCC. Known as Snake to all, he kept breaking fingers in the Rowdies brawls. He served as ASCE vice president, and advocated AM15 for all CE's. A veteran of 3½ years as a weather guesser for the AAF, he likes tennis, piano, and hiking.

**JOSEPH A. DOBROWOLSKI
DABNEY, ASCE**
Joe always had to either pronounce or spell his name for people. He came to Tech from Tacoma, Washington, after 3 happy years in the AAF, ETO. One of the more practical CE's, his hobby is working, manual that is. Plans marriage in July.





**CHARLES F. FORESTER
RICKETTS, ASCE**

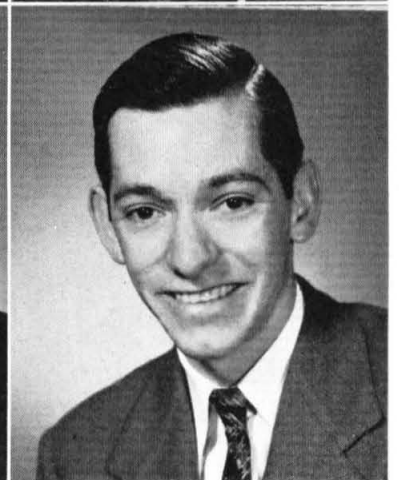
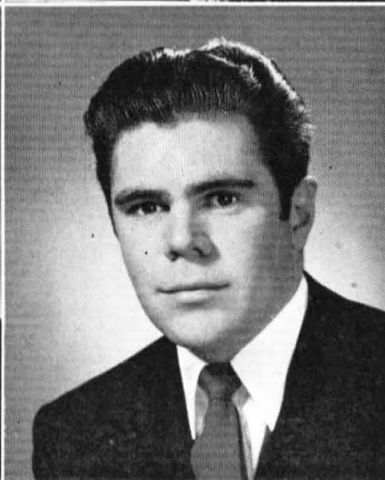
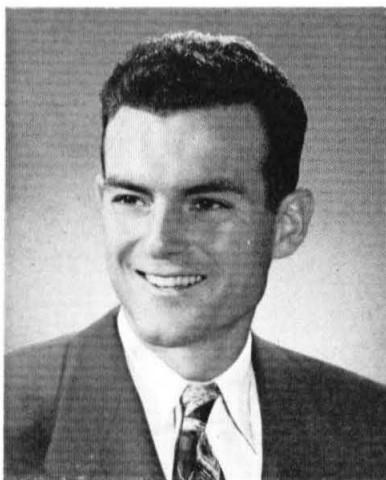
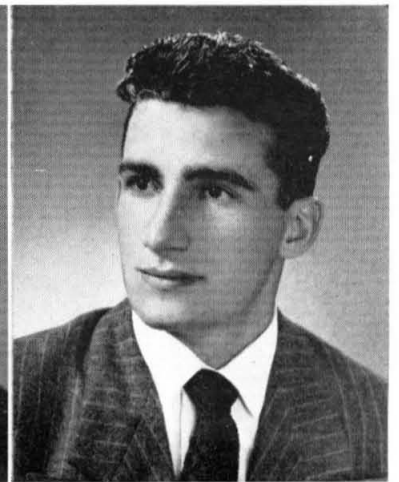
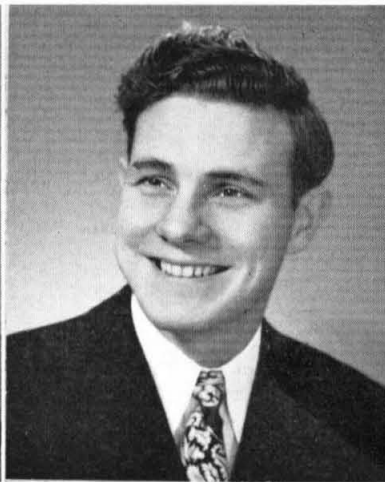
An old railroad man, Chuck is a real wheel on campus. He was VP of Sophomore class, and President of Junior and Senior classes, Beaver, and President of ASCE. Bull artist supreme, he snowed more assembled groups than any other three men could. After 5 years in the AAF, he thoroughly believes in executive decentralization.

JOHN HEATH JR. BLACKER, ASCE

Johnny came to Tech from the University of California in '46. Member of Pi Kappa Delta, he will debate at the drop of a hat, and is known for Conger Pece Contests. Blacker House Treasurer and UCC, he also was on Board of Control, and Tennis manager in '47. Plans business school and marriage in summer.

**JOHN C. KARIOTIS
DABNEY, T, HONOR KEY**

JC claims no home town, he just grew up. He was Dabney Athletic Manager, ASCIT Athletic Manager, Three years of Varsity Track and Football, he made one letter in the latter. He was a member of ASCE, Instituturs, and Ski Club. He is the reason for the founding of the strange KEI society.

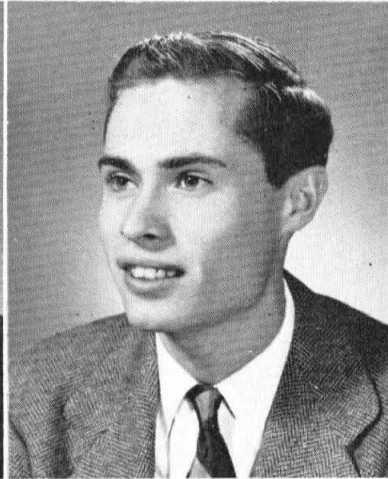
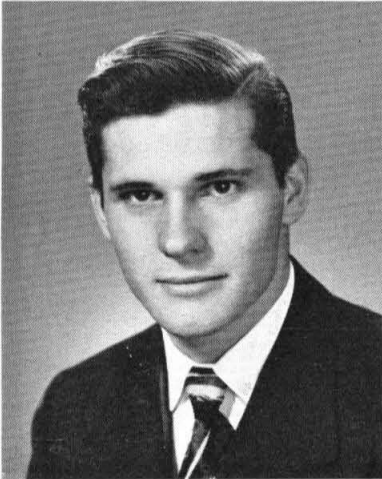
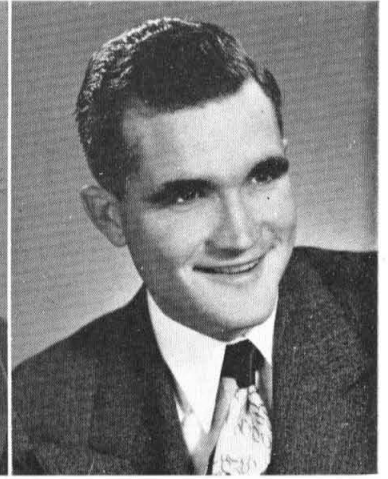
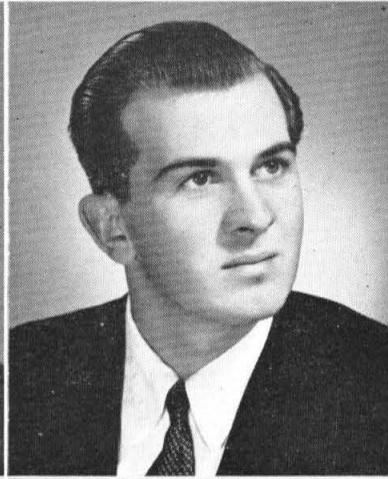
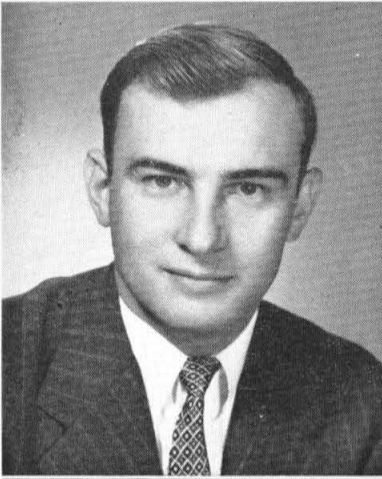


CHARLES KNIGHT TBPI, ASCE
Chuck started in Tech in 1942, spent 3 years in AAF, and returned in '46. Got married, and is proud father of one son. Tennis and his wife's cooking are his hobbies. Wants a job with lots of money.

**DENNIS V. LONG
FLEMING, T, HONOR KEY**
Fat is just about as smooth as they come, and a real wheel. He earned four Varsity letters in football, Secretary of Frosh class, Board of Control for years, and ASCIT Vice President. Typical beach-boy from Santa Monica, with hobby of fishing. He never let studies bother him, and wants to go to liberal arts college

**RICHARD L. PATTERSON
T, ASCE**
All the way from South Pasadena, Pat hardly left home to go to Tech. Easy to get along with, his hobby is the piano and baseball. Three year Varsity letterman in baseball is a good reason for the latter hobby. When it is all over this spring, he will have to go to work.

BRYNE PERRY TBPI, ASCE
Bryne claims Pasadena for his home town. Was ASCE secretary in '48. Spent 2 1/2 rather unhappy years in the Infantry. Strangely enough he can't decide between work and grad school.



BILL PYLE **DABNEY, ASCE**

Bill plays a mean game of soccer, and is also a member of the Ski club. From Santa Barbara, he can be seen tinkering with his car at all hours. He spent three rather sad years in the Army, likes to consume beverages. Hates the thought of going to work.

JOHN D. RICHARTZ
FLEMING, ASCE

One of the smoother boys, Johnny probably would be the last one to let his studies interfere with his education. Played Varsity Baseball, and terrorized the Interhouse sports league on the Fleming big red teams. Spent three disgusting years in the Navy with the fishes.

GEORGE M. PETZAR
DABNEY, ASCE

George is all fixed up with a job for American Smelting and Refining Company in Utah. A married man from Pottstown, Pennsylvania, he is also a proud poppa. Spent four delightful years in the salty Navy. He is interested in photography and pursuit of the good old dollar.

DAVE POWELL THROOP, T, ASCE

Dave is from Downey, California. A little on the large side, he played three years of Varsity football, earned a couple of letters. He spends all of his spare time flat on his back. Will be forced to go to work in June.

CHARLES H. SHALLER
FLEMING, T³, HONOR KEY

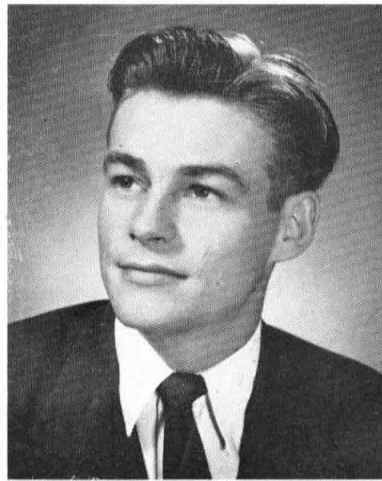
Red hot from El Centro, Chas is a three year letterman in Track, played Soccer and Football, but has the cutest trick knee ever saw. Sports Editor of this Big T, he also worked on Calif. Tech staff, and gave his all for Fleming in the Interhouse competition. Plans to go to Europe, and collect experiences.

GENE D. SIX **THROOP**

One of the three Six boys to go thru Tech, Gene took two years out for the Army. Took an active lead in Church work. Likes swimming, tennis, and volleyball, also the piano. Lived at home in Pasadena. Looking forward to work and marriage.

CIVIL

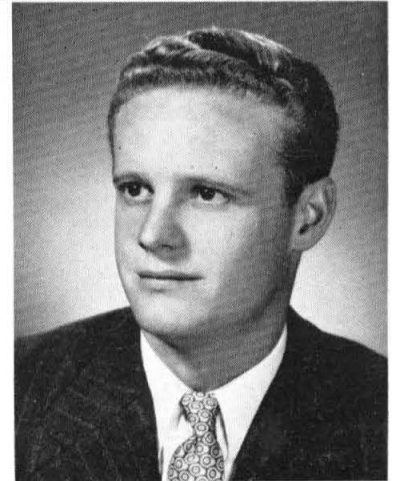
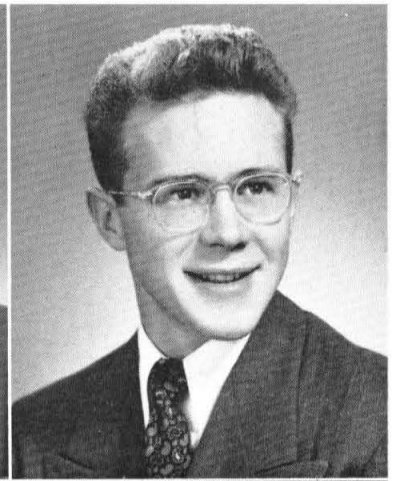




ALBERT SUNDSMO
 From Bonners Ferry, Idaho, where ever that may be, came Al after three happy years in the Navy Air Corps in the warm Pacific. An old married man, he spends all his spare time sitting home just rockin'. He can hardly wait to get to work in construction.



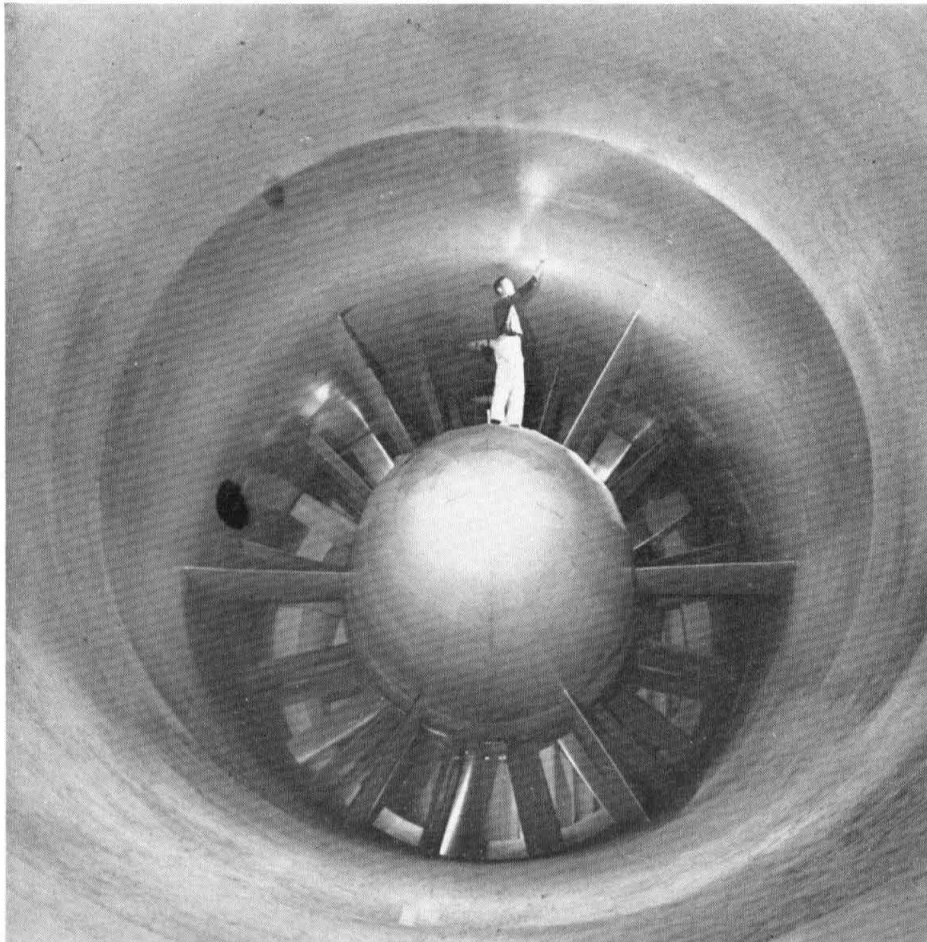
WILLIAM C. TAYLOR ASCE
 Bill is known by several other nicknames, usually springing from the fact that he is married and has two small Taylors running around the house. His home town is Whittier, and he would prefer not to mention his 3 years in the AAF. He is interested in making at least a million dollars.



TOM TURNER DABNEY, TBPI, ASCE
 Uncle Tom is from Las Vegas, Nevada, and takes a lot of kidding about it. Spends lots of time throwing water and other things. Spent 2 1/2 miserable years in the Infantry, and enjoys consuming beverages in PBAA. Worked with Instituters and perpetuated KEI.

WILLIAM T. VICKERY ASCE
 Vic is an old married man from Sacramento, California, with two children. One of the more serious students in the CE section, he is noted for his attempts to straighten out the instructors. He has no immediate plans.

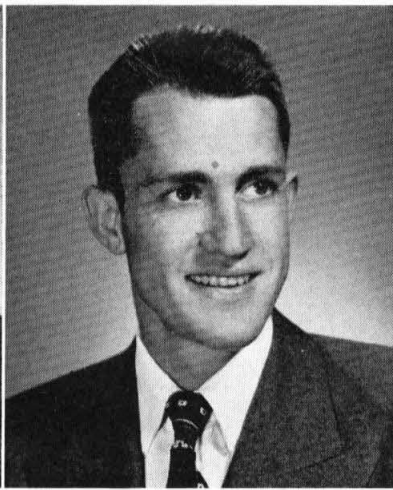
ENGINEERING





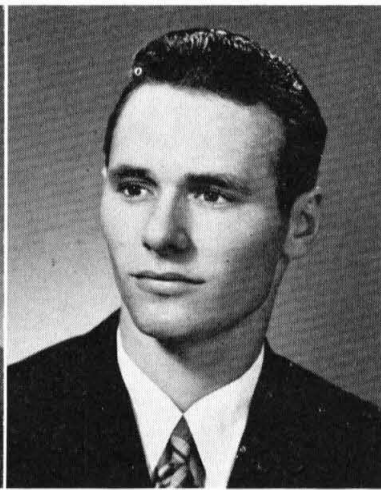
JOHN G. BARR

Hailing from South Pasadena, Jack is the wit of the Geology Dept. He plans to return for his M.S. and then wants to continue his career in foreign lands and climes amidst senioritas and lotus blossoms.



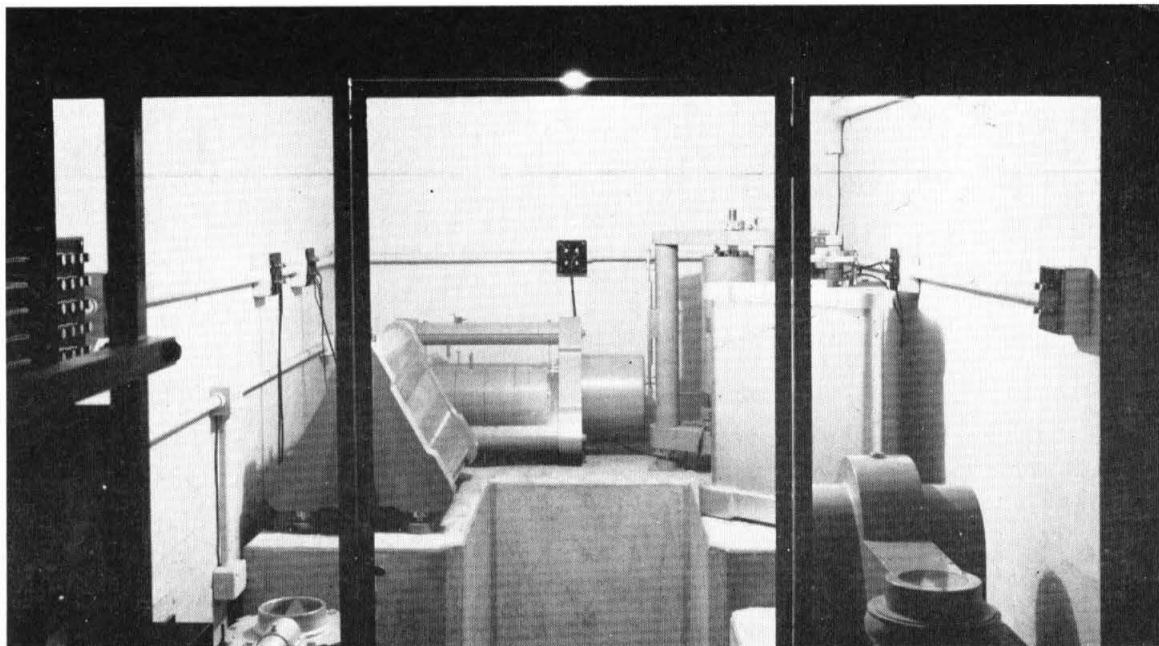
WILLIAM BASHAM THROOP

Did time around Kansas U. before getting married and coming to Tech. Put in a two year hitch with the Navy and now intends to put in a one year hitch in grad school. Member of cross-country and track teams.



DOUG BROWN FLEMING, T^{II}

Lettered in cross-country and track three years. Played football in '47. Shrewdly put in a 10 month tour in the Navy. Noted for his sister and his adeptness at milking goats. Plans to attend UCLA grad school for M.S. degree.



JOSEPH R. CURRAY BLACKER, T^I

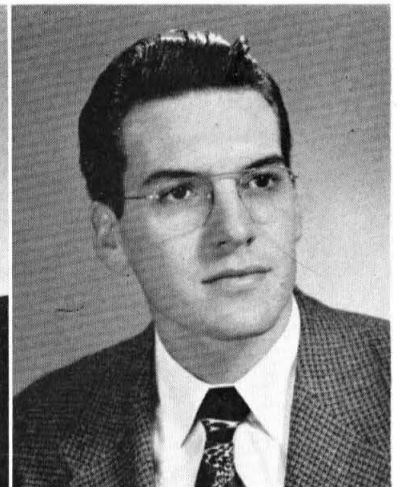
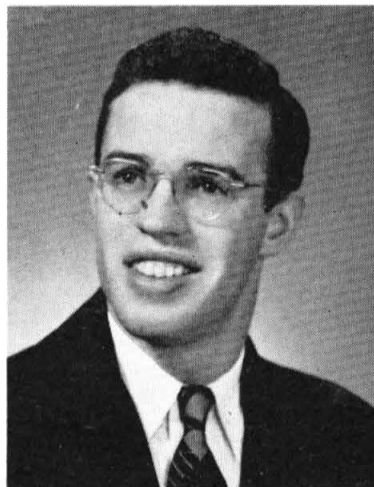
Two-year letterman in cross-country, water-polo, swimming. Member of Institutors, Glee Club, Varsity Club, Emigrating from Cedar Rapids, Iowa, Joe is known for his conducted tours of Tech for campus secretaries. Probably will attend grad school.

ROBERT LLOYD FISHER

Married after Field Camp, Bob finds most of his time taken up in off-campus activities. Avid tennis player and member of tennis squad, as well outstanding San Gabriel thespian. Has been awarded teaching assistantship at Northwestern U. for next year.

EDWARD P. FISK

Local boy from L.A., Ed is kept busy on his off-campus activities. Is only geologist combining business with pleasure by working as petroleum geologist while taking Ge 121. Plans to get married in July to a Pomona lass after Summer Field Camp.



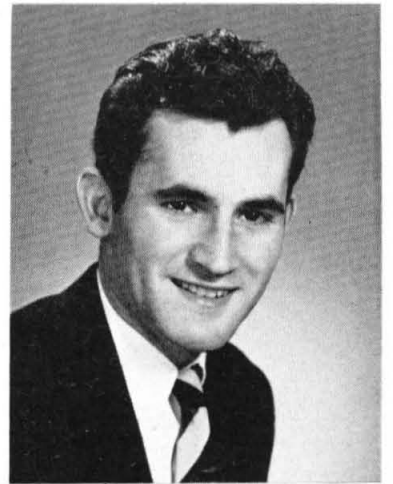


ROBERT D. FORESTER

FLEMING

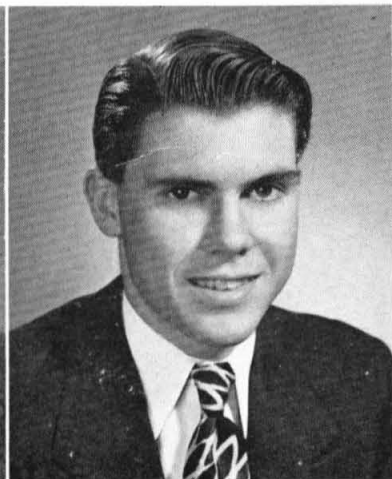
Member of two-man graduating Geophysics class, Bob transferred from SC in 1946. Has well-planned schedule of grad school, marriage, and work. Active in interhouse athletics, and enjoys dancing, ice-skating, and television set repairing.

GEOLOGY



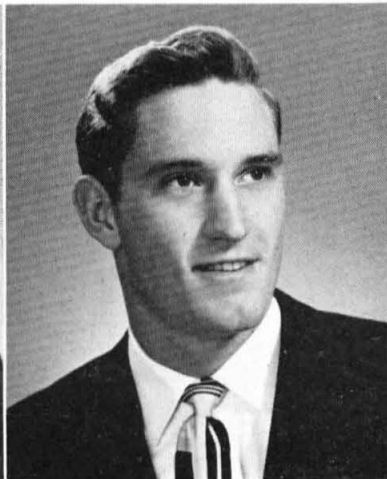
PAUL B. HARRIS
THROOP, TBPi

Secretary of Throop Club, hiking enthusiast, and hot-rod specialist. Plans to get married in June and attend grad school here at Tech. Is working for a local Petroleum Engineering firm while attending to his many other activities.



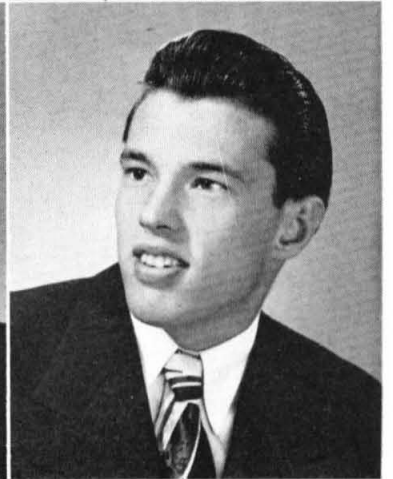
RADOY W. HEGGLAND
RICKETTS, T²

Two-year letterman in track, but spends most of his time in bowling alleys rolling up a 190 average. Prominent in interhouse sports and also an avid bridge enthusiast and trumpeter p.u.r. Ray plans to get married, work for a high-paying oil company, and retire at an early age.



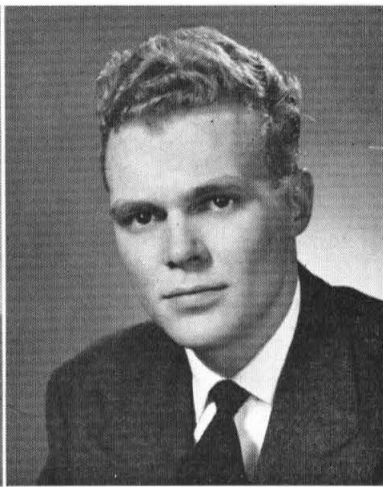
DON HIBBARD FLEMING, T¹

Four-year football letterman, two years all-conference, awarded Wheaton Trophy, Hibb is active in the Varsity Club, Ski Club, and Beavers. Was Frosh President, Soph. Secretary, Fleming Athletic Manager. Plans to forsake South Pasadena for a year in Europe or a job in Alaska with U.S.G.S. Plans grad school in future.



NEAL L. HURLEY FLEMING, T

Swimming and water-polo letterman, member of Big-T staff. Athenaeum waiter and gourmet, and famed for his trumpet playing duets with his room-mate late at night. Neal plans to work in Alaska this summer for U.S.G.S. and go to Europe for a year and possibly for grad work in Hibbard and Shaller in the fall at Zurich.



REUBEN KACHADOORIAN
RICKETTS

Campus wheel active in Beavers, Tech Guide Service, and Inter-house sports. Hails from Kachadoorianville (Fresno, Calif.) Member of baseball team in 1948. Rube, although oldest member of Geology class, is mainstay of Geology Dept. football team.

FRED H. NICOLAI FLEMING

Ex-house service specialist and headwaiter. Only graduating Senior with enough units to get a Ph.D. Favorite hobbies are swimming and the malt brew. An ex-Navy man made good, Nick plans to get married this summer and then enter the field of Petroleum Geology.



DONALD W. PETERSON
RICKETTS, HONOR KEY, T²

Three-year track letterman, two year cross-country letterman, and co-captain. Ricketts Athletic Manager from 1946 to 1948, member of California Tech staff, and Glee Club, Pete was awarded an Honor key. Found time to get married in his Jr. year to a girl from his home town in Sacramento. Plans to attend grad school.

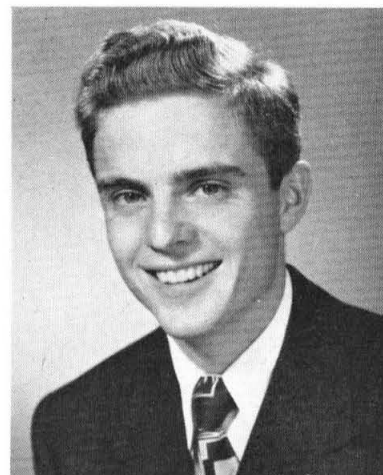
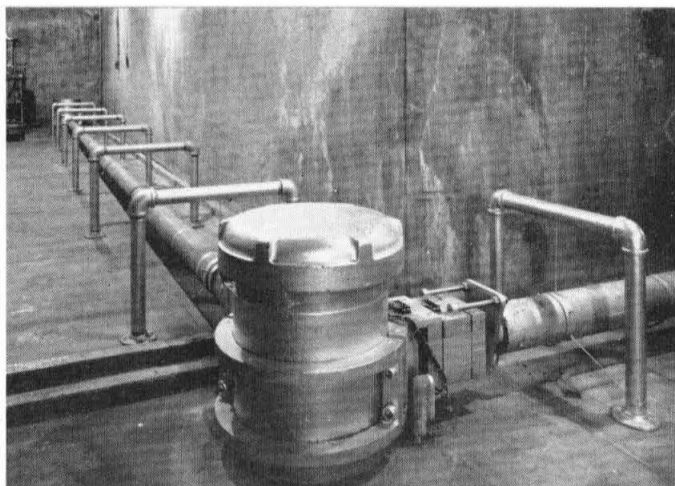
GEOLOGY

DON E. SIX TBPI

Geology Club officer, prominent in inter-department and inter-house sports and livewire of the senior geologists. Don has endeared himself to faculty as an "impartial" referee in Senior-Faculty athletic events. Distinguished flutist in Tech band. Plans grad school, marriage, and eventually, teaching.

ROBERT T. TERRIERE FLEMING

A mainstay of the Tech band with his mellow saxophone and clarinet. Bob hails from Fallbrook, Calif., where he spends most of his leisure lolling on the beach. Also a photography enthusiast and participant in interhouse sports. Bob plans to work in Petroleum Geology after graduation.

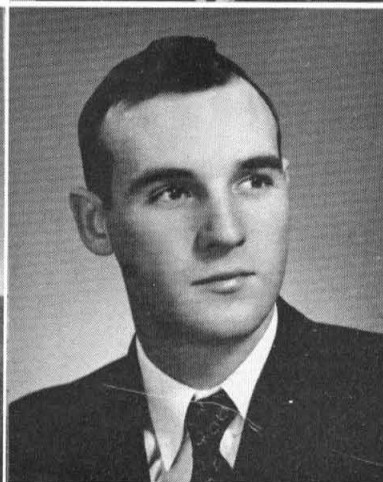
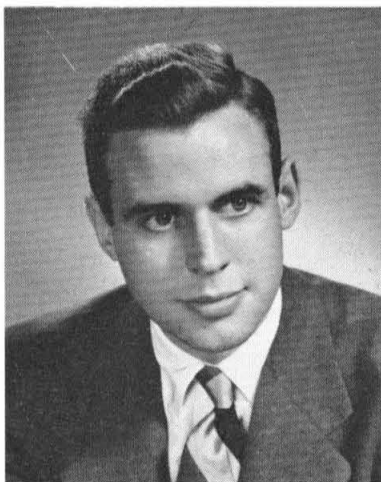


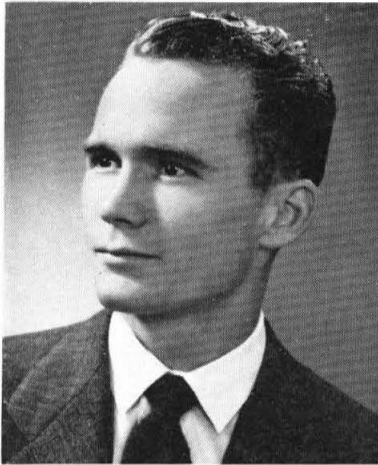
NOT PICTURED
LARRY NOBLES BLACKER, T¹

A four year letterman in tennis and a letterman in cross-country, Larry will obtain his B.S. and M.S. degrees when he graduates this June in Geophysics. Married last summer, Larry is still not too busy to continue his schooling and plans to continue his grad work next year.

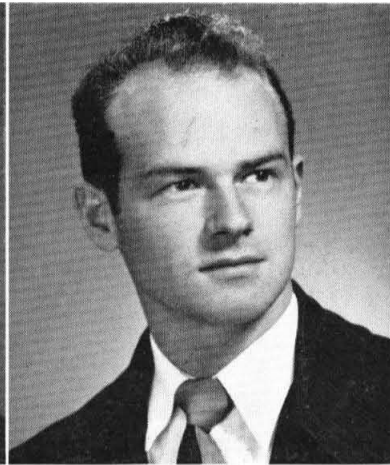
ARTHUR O. SPAULDING T

Bam is Goleta's gift to Tech. A two-year letterman as a twirler on the Tech baseball team, Bam had the added support of his wife and two children in the rooting section. Likes music and hunting, and after graduation plans to hunt for a job in Oil Geology.

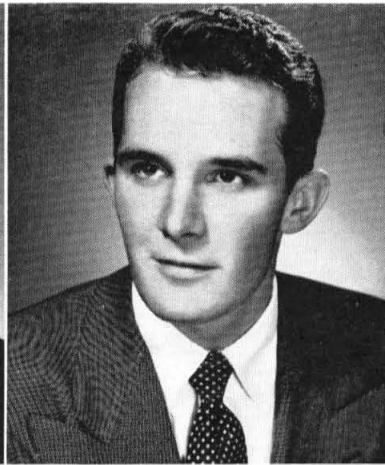




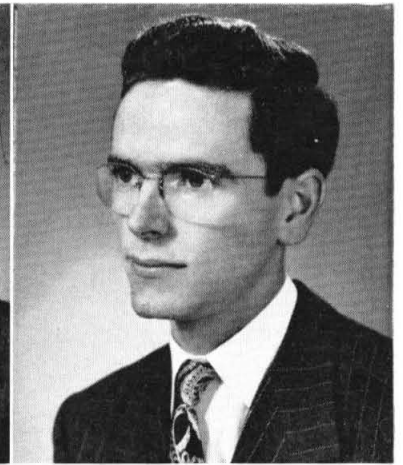
RONALD GREENE RICKETTS
 Ronnie young enough to plan on medical school upon completion of his course here at Tech. He served as Vice President of Biology Club, and can always be seen playing cards in the lounge. Competed on Ricketts Interhouse teams, and has a winning way about him.



CARL ARTHUR PRICE FLEMING, HONOR KEY, T
 Carl has been Mr. Drama at Tech for years, writing and directing several plays. Was Frosh President, Fleming Social Chairman, ASCIT First Representative. Lettered in soccer, and active in YMCA. Spent a cold year and half in Navy. Plans grad school in the East.

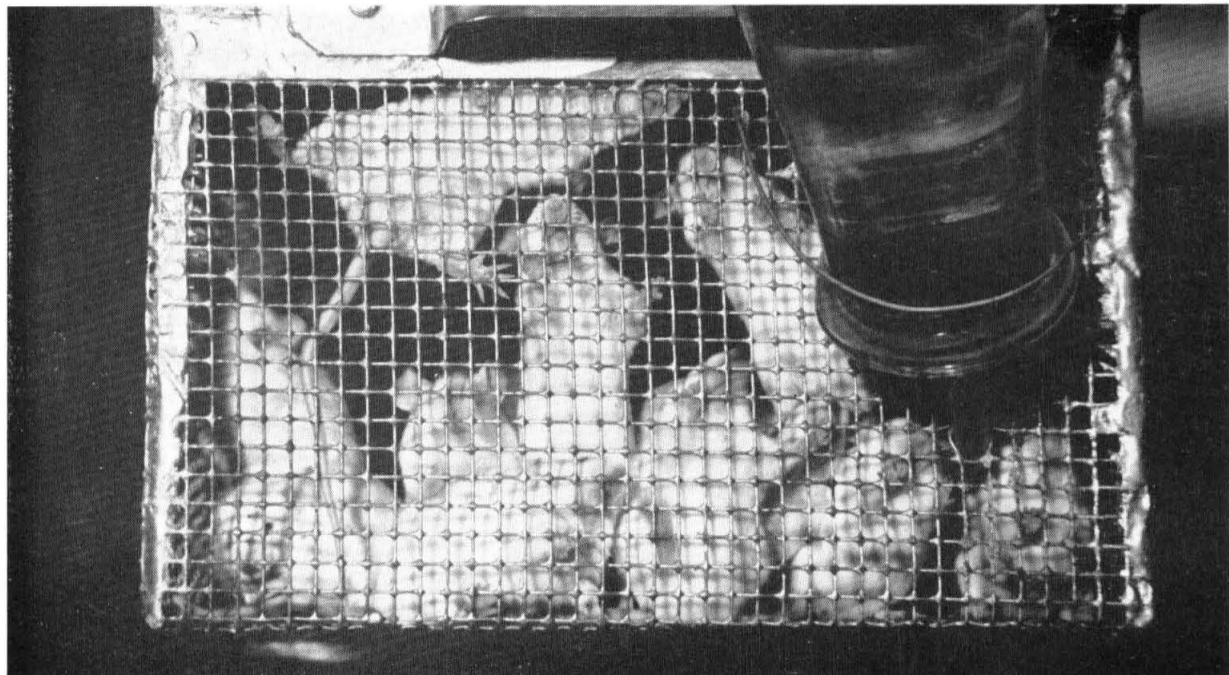


GEORGE WALTER WOODWARD RICKETTS
 One of the younger Seniors. George is from Glendale, Calif. He is interested in books and music. He thinks medicine to his liking, and he plans to enter medical school upon graduation from this hole.



JAMES D. YOUNG DABNEY
 Jim has a passion for listening to and collecting classical records. He won the McKinney prize in English in '48. Plans to go to grad school in English. From La Canada, he spent 2 1/2 years in Army.

BIOLOGY



NOT PICTURED MARCO A. MONTEMEZZI
 From Beverly Hills, Marco spent 2 years in the Stateside Navy. Likes classical music, but was not too hot on extra-curricular activities. Plans to attend grad school.



CLAUDE HARRIS ADAMS, JR.
FLEMING

Harris is interested in amateur radio, and had an active part in the Tech Radio Club. A Fleming Waiter, he competed four years in interhouse swimming. Spent a year in the Merchant Marine during the War. Is tired of the grind here, and wants to know just how long 4 years can be.

WHARTON W. BRYAN BLACKER

Wharton came to Tech in 1934, then after an extended absence, returned in '47. Played on Blacker Interhouse sports teams and bridge teams, and on the Calif. Tech. Married, with one child, he is interested in photography, astronomy, and chess.

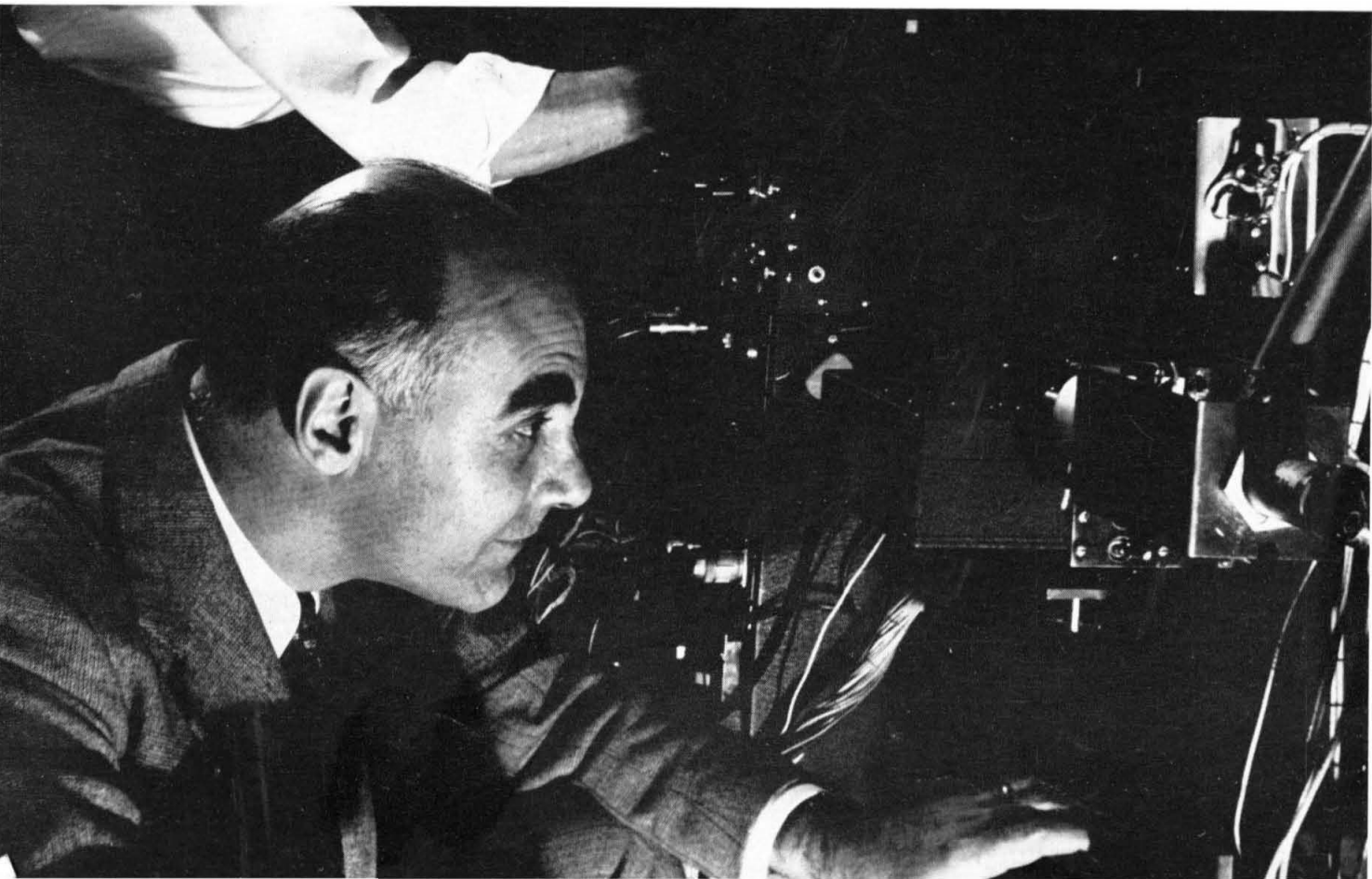
KENNETH W. GARDINER
RICKETTS

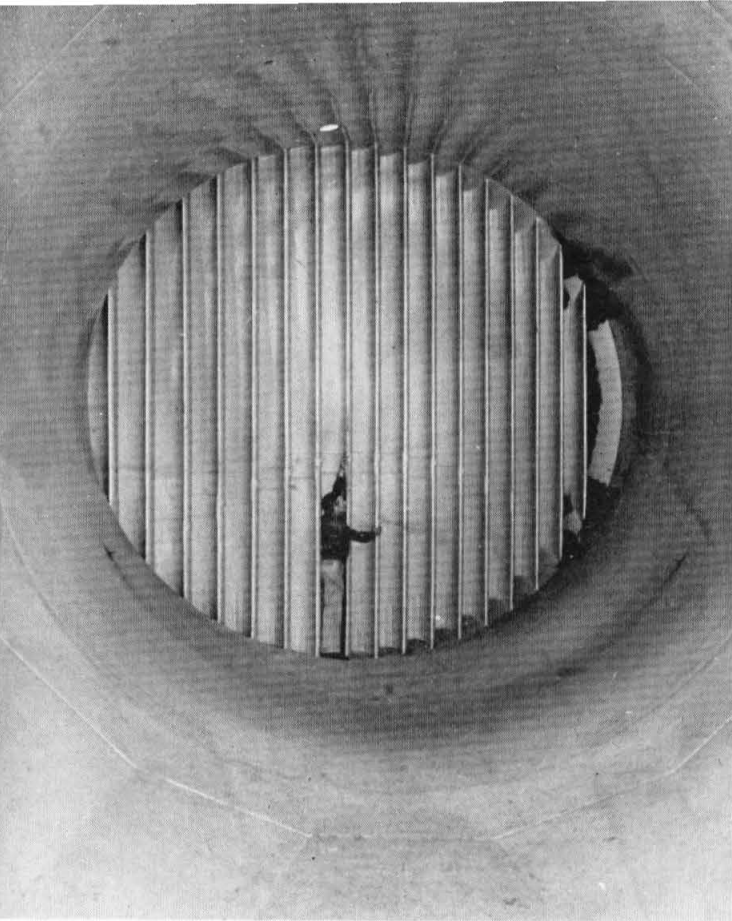
From Topeka, Kansas, Ken spent a year and a half in the Texas Navy. Bowled for Interhouse and played golf for fun and Discobulus. Spends his spare time with waiting table, photography, and flying. Plans to go to work upon graduation.

ROBERT HAUFE
RICKETTS, HONOR KEY

Editor of this Big T, and copy chief of the Calif. Tech, Bob is one of the youngest Seniors. He was Ricketts House artist, and staff artist on '48 Big T. Built a fantastic electrical Tit-Tat-Toe machine. Won a Hoganburger in Hawthorne poster contest, and will try anything if it is crazy enough. At the age of 19, he is forced to go to work.

APPLIED





PHYSICS

NOT PICTURED

GEORGE H. BOWEN **FLEMING, TBPI**

George is ready to defend Tulsa, Oklahoma against all criticism. Before getting married at the end of the Junior year, he was a mainstay of Fleming Interhouse teams. Is interested in radio, a hangover from his Navy days. Plans grad school in Biology.

NOT PICTURED

LEIGH SHERIFFS **DABNEY**

From West Los Angeles, Leigh was Editor of '46 Big T, and on Calif. Tech staff in '47 and '48. He was chairman of election committee, and held several minor house offices, serving on Beavers and Instituturs. Baseball and Football manager in 1947, he earned two Honor Certificates.

JARVIN HEIMAN **DABNEY, TBPI**

From Los Angeles, Jarvin gave the boys in Dabney a break. Interested in music and tennis, he spent a couple of years in the blooming Navy. Plans to work for a while, then try grad school. Seems quite interested in etc.

JIM MALONE **RICKETTS**

Not to be confused with the horse of the similar name, Jim is from Beaver Dam, Wisconsin. Entered Tech in '41, spent three long years in Army, returned to Tech in '46. Played Frosh basketball in '42 and JV ball in '47. Also terrorized the Interhouse competition.

WARREN P. WATERS **BLACKER**

Warren was Blacker Treasurer, and worked two years in the Los Alamos chapter of Blacker. He is interested in color photography and female women. He prefers not to mention his 4 unhappy years in the Army, and will attend grad school.

STEVEN WEISBROD **RICKETTS, IRE**

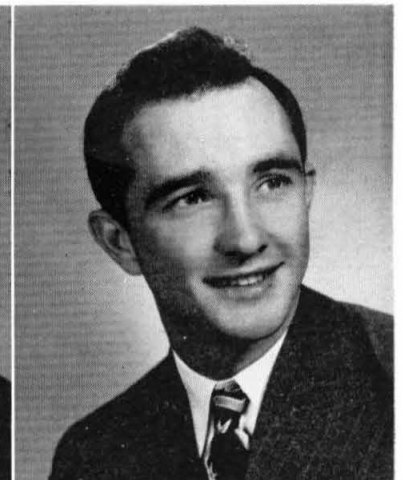
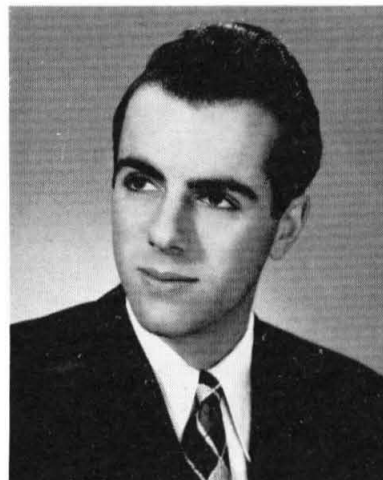
Steve was born in Warsaw, Poland, but now claims San Diego as his home town. Spent a year and a half in the Army, ETO. He is interested in radio, and will go to work for a few years before trying grad school.

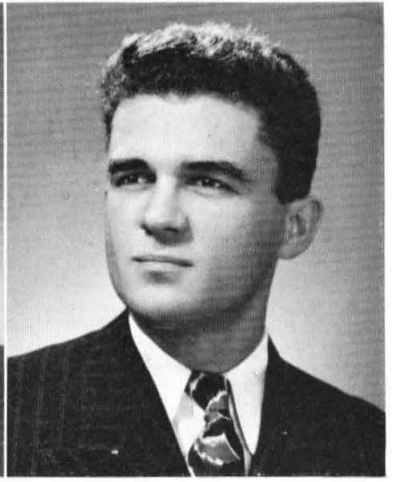
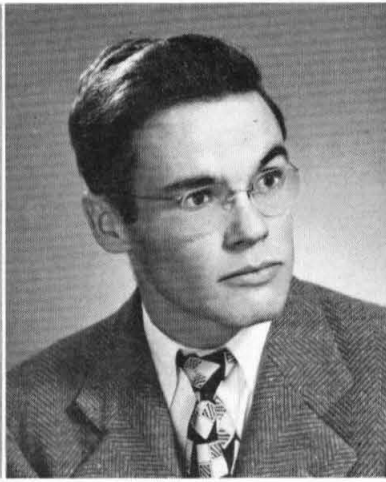
ROBERT PILLING **RICKETTS**

Bob started in Tech in '42, defoured for better than 3 years in the Infantry. Returned to play JV basketball, be Social Chairman and Vice President of Ricketts, member of the Board of Control. Now married, he spends much time keeping his car running.

CHARLES G. WALANCE **IRE**

Chuck came from Chicago, and is quite bitter about his 3 1/2 years in the Army. He got married just before his Senior year, and his disposition improved. Photographer for paper and Big T, and member of musicale, he is interested in radio and records.





J. MILTON ANDRES
RICKETTS, TBPI

Milt served as Ricketts House Treasurer and played on their Interhouse Basketball team. He likes music, tennis, and has been known to try to play golf. Spent a year and a half in the Navy. Plans to go to grad school at Berkeley.

RICHARD C. CORNELIUS
BLACKER, T², TBPI

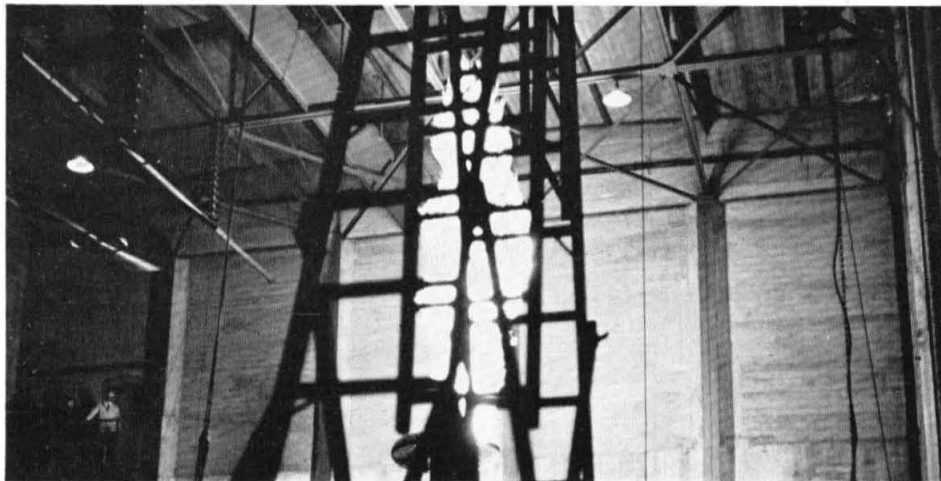
Dick is a two year letterman in both Track and Cross Country, and played one year of Football. From Natinonal City, California, he entered Tech from the ASTP in '46. Plans grad school at Columbia and marriage. A Los Alamos type.

WARREN E. DANIELSON TBPI

Dan is from Santa Ana, was in Blacker as a Frosh, then got married and had one remarkable girl off-spring. Ran Frosh track, but now is satisfied to stay at home with his family. Spent three years in AAF, ETO. Will concentrate on his family upon graduation.

PATRICK DOHERTY RICKETTS

Pat entered Tech as a transfer student from USC in '47. His home is in La Canada, but he is a non-resident Ricketts man. Spent 3 years in Army, is West Point man. Active in Newman Club on campus, his hobby is hiking.



EDWARD CHARLES DU FORT
DABNEY

Foodort has as many nicknames as anybody in school. One of Dabney's big Interhouse sports guns, he also skis like mad, and plays bridge all night. Spent a short, happy time in Navy. Is terrified at the prospect of having to go to work.

KENDALL FERRIS FAMULARO
THROOP, TBPI

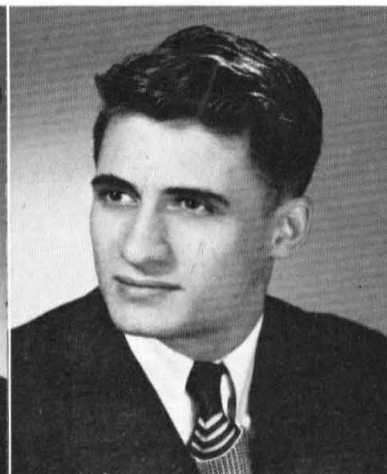
The Spider is from nearby La Canada, and didn't have to go to find Tech. One of the younger seniors, he says he would like to go to grad school, but probably will have to go to work. Plays tennis in his spare time, that is if there is such a thing.

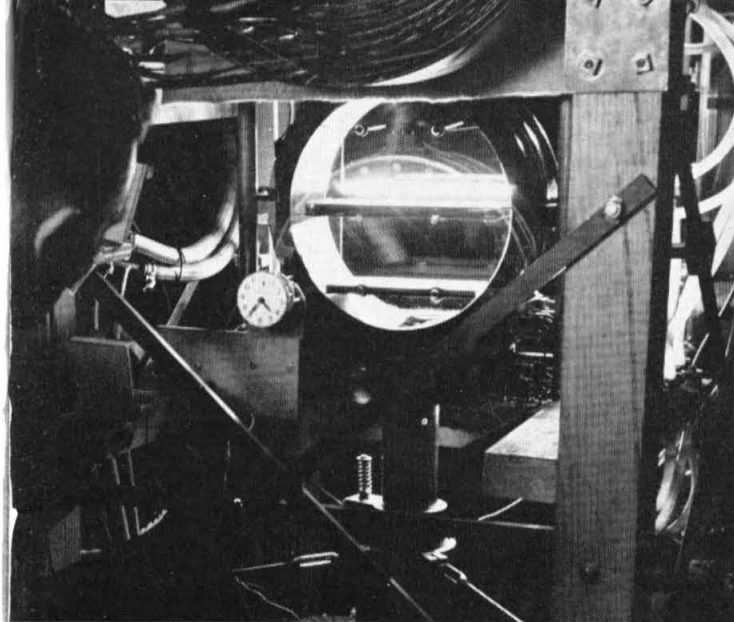
JOSEPH M. GREEN
DABNEY, TBPI

Joe was a big noise on Dabney's Interhouse teams, business manager of '47 Big T, and erstwhile debater. Fooled around on Varsity Track teams in '47 and '48. Spent 1 1/2 wonderful years in the Navy. Plans to attend grad school.

ALBERT S. HOOK DABNEY

Al is from Culver City, and has tastes ranging from Model T Fords to Cords. Dabney UCC, he played 2 years of Football, got his leg wrecked, and was manager in his Senior year. Spent 2 1/2 punchy years in the Salty Navy, now can't decide what to do with himself.





NOT PICTURED
LEO BREIMAN **THROOP**
 Leopold Aloywishus haunts the Dabney lounge, plays bridge and argues with anybody who will listen. A member of Pi Kappa Delta, he was a debater for two years. His home is in San Francisco, and he naturally wants to go to grad school.

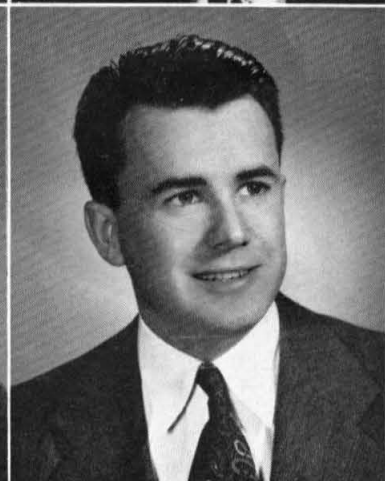
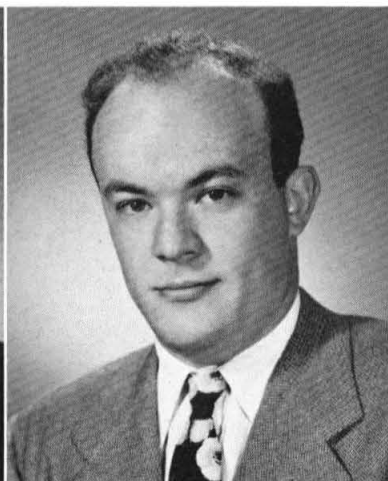
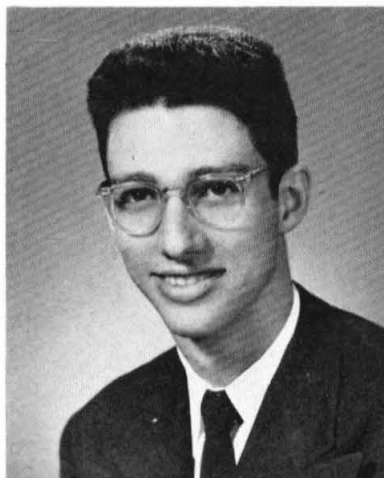
WILLIAM J. HOUGHTON
DABNEY

Honolulu's gift to Darbney House, Big Bill played Interhouse sports, shouted at all games, and was active in the Musicale. His outside interests include skiing, but he is primarily interested in doing experimental research, thus will show up in grad school.

WILLIAM J. KARZAS
BLACKER, HONOR KEY, TBPI

Bill is one of Tech's great Greeks. President of Sophomore Class, Vice President of Blacker, and ASCIT Publicity Manager, he also served as Calif. Tech Editor, Football Manager, Cross Country and Track Manager. Member of Initiators and Beavers, he sang in the Glee Club for years. Earned two Honor Keys, plans grad school.

PHYSICS



DAVID A. LIBERMAN

Dave entered Tech as a transfer student from USC in his Sophomore year. Active in Musicale and Math Club, he plans to attend grad school. His home is in Los Angeles, and he spent a while in the Navy.

RALPH MORRISON

From Los Angeles, Ralph, entered Tech by way of the ASTP and Oregon State in his Junior year. Served as Musicale officer, collects coins and likes music. Will probably be forced to work upon graduation.

BILL MYERS **RICKETTS, TBPI**

The Colonel is from Milford, Ohio, and ran the Ricketts laundry and cleaning concession quite profitably. Plays tennis and likes beach weather. Spent three very arduous years in Army Signal Corps. Can't make up his mind what he wants to do upon graduation.

DON PICKRELL **THROOP**

Don's career at Tech was interrupted by three years in the Army. Played in the band and orchestra before the war, now is married and stays at home. Works on Analog Computer, and wants to go to grad school.



MARION RINEHART BLACKER

Marion came from Leonia, New Jersey, and supports the Blacker Interhouse bridge and bowling teams, sings in the Glee Club, and likes sailing and golf. Originally he went to MIT, but saw the light in '46 and switched to Tech. Will be married in June.

RICHARD SCHOEN

Dick swam on Tech teams for three years, lettered in '48, played one year of Basketball and Water Polo. From New Rochelle, New York, he spent a couple of years in the Army. Plays bridge in spare time, also in Musicale and Pasadena Folk Dance Co-op.

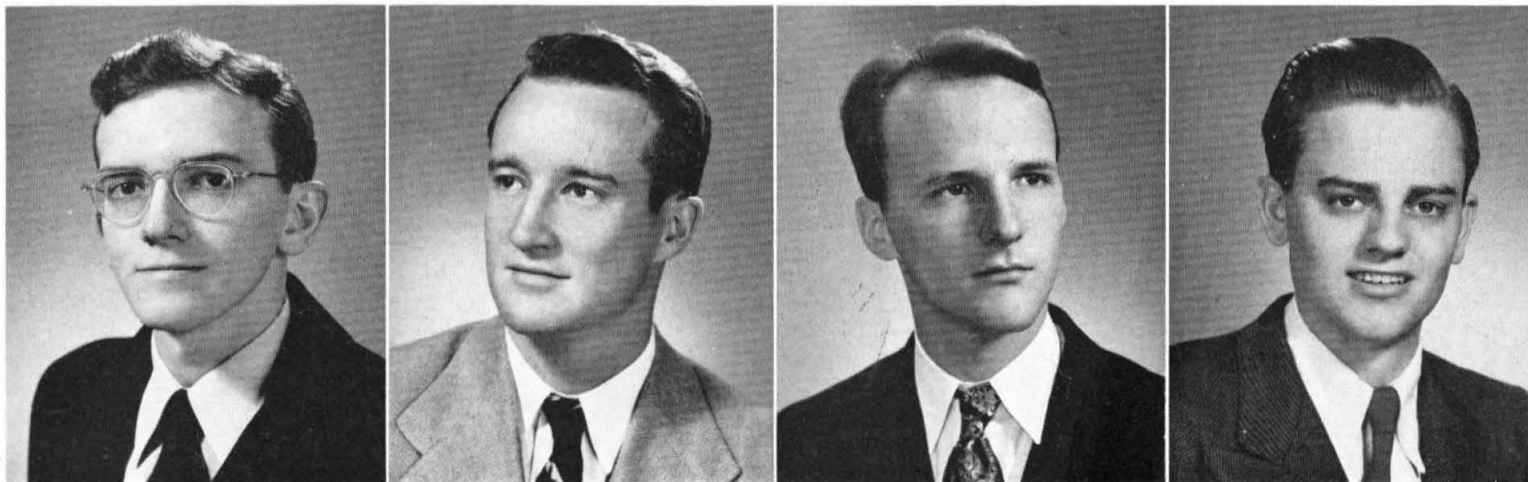
FRANK H. SHELTON DABNEY

Frank entered Tech as a Frosh in 1942 from Boulder City, Nevada. Came the war, and he spent 3 years in the Army. Is now married, and spends all his time playing cards and keeping his car in running condition. Plans grad school.

ROLF MALCOLM SINCLAIR THROOP

From the deep South, Atlanta, Georgia, Rolf came to Tech at an early age. Was Football and Baseball manager for two years, and President of the Musicale. Haunts the Dabney lounge, listening to loud music and playing cards. Plans Eastern grad school.

PHYSICS



HUGH F. STODDART BLACKER

Hugh is photo editor for this edition of the Big T, so take your gripes to him. Came down from Juneau, Alaska to Tech. Worked on Blacker social committee as co-chairman. Nuts about photography.

KENT TERWILLIGER DABNEY, TBPI

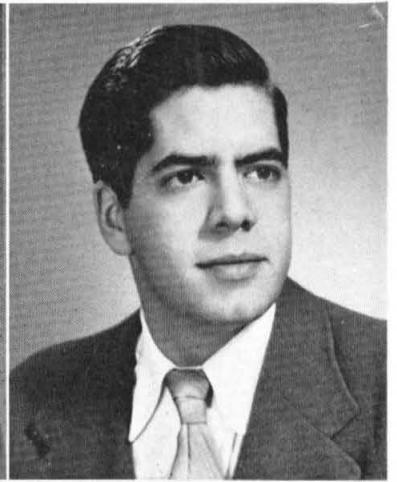
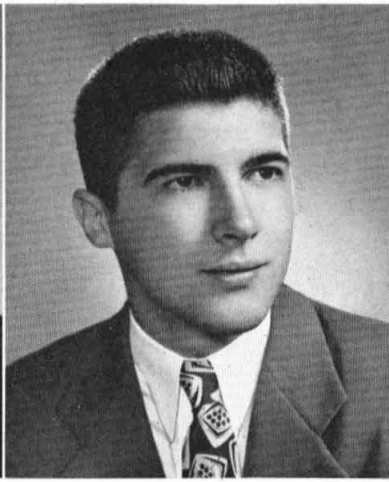
Kent was President of Tau Bate, debater in Junior year, and ran Frosh Track back in '43. He spent three unhappy years in the Army, ETO, and returned to Tech in '47 as a Soph. Hobbies are bowling, bridge, swimming, and tennis. Work now, grad school later.

DONALD RAMSEY WESTERVELT DABNEY

Don came from Connecticut to sunny California for his education. Always happy and whistling, he plans to get married soon, work for a while, and then try grad school. Spent a couple of happy years in the Pacific Navy.

H. HUGH WOODBURY TBPI

From nearby Altadena, it was downhill all the way to Tech. One of the younger Seniors, Hugh is interested in Ham Radio, and will return to Tech for grad school. Beyond that he has no future plans.

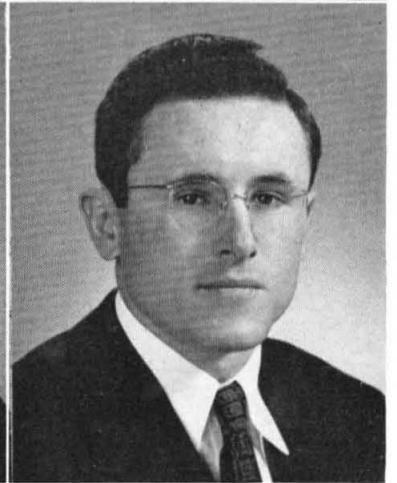
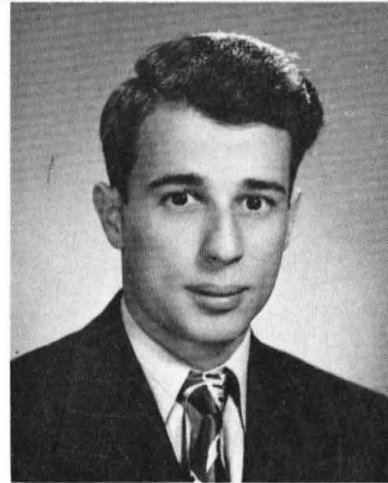


FORREST ALLINDER
BLACKER, ACS

Fat started in Tech in '42, but took time out for 3 years in the Infantry. Served as Blacker Treasurer, member of Instituturs, and played 3 years of football, lettering in his senior year. Now married, he finds time for spear fishing and sunbathing.

WILLIAM H. BAILEY
THROOP, ACS

A local boy from South Pasadena, Bill's main extra-curricular interest at Tech was in the Ski Club, and the ACS. Active in Throop Club affairs. Tired of the grind, he plans to enter industry.



HOWARD J. COHAN BLACKER

From Denver, Colorado, George came to Tech after 2 years in the Infantry, miserable, u n h a p p y years. He was a stalwart on Blacker's bowling team for two years. UCC, and member of College of Cardinals. Plans to get married come June.

CLAYTON ENGLAR FLEMING

Uncle Clay found his career at Tech interrupted by 3 unhappy years in the Army. Upon returning he was Varsity Basketball manager for 3 years, Fleming UCC and Constable with a mean attitude. From San Mateo, he finds that he will have to go to work upon graduation.

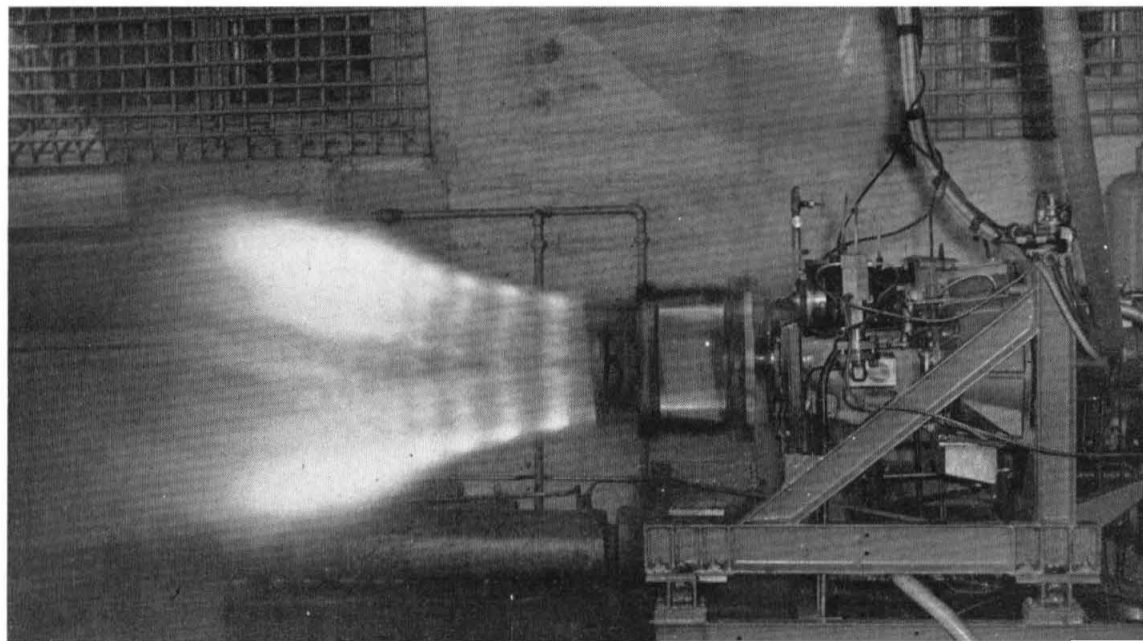
AARON N. FLETCHER THROOP

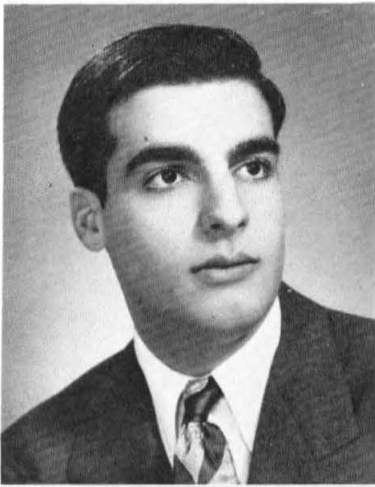
Capitalistic owner of two cars and a motor scooter, Aaron concentrated on the Chem club, and served as their treasurer. Spent 1½ years in Texas AAF. Will enter industry upon graduation.

ROBERT B. FUNK FLEMING, T^{II}

Sterling house and Varsity athlete, Bob is 3 year letterman in both track and football. Decathlon winner in '47, and football captain in '48, he was also house Treasurer, President of Varsity Club, and Board of Control member. His 3 years in the Army were unhappy.

APPLIED CHEMISTRY





BYRON KARZAS
BLACKER, T, ACS

By is the fatter of the Karzas brothers. Played 3 years of Varsity football, lettered in his Senior year. Was Blacker Librarian, member of Instituturs, and worked on Calif. Tech. Spent 2 1/2 years in Navy, but now plans to work in Chicago, his home town.



BILL LANZ
THROOP, T

Bill is married with two small children, and hails from North Dakota. Played one year of Varsity football, and lettered. Played house baseball and softball. He spent 5 1/2 years in the Army, and plans to work now.



APPLIED

RICHARD ALAN MC KAY
THROOP

Dick transferred to Tech from PCC in 1944. He spent 1 1/2 years in the Stateside Navy, but has a hobby of yachting, which he pursues at every opportunity. Eager for knowledge, he plans grad school.

EUGENE C. MOORING JR.
THROOP, ACS

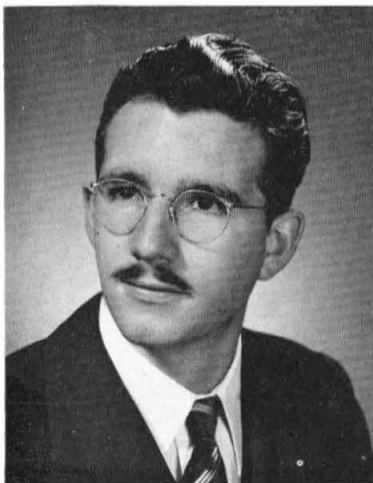
Gene is from Huston, Texas, is married, with one child. Served 5 years in the Navy, and at Tech was Treasurer and President of Throop Club. A member of the Beavers, he also bowled for Throop. Hobbies include model airplanes and stamp collection.

DONALD ROBERT MORRISON
DABNEY, T²

Moe is from Westwood, but preferred Tech to UCLA. He lettered three years in Varsity Baseball, and worked in the Instituturs. His hobbies are golf, tennis, and loafing on the beach. Don plans to work in the Petroleum Industry.

THOMAS G. PETRULAS
RICKETTS, T¹

After 3 years in the AAF, Tom came to Tech to earn 4 letters in Varsity baseball. He was Ricketts athletic manager in '47, but is now married and has one small girl child. Plans to enter industry immediately, and concentrate on his family.

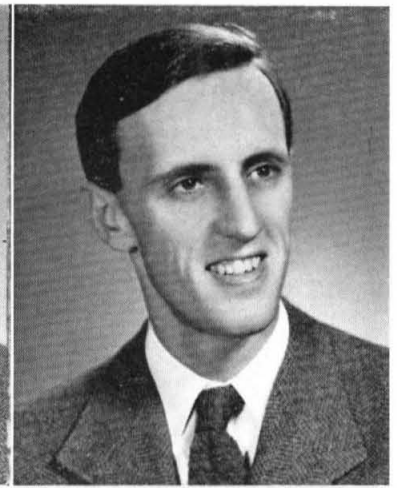


RICHARD P. SCHUSTER JR.
FLEMING, T²

Shoose came to Tech by way of the V-12, and liked it well enough to come back again after the war. He played 3 years of Varsity football, earning 2 letters. A typical beach boy, he is also nuts about skiing. Was VP of Beavers, President of Ski Club, and wrote column in Calif. Tech every week on skiing.

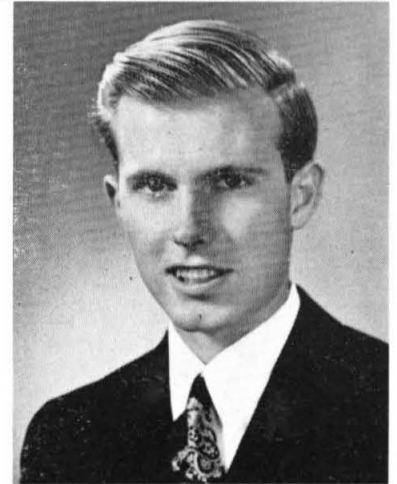
FREDERICK T. SELLECK
THROOP, ACS

Fred started in Tech in '42, but detoured to spend 3½ years in Army, ETO. Active in Chem Club, ACS, Throop club, and Musicale, his hobbies include carpentry and classical records. Immediate plans are to work in industry.



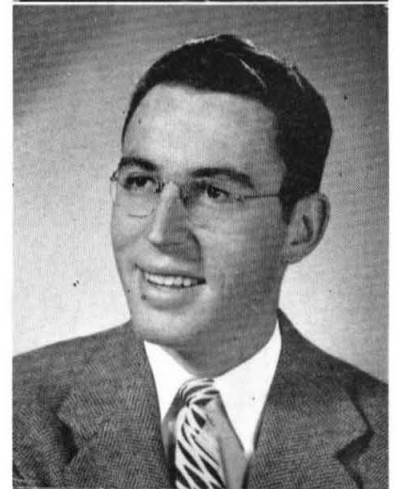
ROBERT M. STEWART JR.
DABNEY

Interested in more cultural pursuits than most of us, Stew was a member of Pasadena Civic Orchestra, Dabney house Treasurer, UCC, and Head Waiter. Worked hard as Chairman of Garden Party committee. Played inter-house tennis and swam. Plans grad school in Chem Engineering.



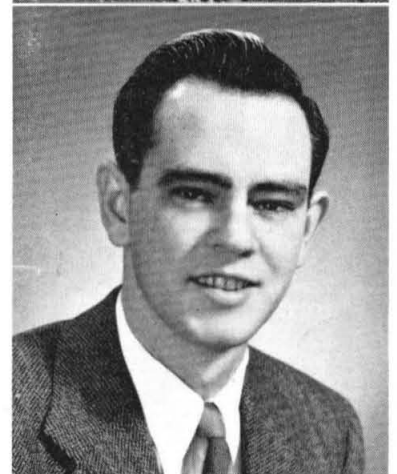
JACK L. WHITE T, TBPI

Jackson hails from nearby Glendale, but has the wanderlust, and yearns to travel. Spent a couple of years with the Armored Force in the Philippines, but that didn't cure it. Played baseball for Tech, earning his letter. Plans to attend grad school.



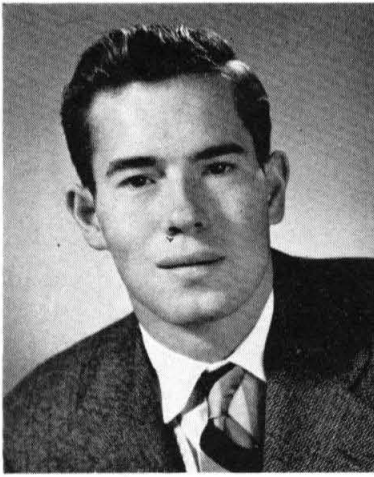
BILL WOODS FLEMING

Smooth Social Chairman for Fleming, Woodie also was President of the Beavers, and played inter-house and varsity tennis. He spent two years in the Navy but it does not show. Has large record collection and larger amplifier. Hobby is fishing, but he will go to work in June.



CHEMISTRY

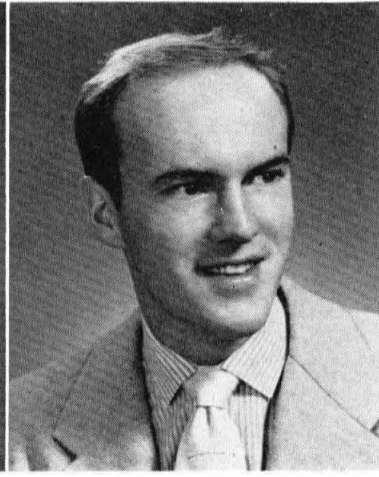




SIDNEY G. GIBBONS
THROOP, ACS
From Tarzana, California, Sid spent two unhappy years in the Infantry before coming to Tech. Served as President of Chem Club and member of Musicale. Is interested in tennis, swimming, and skiing. Spent summers relaxing at UCLA and UC.



DAVID S. HOGNESS
RICKETTS, TBPI
Interhouse sports, skiing, and politics are Dave's outside interests. He plans to stay at Tech to get his Ph.D. Spent 2 years in the Atlantic Navy, and was Ricketts Secretary in '47-'48. Known to be mighty sharp, he will go far.

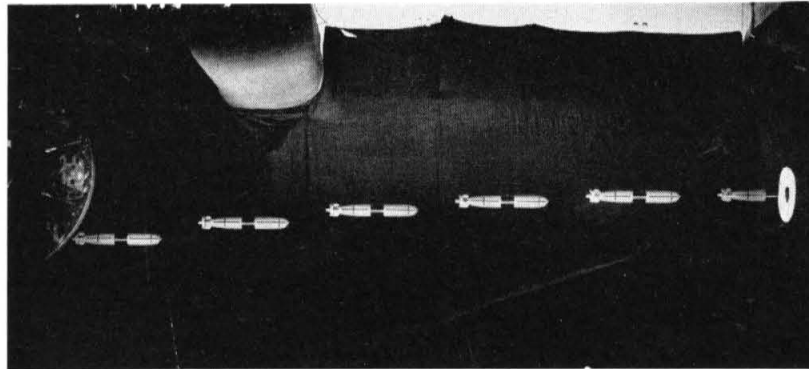


ROGER JOHNSON RICKETTS
Roger spends his idle hours around the card table, any game, you name it. Active in the Chem Club, he came to Tech from Belmond, Iowa, after two unhappy years in the Army. He plans to enter industry in June.

NOT PICTURED
MANUEL NATHAN BASS
FLEMING, T¹
Tech's most noted athlete, Manuel entered in 1946 from University of Texas. Three year letterman in both football and basketball, two year letterman in track, he made all-Conference Tackle two years in a row, Little All American, and Little All Pacific Coast. Has now turned Geologist.

NOT PICTURED
NORMAN FORD JACOBSON
Jake entered Tech from Glendale College in 1947 as a Junior. From Glendale and/or Santa Barbara, his future plans are indefinite.

NOT PICTURED
BENARD SHORE FLEMING
Bernie was a big gun in Fleming interhouse sports teams and a debater of some note. Interested in all types of music and softball. Wrote long, critical essay for Calif. Tech on teaching methods. Plans grad school in biochem or in social science.



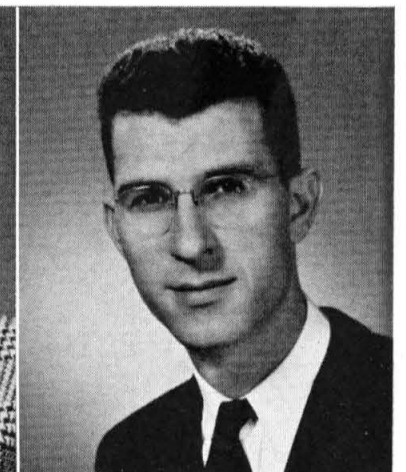
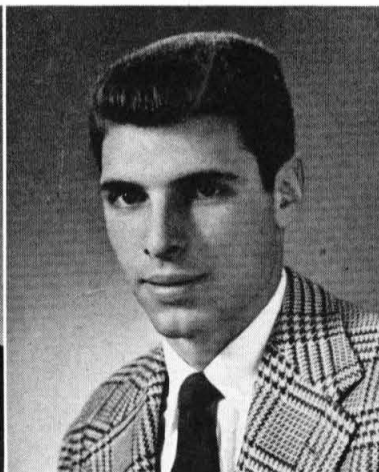
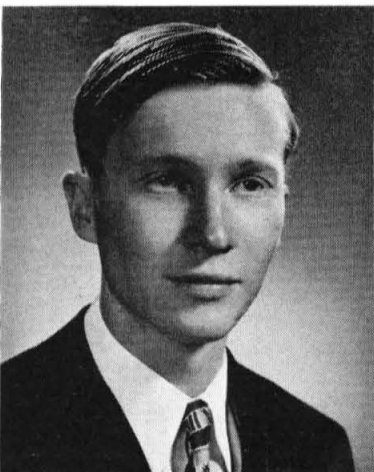
CHEMISTRY

ROBERT E. KOFAHL
From nearby Glendale, Bob was active in Chem Club and Christian Fellowship. He spent 3 years in the Infantry with service in the ETO. Interested in piano and photography, he plans grad school.

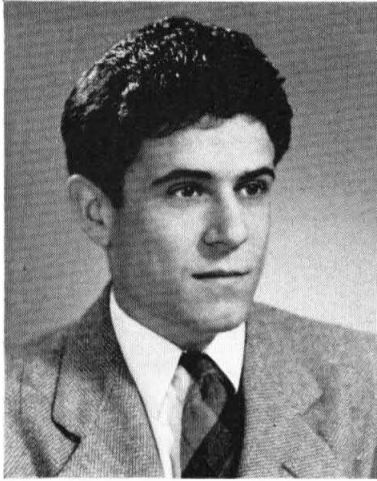
WILLIAM RAMSEY BLACKER
One of the younger Seniors, Burrhead was active in the Chem club, Blacker UCC, and includes in his hobbies photography, botany, and hiking. Always one to go along with a gag, he will attend grad school.

PAUL SALTMAN
FLEMING, HONOR KEY, T¹
The Goon has done everything: ASCIT Athletic Manager, VP Frosh Class, Secretary and President of Fleming, Beaver, Athletic Council, 4 year letterman in basketball and captain, one year track, and earned two honor keys. He plans marriage and grad school in Paris, mon Dieu! Wrote column in Calif. Tech for years, Tech's Braven Dyer.

ESTAL DALE WEST THROOP
Dale was born in Missouri, but seems to have lost track of any "home town." Married with one small boy offspring, he was Vice President of Throop Club. Spent 3 years in the Army. Plans job at Bureau of Standards, grad school at Maryland.

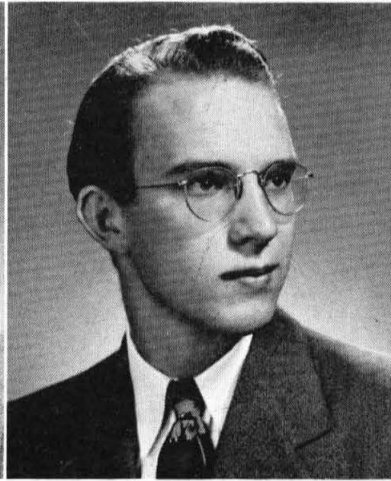


MATHEMATICS



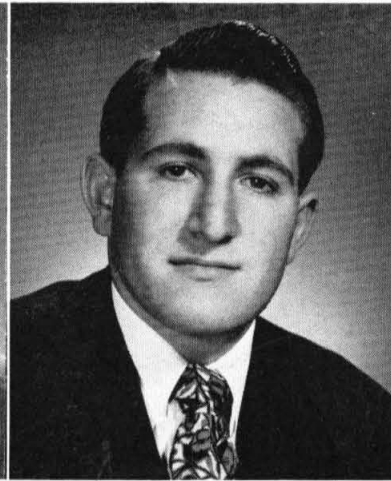
ROBERT G. HEYNEMAN
DABNEY

We predict an extremely successful future in Math for Bob. Noted for his heavy schedules and a wonderful math library, he relaxes with classical music and an invincible brand of ping-pong. A loyal supporter of the Math Club, Bob plans grad work in Math.



JAMES HUMMEL
RICKETTS, HONOR KEY, TBPi

In addition to the Herculean task of being editor of the Calif. Tech, Jim is treasurer of Tau Bate, and Faculty editor of the Big T. Member of Math Club and Glee Club, spends his spare time with music and reading science fiction. Plans grad work at co-educational Rice Institute.



MYRON LIPOW

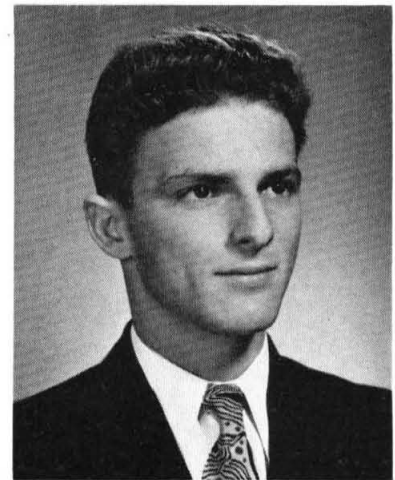
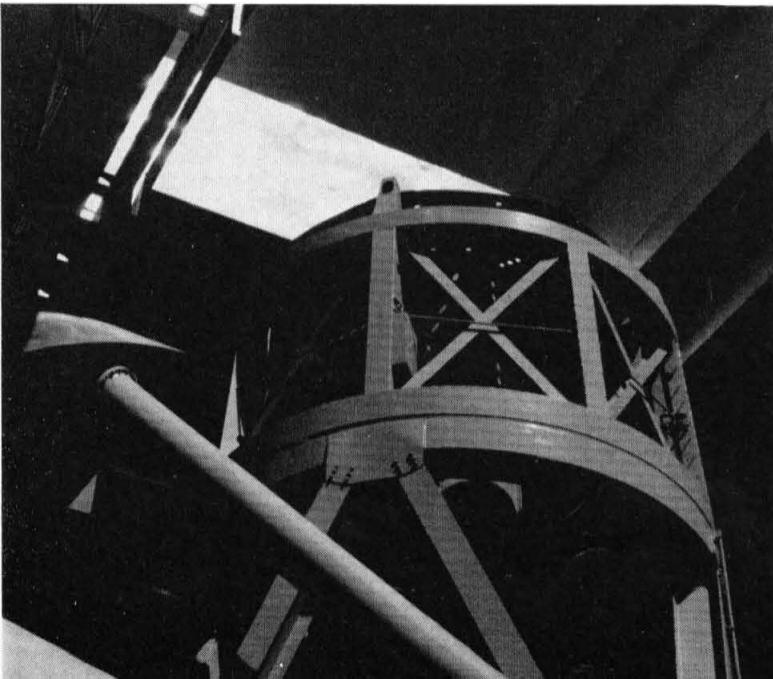
Hailing from Vista, California, Myron transferred to Tech from PCC. A serious student, he likes golf and is an excellent bridge player — also an indispensable member of the CIT Band. Plans for the future include grad school.



FREDRICK A. MACHETANZ
FLEMING

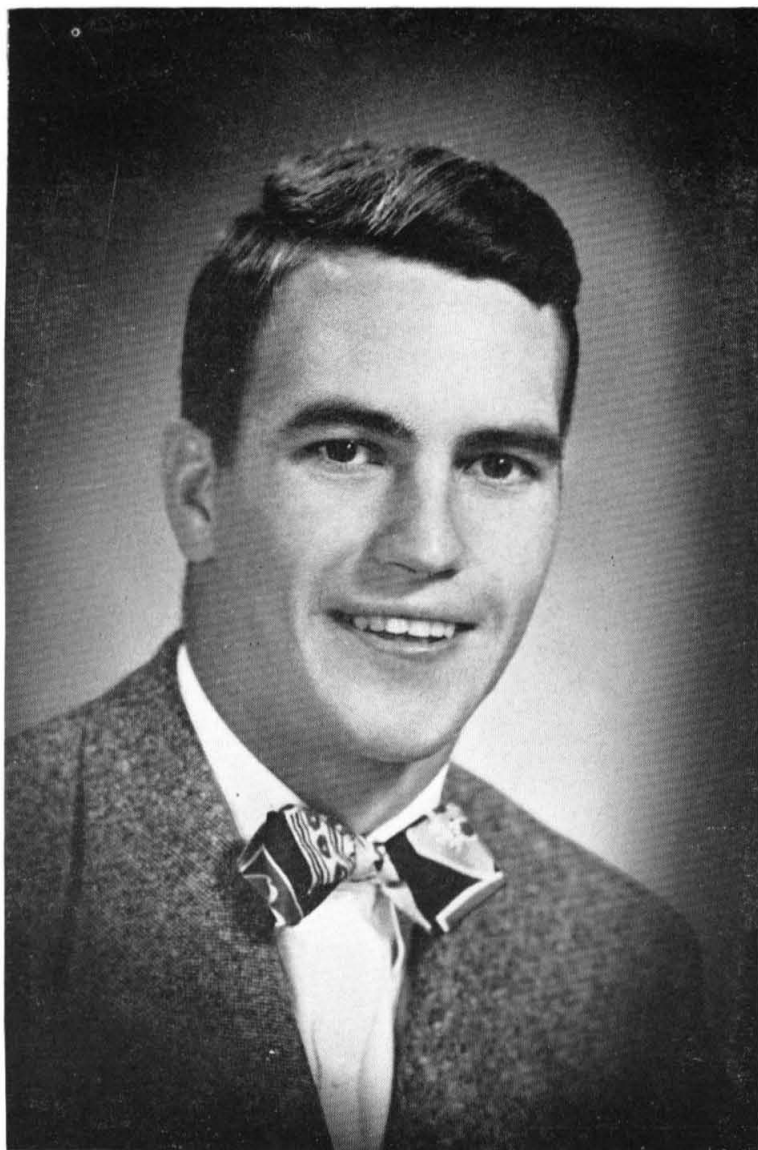
One of the bigger little guns in Fleming's Big Red Teams, Fred worked hard to get Fleming a ping-pong table, and it turned out to be over-popular. Fred was a permanent fixture in the lounge, playing a mean game of bluff casino. A Navy veteran, he plans grad school.

ASTRONOMY

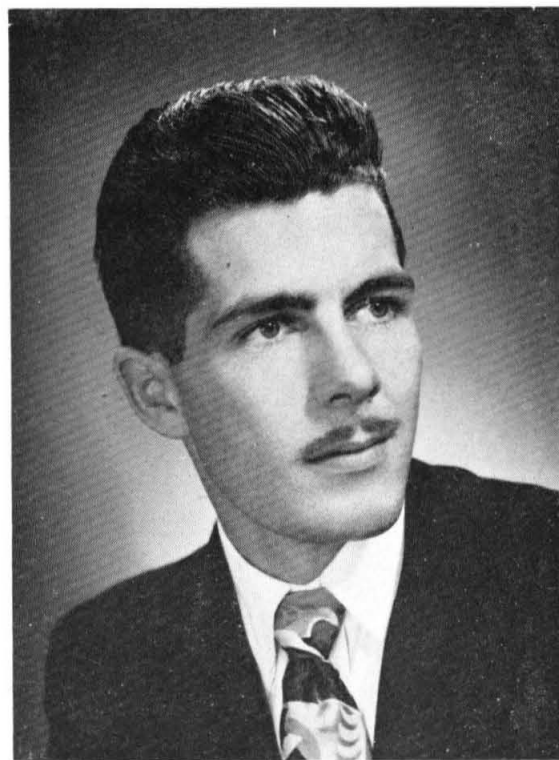


BERNARD D. RUDIN THROOP

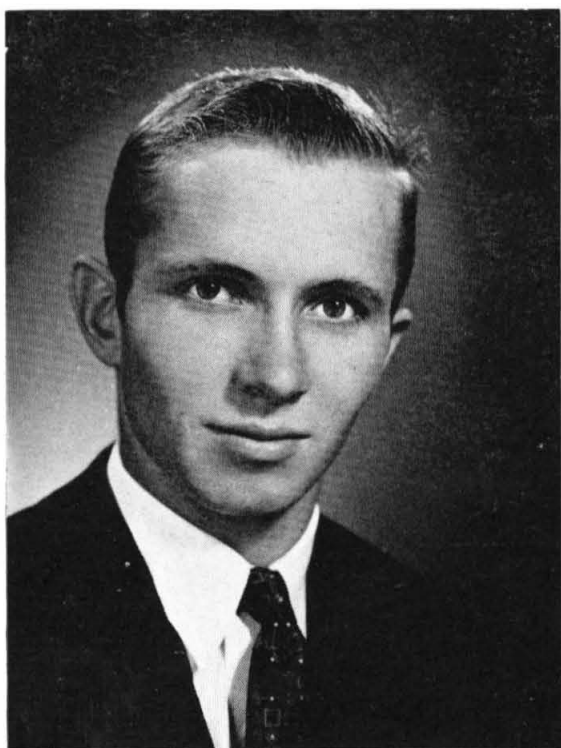
A little lonely in his field, Bernard was President of the Musicales and Pi Kappa Delta. Debater supreme, he also claims an interest in wine, women and song. Hails from L.A. and plans to go to grad school.



Don Baker



Carl Fox



Jim Blom

The Junior Class of 1948-49 started the year with some two hundred members. Amid shouts of anguish all paid their class dues and threatened the worst if not amply repaid. So the year started in high and joyous spirits with a bright eye toward the future.

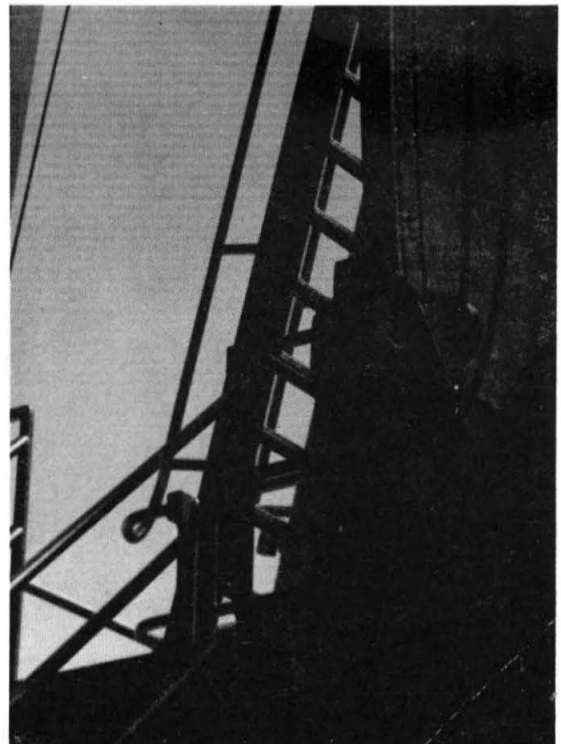
The class under the excellent direction of Hal Tyson, athletic manager, once again directed the annual Frosh-Soph Mudeo. The mud pit after days of soaking, tractor plowing, horse plowing, and final reworking by lusty Juniors was in excellent shape for a sticky, sloppy Mudeo. The Sophs after an easy victory led the Frosh in a wholesale attack on the Junior judges dunking such men as Ralph Loveberg, Dave Mackenzie, Stan Boicourt, Jack Scantlin, Allen Beek, and Carl Fox in the slimy ooze, while shouts of glee came from the large crowd. So a traditional day ended in a traditional fashion.

JUNIOR CLASS



The socially minded Junior Class chose early in the year to sponsor a spring garden party in cooperation with the Senior Class. Barry Schuyler, Carl Fox, and Craig Marks served amply well on the party committee. Bill Haefliger, Bruce Robinson, and Hal Tyson served on the Junior Prom Committee and helped to plan a wonderful evening to end a pleasant year for the class.

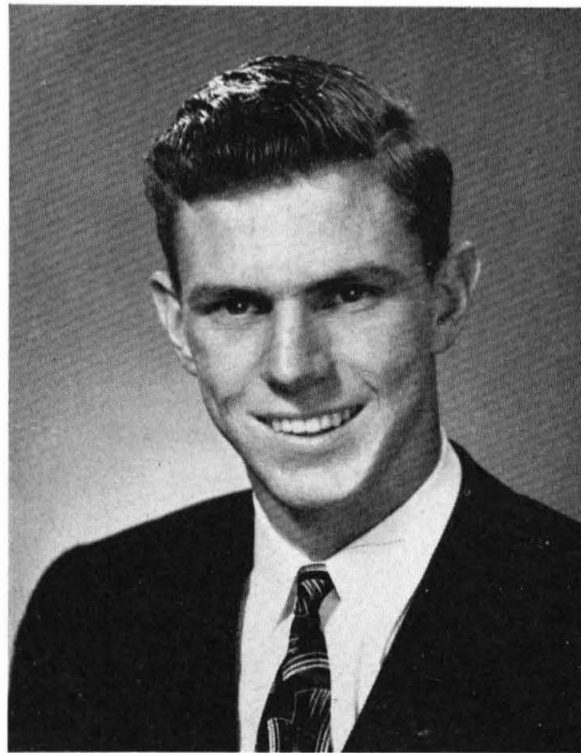
The Juniors were guided through the year by Don Baker, President; Carl Fox, Vice President; Mike Sellen, Secretary; Jim Blom, Treasurer; Walt Davison, Publicity Manager; and Hal Tyson, Athletic Manager.



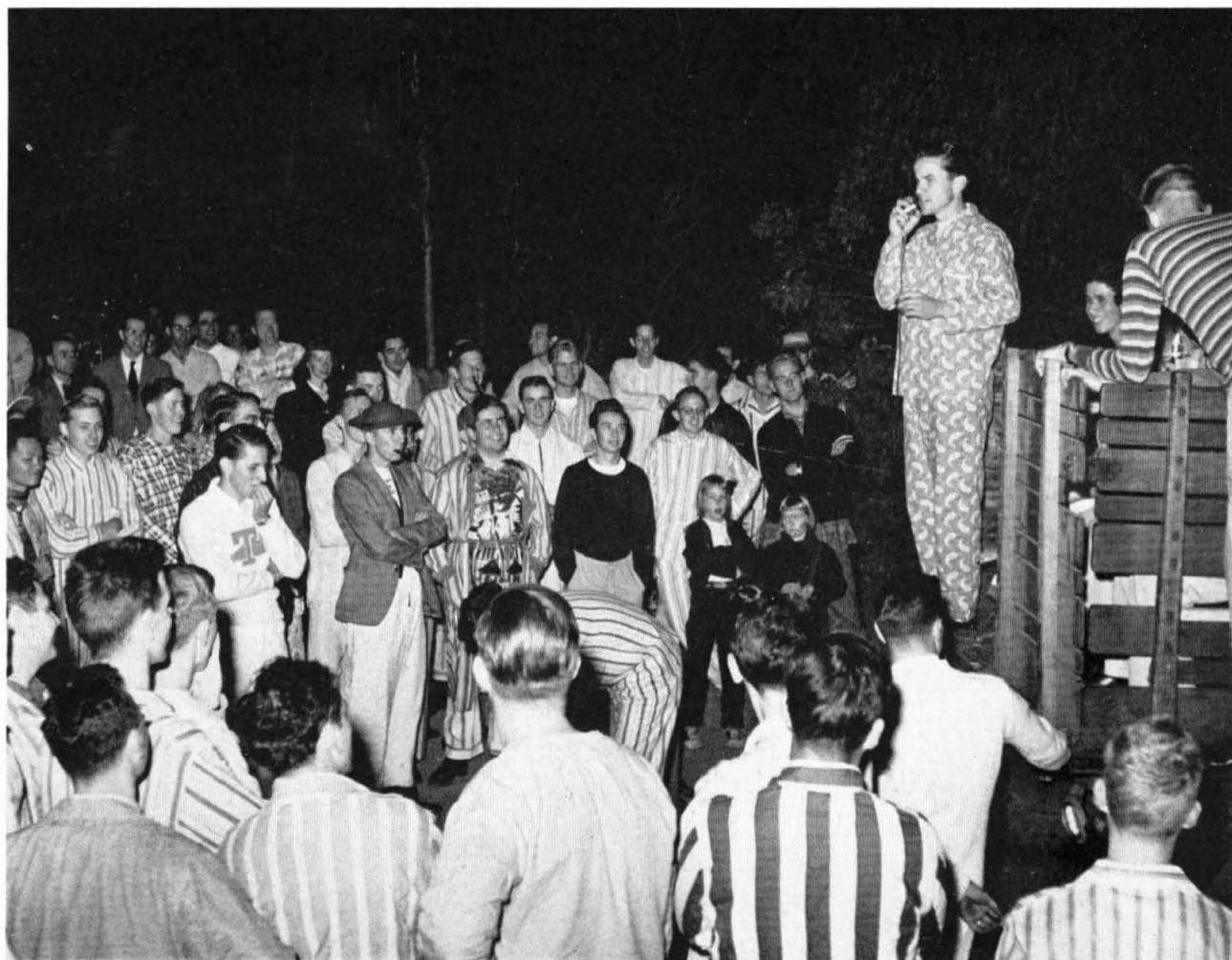
SOPHOMORE CLASS



Carl Hildebrand



Dick Libby

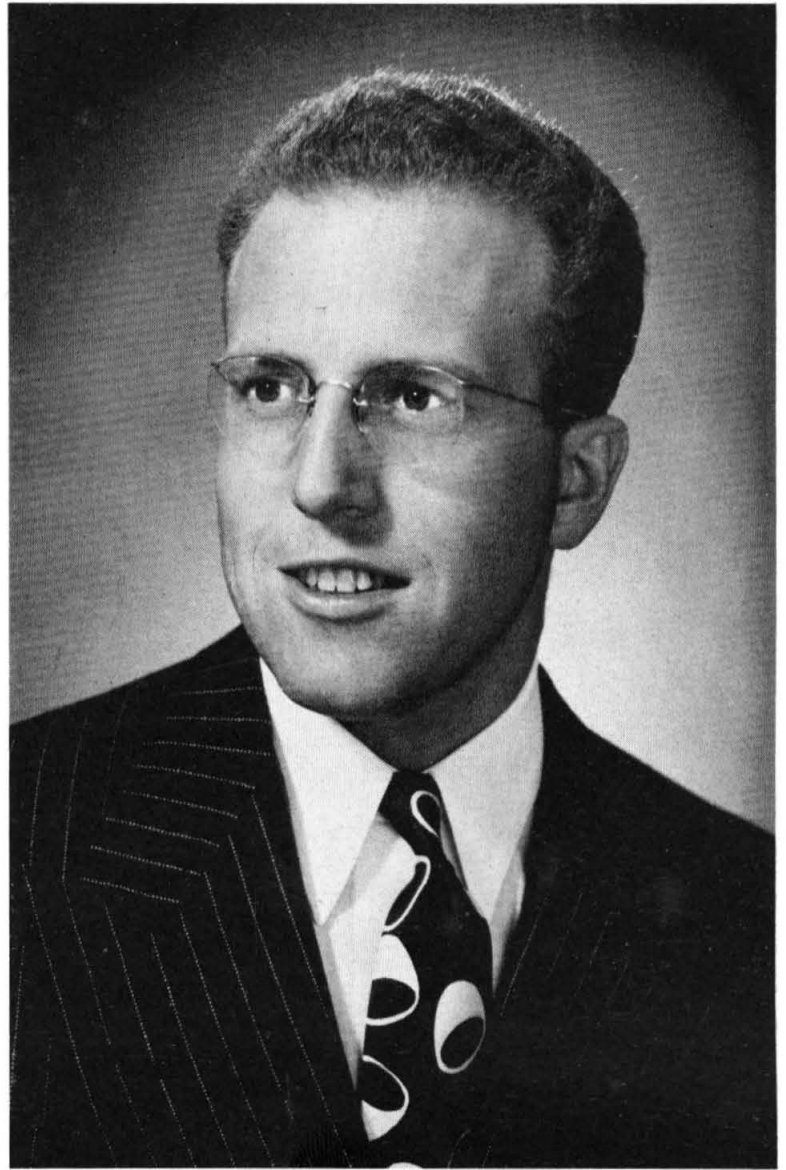


The Class of 1951 successfully inaugurated the '48-'49 school year with a muddy and well-earned victory over its arch rivals, the Frosh, in the annual Mudeo. Despite disputes and plenty of mud-slinging, the Soph Mudeo team, captained by Earl Hefner, outscored the underclassmen, four events to none.

Through the generosity of the losers, the Frosh-Soph Dance was enjoyed by both participating classes in the lounge of the Dabney Hall of the Humanities. Carl Hildebrand served as social chairman for the outstanding event.

A large percentage of Caltech athletic teams was made up of members of the class of '51. Lettering in their first year of intercollegiate football were Noel Reed, Roland Berner, Trt Miller, and John Lewis. Pete Mason, Bob Cobb, and Walt Edwards were high on the cross-country squads.

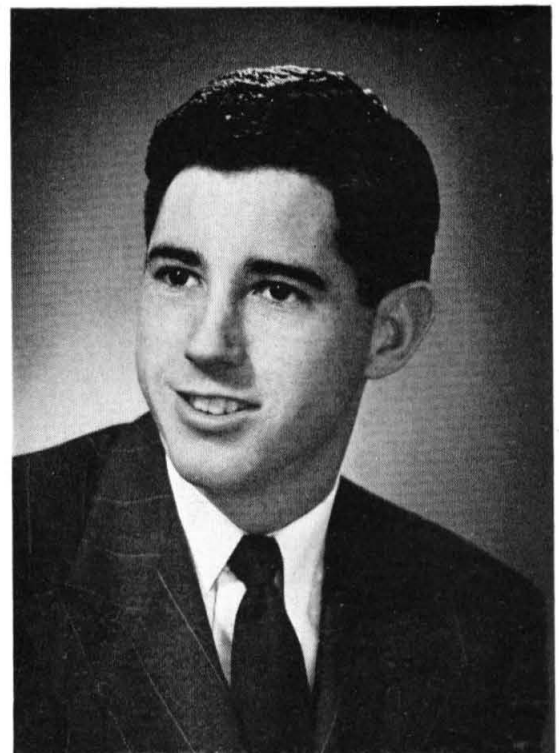
John Fee presided ably over the class as President; Carl Hildebrand served as Vice-President; Dick Libby and Pete Price were Secretary and Treasurer, respectively.



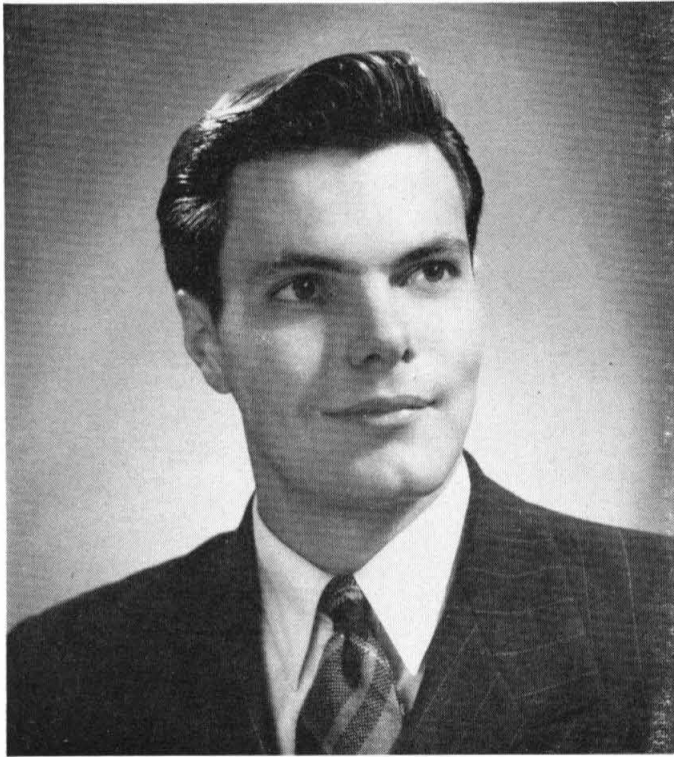
John Fee



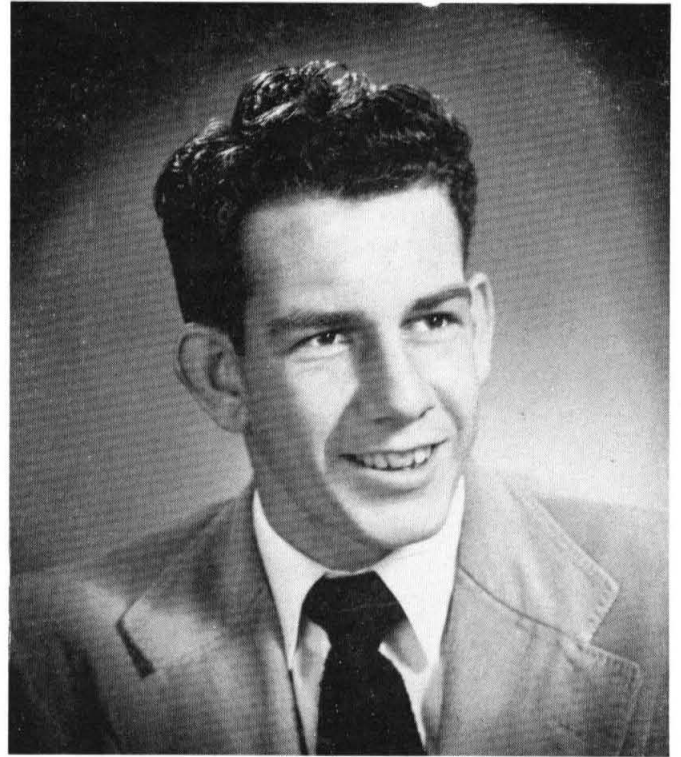
Peter Price



Erle Hefner



John Noble



Dave Hanna

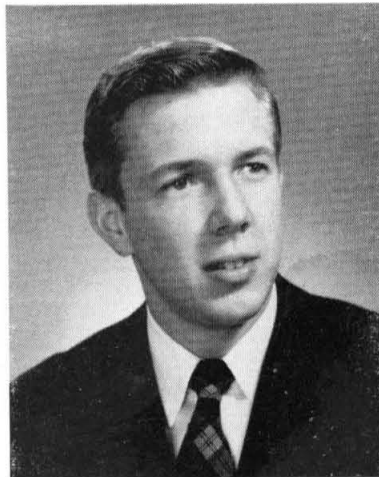
FROSH

The first meeting of the class of '52 at Camp Radford was more than an outstanding success. The three day vacation was largely given over to seminars to acquaint the students with the Profs and the policies of Caltech. Professor McCreery introduced the customary policy of homework by giving us our first history assignment at camp. Officers for the first term were appointed: Dave Hanna, president; Bert Snider, Vice-President; Bob Davis, Secretary; and Jim La Fleur, Athletic Manager, thus starting the class off as a team.

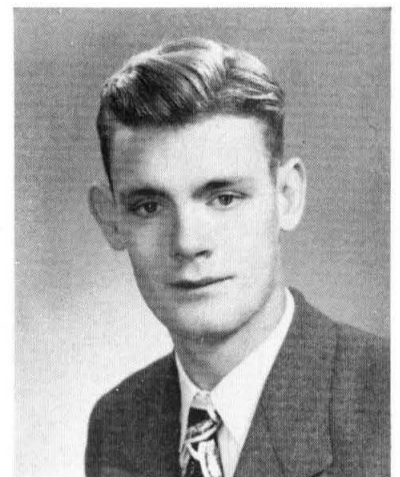
Owen Dallakoff



Dick Jones



Leon Michaelson





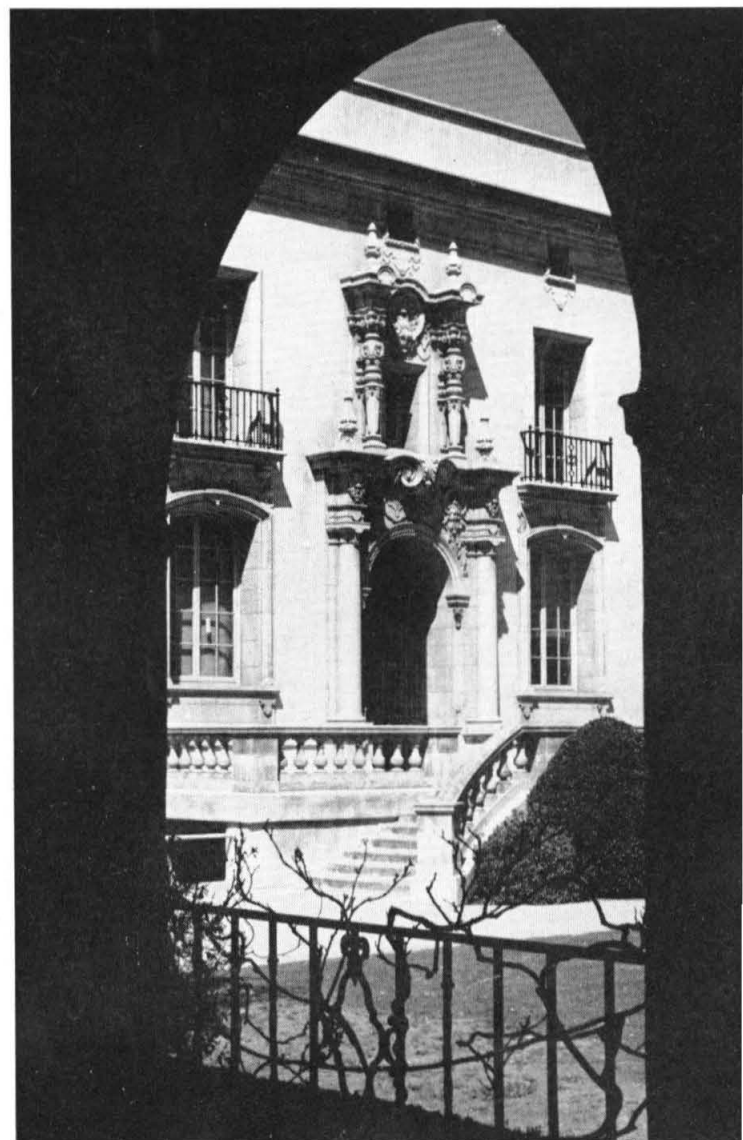
The first week the Frosh Class rotated the four campus houses. After securing our permanent pits we were indoctrinated into the houses, serving terms as the Blacker Bow Ties, the Liechtenstein Navy of Ricketts, the Four A.M. Gym Team of Fleming, the Dabney Flyers, and the Brown Beanies of Throop Club.

After the formal initiation we united in a glorious, but alas, fruitless effort to subdue the Sophs in the Mudeo. A week later we grimly financed the Soph-Frosh Dance which was held in Dabney Lounge.

The climax of the football season led to our traditional rally before the Oxy game. The Frosh were enslaved as guardians of the bon-fire, keeping successful watch far into the night.

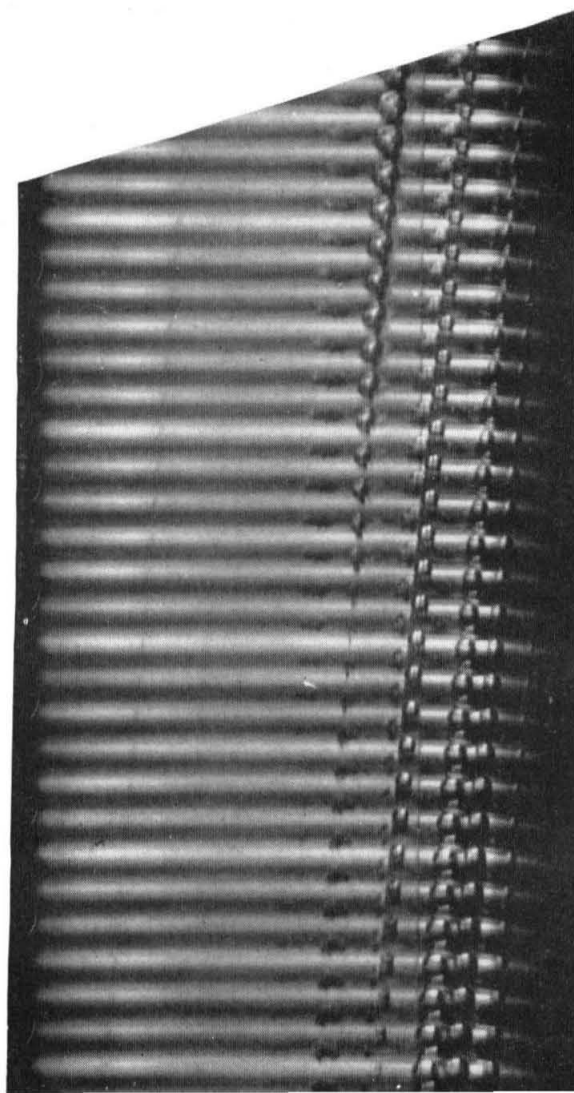
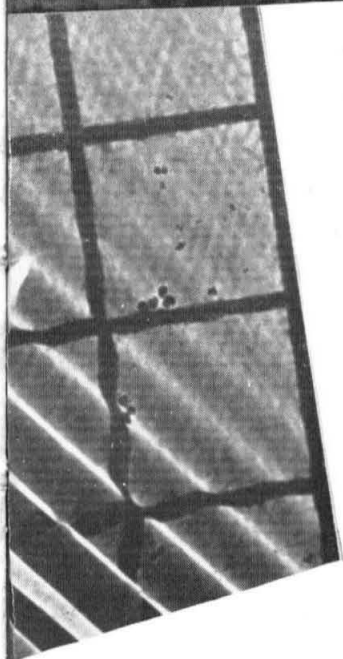
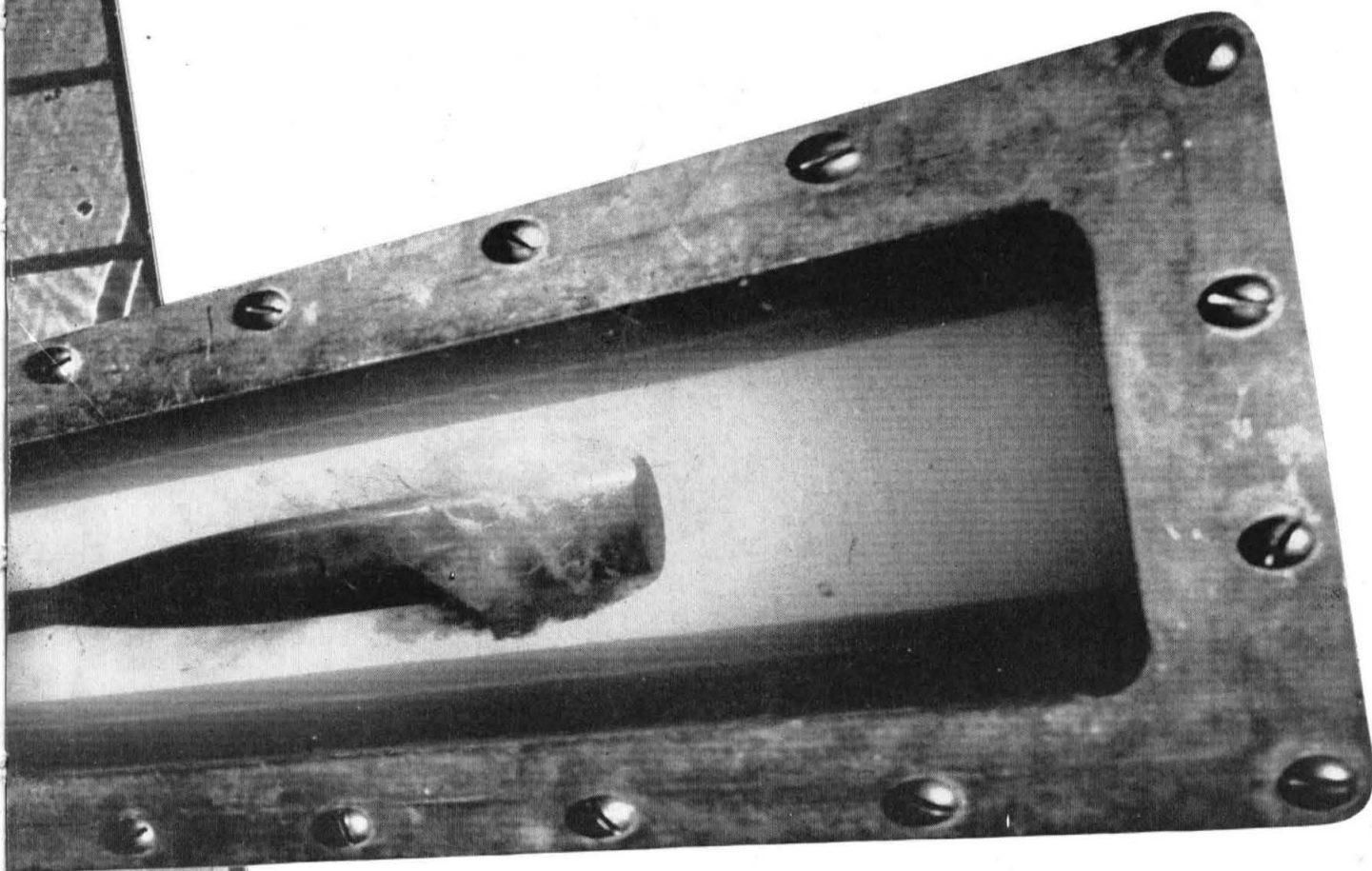
The second term activities involved the election of Frosh Officers: John Noble, President; Owen Pallakoff, Vice President; Dick Jones, Secretary; Leon Michaelson, Athletic Manager; and Jack McEwing and Jim Ross, members of the Board of Control.

The New Frosh Committee planned an eventful third term with a riotous Frosh stag given April Fools' Day and a spring picnic later in the term.





HYDRODYNAMICS LABORATORY—CALTECH



ACTIVITIES



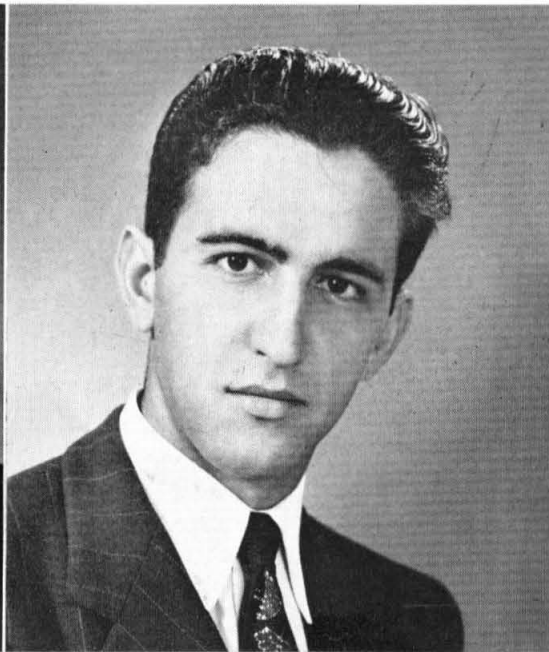
STAN BARNES, PRESIDENT

BOARD OF DIRECTORS

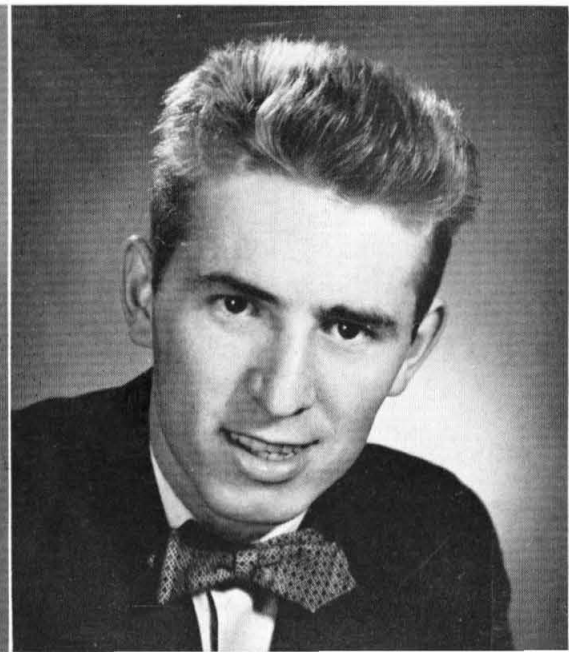
DENNIS LONG, VICE-PRESIDENT

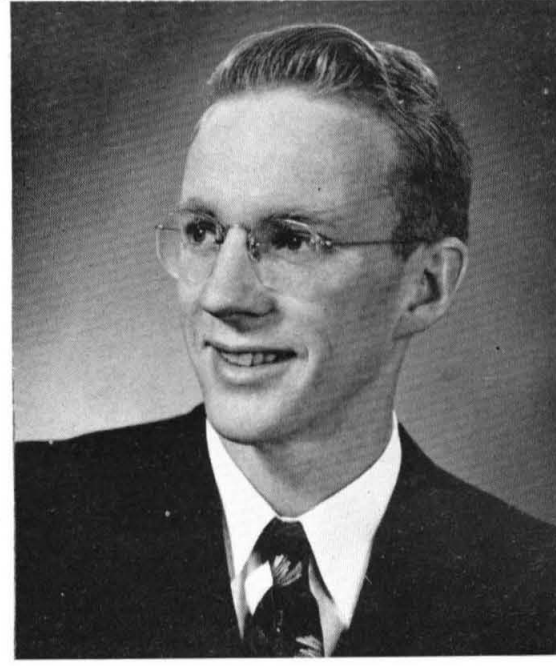
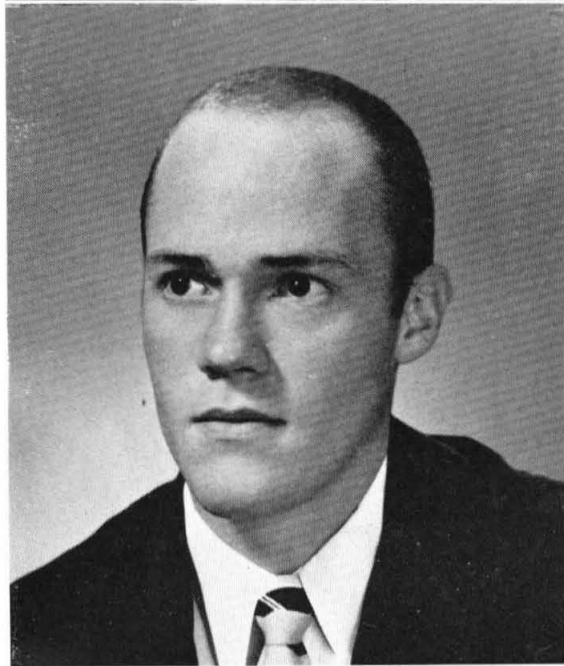
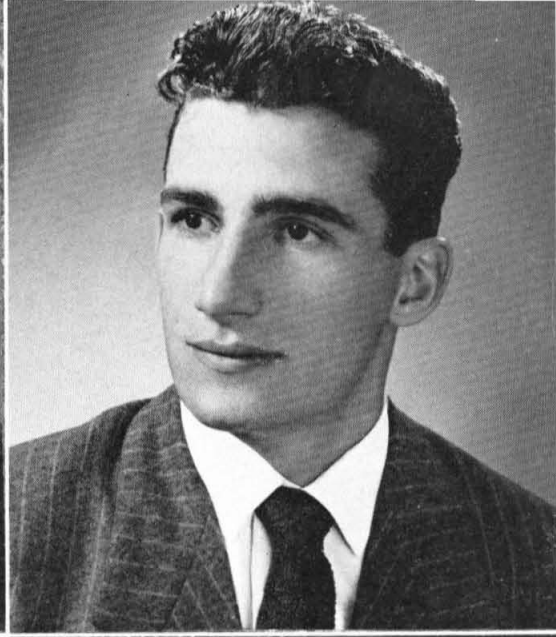
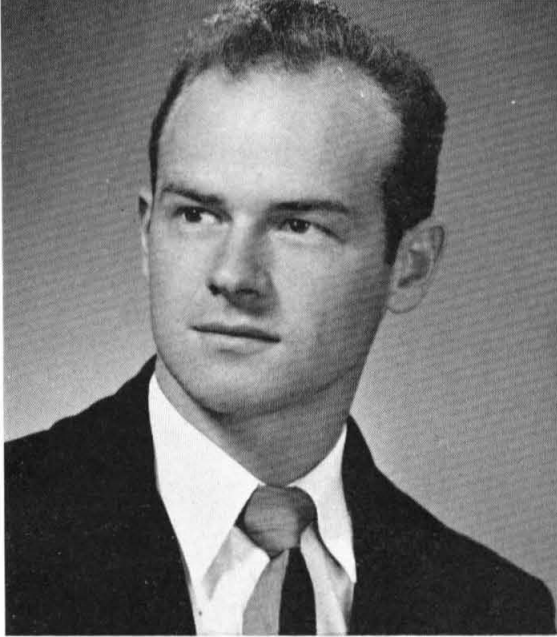


STAN BOICOURT, SECRETARY



HUGH CARTER, TREASURER





CARL PRICE, FIRST REPRESENTATIVE; OLLIE GARDINER, SECOND REPRESENTATIVE; JOHN KARIOTIS, ATHLETIC MANAGER
FRED WOOD, RALLY COMMISSIONER; RALPH LOVBERG, PUBLICITY MANAGER



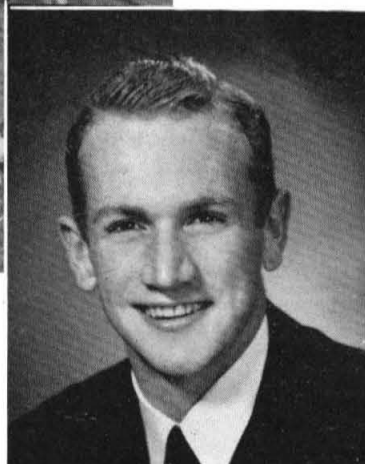
BOARD OF CONTROL



The Board of Control is charged with protecting the Honor System at Caltech. Presided over by the Vice President of the ASCIT, the Board consists of eight men, two from each class, elected directly. This year Dennis Long served as Chairman.

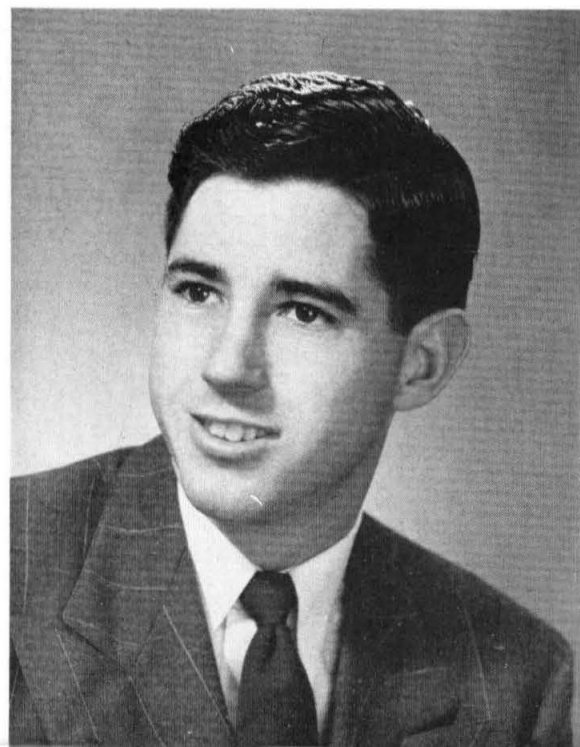
BILL PALMER, JIM ROSS, STAN BOICOURT, BOB CRICHTON, STAN BARNES, DICK KING, JOHN FEE, JACK McEWING, DENNIS LONG

DENNIS LONG, CHAIRMAN



THE LITTLE T

The 1948-49 edition of the Little t, official handbook for the Caltech student body made its debut at Frosh Camp last September, and was distributed to all undergraduates on registration day. Containing such vital statistics as a student index, facts about campus life, an honor point list, and the ASCIT by-laws, this year's pocket-size edition of who's who and what's what on campus was written and edited by Earl Hefner.



COURT OF TRADITIONS

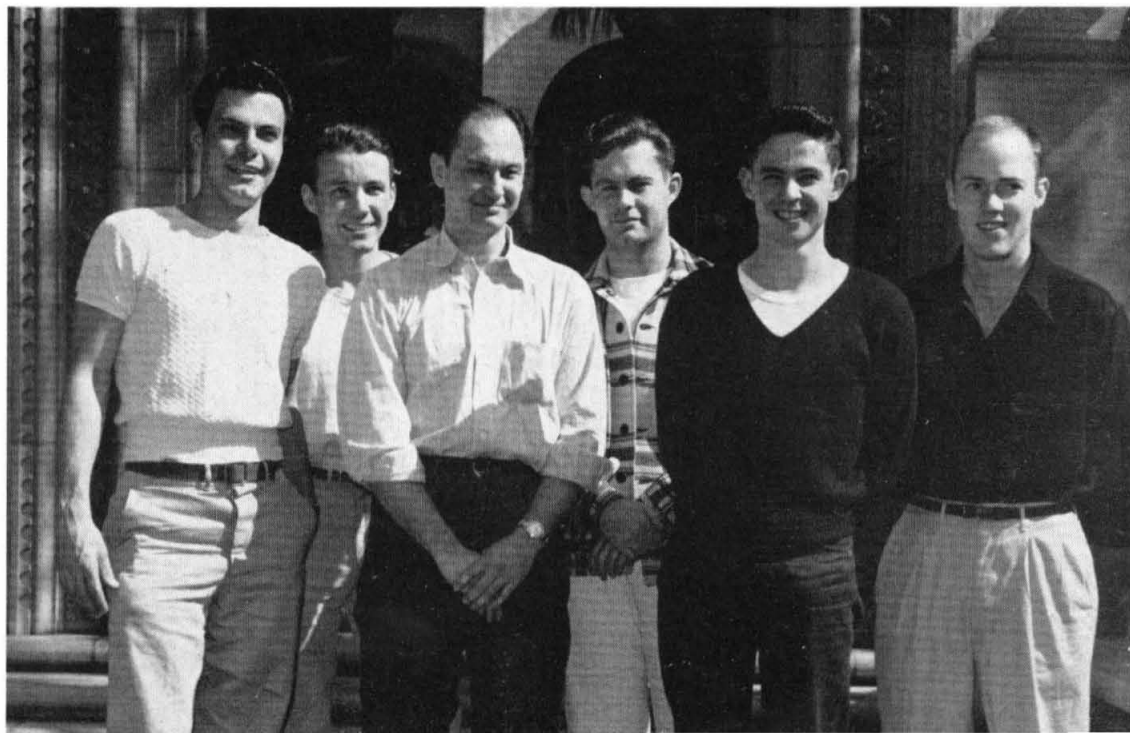


The Court of Traditions, like the traditions it was originally formed to protect, is fast becoming a tradition itself. Self regulation among the students in the matter of respecting the school's honored traditions has made the work of the Court of Traditions almost unnecessary, and the group can say of itself, "They govern best who govern least."

ELECTION COMMITTEE

JOHN NOBLE, DICK KING, CHAIRMAN BOYD GAGE, WALT MUDGETT,
BOB COBB, FRED WOOD

The Election Committee has the direct duty of arranging and printing the ballots for all ASCIT elections, supervising the actual voting, and tabulating and publishing the results.





PUBLICITY MANAGER LOVBERG AND COMMITTEE

The Publicity Committee is charged with obtaining publicity for the various Student Body activities. This includes all athletic contests, social functions, etc. The most important duty is that of keeping the local papers informed of the results of all athletic contests.

PUBLICITY COMMITTEE

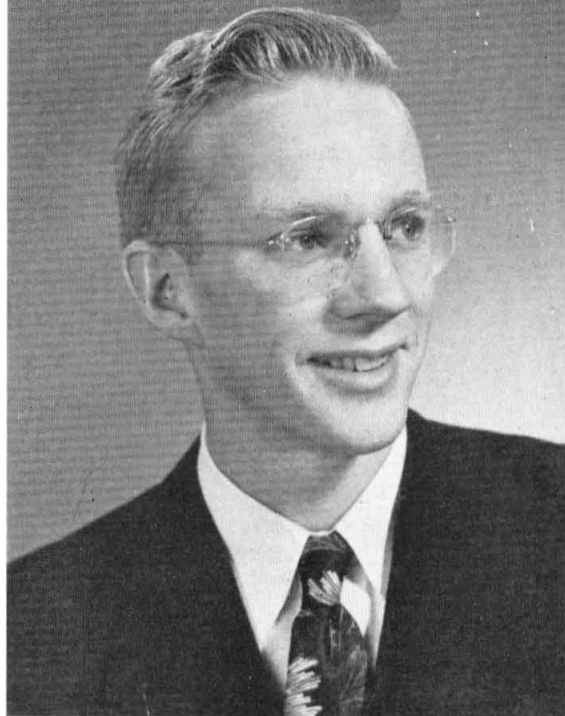
BERT SNIDER, MIKE SELLEN, BOB STEWART, KENT STRATTON, FRED WOOD

RALLY COMMITTEE

The Rally Committee has done a creditable job this year. The functions over which they have presided are—Pajamerino—all pre-game rallies—the Friday assemblies and also the exchange assemblies with Oxy and Redlands.



NEW



OFFICERS

PRESIDENT-ELECT RALPH LOVBERG



BACK ROW: STAN GRONER, BERT SNIDER, JIM HENDRICKSON, BILL FREED, NOEL REED,
OLLIE GARDNER
FRONT ROW: JOHN FEE, RALPH LOVBERG, DAVE MacKENZIE

CALTECH



HOWARD B. LEWIS, '23
PRESIDENT

Under the direction of President Howard Lewis, the Alumni Association extended the vigorous program which has characterized its growth during the past few years. Starting with Alumni representation at the Student Camp for freshmen and new students, and continuing with the Wednesday afternoon Placement Discussion Series, the Alumni evidenced an increasing interest in the student body and student life. The Placement Discussion Series, with informality as a keynote, brought prominent Alumni in a wide variety of fields to the campus to discuss with students the type of life and the opportunities available in these fields. The publicity and arrangements on campus for this series were handled by the Beavers. The Alumni Placement Committee also provided the faculty with a list of Alumni who agreed to serve as placement consultants for students with vocational problems.

DR. DONALD S. CLARK, '29
SECRETARY

JOSEPH W. LEWIS, '41
VICE PRESIDENT



ALUMNI ASSOCIATION

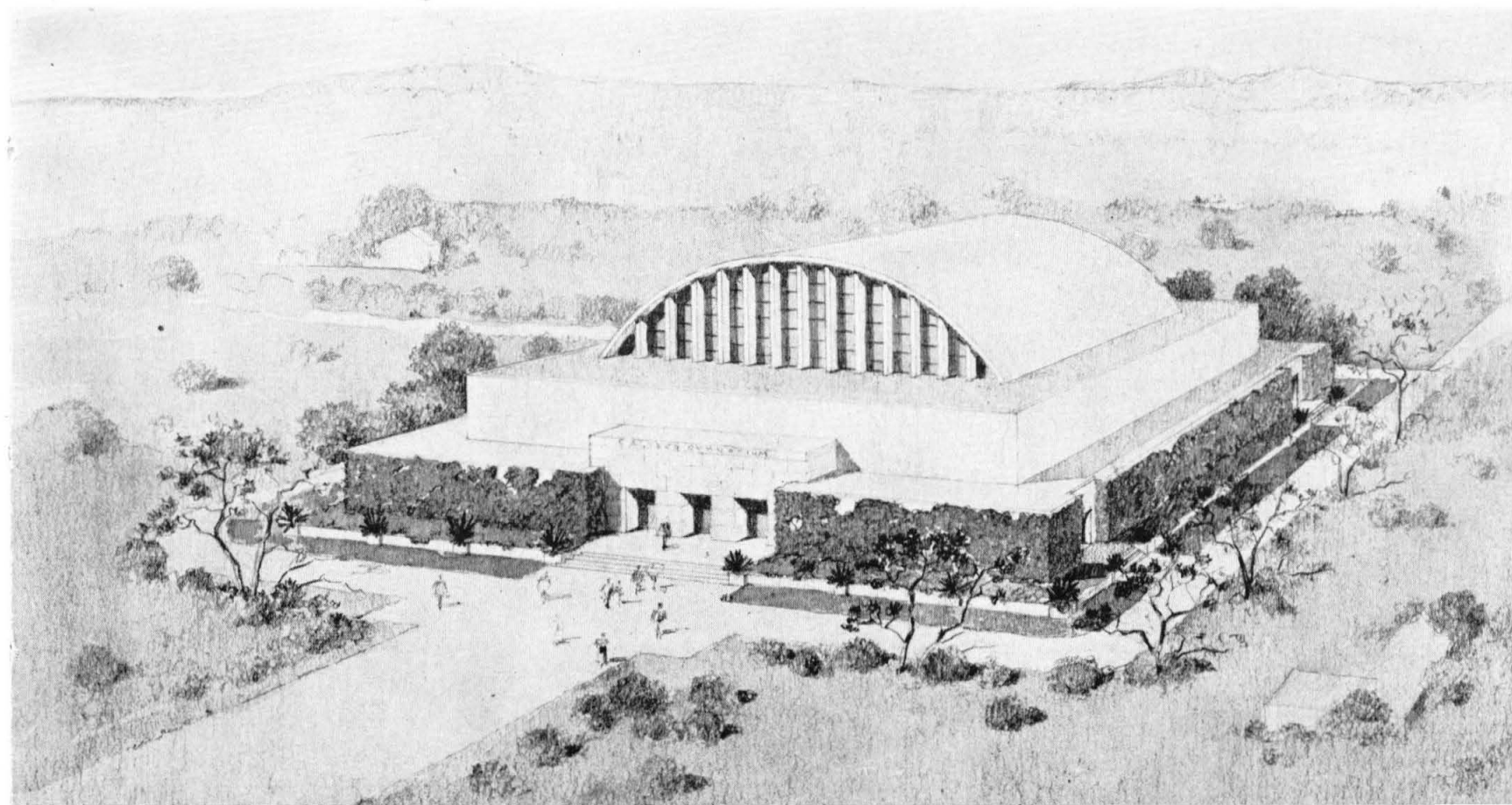
The Class of '49 paced the Alumni Fund drive this year with its generous gift. The Class of '49 is thus the first class to have one hundred percent of its members contributing to the Fund. The Alumni Fund, started last year, has as its immediate objective a gym for Tech; the success of last year's drive led to an intensive and successful campaign this year. The continued support of this important and ambitious undertaking of the Association will assure a gym for Tech in five years.

Many opportunities for fun and fellowship were afforded by this year's numerous social functions. The social program included a field trip to Palomar, monthly dinner meetings, dances, a theatre party, and the annual seminar day. The Alumni Chapters in San Francisco, New York, Washington, and Chicago were also very active, holding dinner meetings, and aiding the Institute in its admissions program.

The activities of the Association and personal items about its members were reported monthly by the Alumni magazine, **Engineering and Science**, which also carried articles on current research and activities at the Institute.

The Alumni program for the year was climaxed by a joint Alumni-Student Body dance at which the Class of '49—newest Alumni to be—was challenged to match its one hundred percent gift to the Alumni Fund with a one hundred percent membership in the Alumni Association.

Architects drawing of proposed Caltech gym. The Alumni Fund has brought a Caltech gymnasium out of the dream stage.



BEAVERS

This year the Beavers, the campus service and honor organization, engaged in an increased number of activities in support of the student body. The Student Camp, which was Beaver organized and managed, proved to be the most successful of any held so far.

Following this, the annual Pajamerino was sponsored in conjunction with the Rally Committee. The Athletic Office was assisted throughout the year by obtaining referees for the Interhouse games, ticket-takers for intercollegiate games. The Guide Service, under the capable direction of Carl Fox, extended the hospitality of the Institute to many guests from the outside world. Two new services were initiated during the year. The first of these was an organized program of visiting Southern California high schools. Over forty-five high schools from Antelope Valley to Santa Ana were visited by Tech men. The Wednesday afternoon series of discussions by prominent business men was held in co-operation with the Alumni Association. Over twenty of these were held, telling Tech men about all phases of business and engineering.

This was the first year of faculty membership in the Beavers. The plan proved to be very successful, as the informal meetings removed the barriers between undergraduates and faculty. The officers for the year were Bill Woods, President; Dick Schuster, Vice-President; Hugh Carter, Treasurer; Don Shepard, Secretary.

FIRST ROW: DICK SCHUSTER, BILL WOODS, BILL RUMER, HUGH CARTER, DAVE BROWNE, JOHN FEE, DON SHEPARD, JIM HENDRICKSON

SECOND ROW: RALF ERICKSON, WALT PFEIFFER, DICK KING, DEAN L. W. JONES, CHESTER STOCK, RICHARD JAHNS, JACK OTTESTAD, DON ROYCE, BILL MUEHLBERGER, DAVE HAYWARD

THIRD ROW: LEIGH SHERIFFS, DON HIBBARD, BILL KARZAS, DAN MARKOFF, PAUL SALTMAN, CARL FOX, FREDERICK LINDVALL, STAN BOICOURT, MR. HARRIS, RALPH LOVEBERG, DAVE BARON

FOURTH ROW: FRED WOOD, STAN BARNES, BARRY SCHUYLER, BILL BARBAT, BOB BENTON





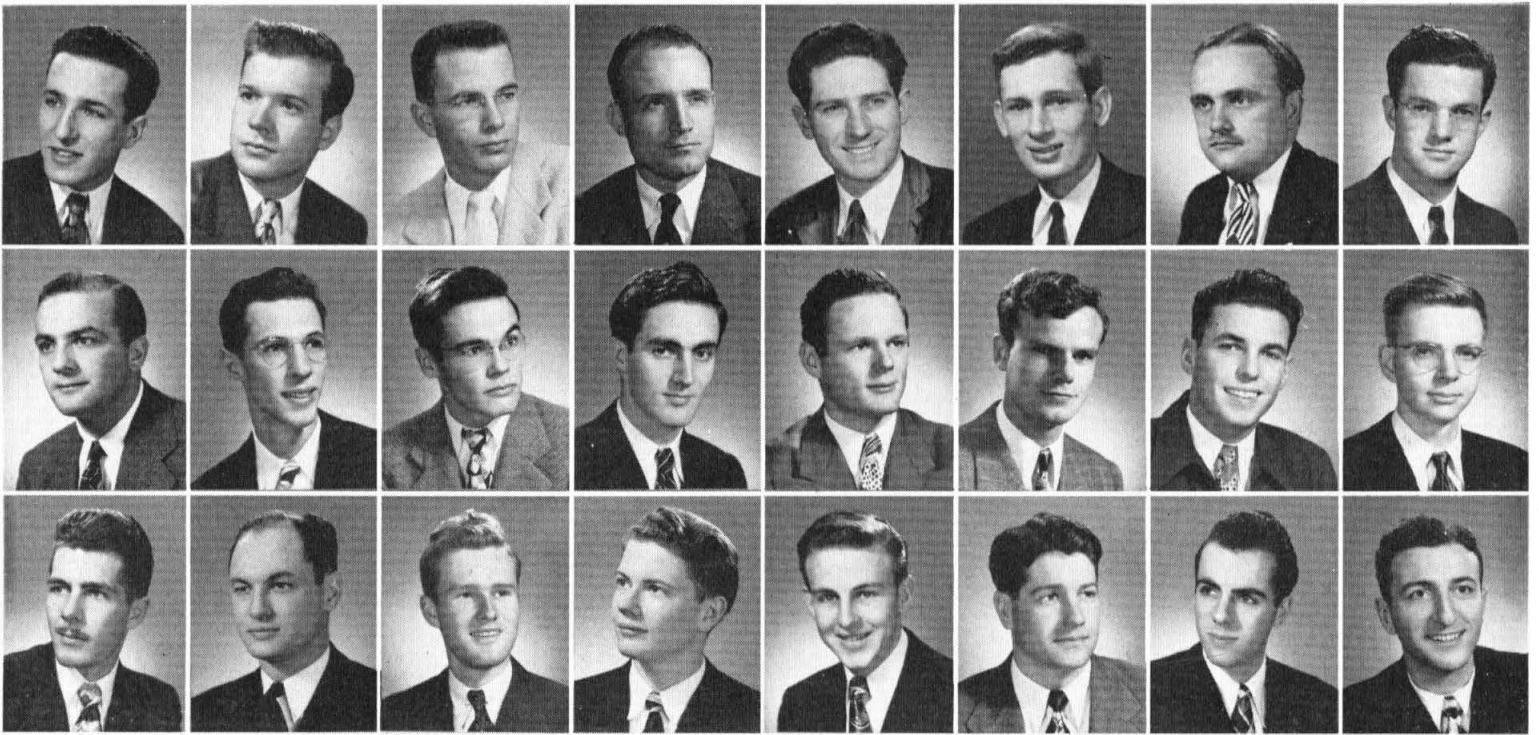
INSTITUTERS

A newcomer this year among Caltech organizations is the Instituters, designed to fill a need existing on campus for a group which is able and willing to be of service to the Institute and student body. Its purpose is to provide able students who have expressed an active interest in Tech for the many varied tasks which crop up continuously in the activities of the school.

Organization is by the student houses, each one having a representative to the executive committee, which determines the organization's functions.

Membership is open to any student interested in serving the ASCIT, and is beneficial in two ways, in that it acquaints the student with more of the aspects and functioning of the Institute and the same time accomplishes a useful purpose.

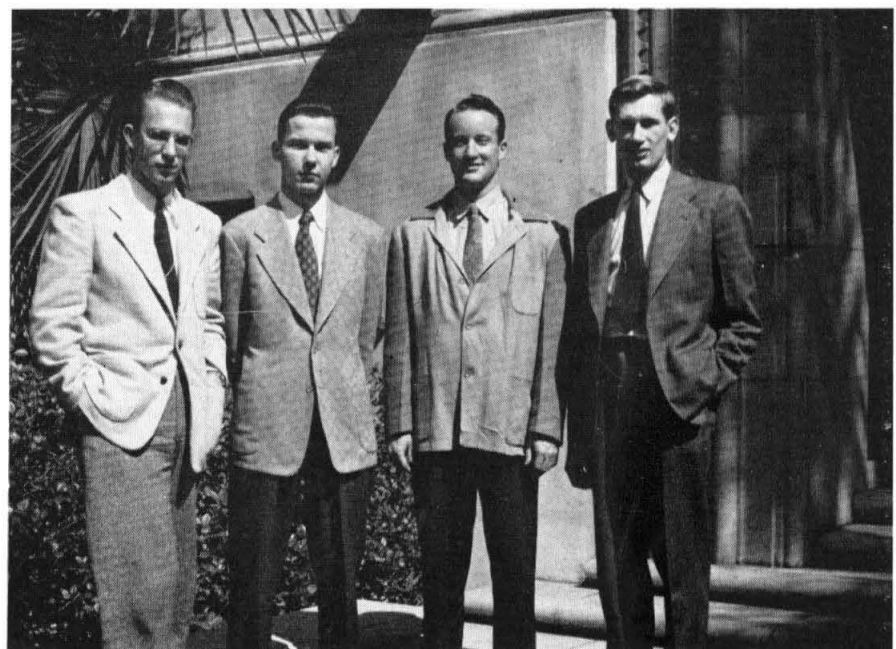
Helping with the preparations and dismantling for such events as the Pajamarino and Election Rally, providing spotters, etc., for track and crosscountry meets, making posters, and constructing a new "Assembly" sign started the Instituters off on their first two terms of existence.



EDWARD ALEXANDER, JOHN ANDRES, STAN BARNES, LAWRENCE BAUMANN, GALT BOOTH, GEORGE BOWEN, FRANKLIN BRADY, JOSEPH CANTWELL
 ALVIN COHEN, FERNANDO CORBATO, RICHARD CORNELIUS, WILLIAM COX, WARREN DANIELSON, RAY DAVIS, ALBERT ESCHNER, KEN FAMULARO
 CARL FOX, BOYD GAGE, JAMES GERHART, LESTER GOODWIN, ROY GOULD, PAUL HARRIS, JARVIN HEIMAN, WALTER HIRSCHBERG

Tau Beta Pi is an honorary fraternity which asks into its ranks students from the top eighth of the junior class and the top fifth of the senior class. In addition to scholastic requirements, prospective Taubates must show an ability to get along well with other people and an interest in other fields than their own. In short, members of Tau Beta Pi must possess those qualities necessary to a successful engineer or scientist.

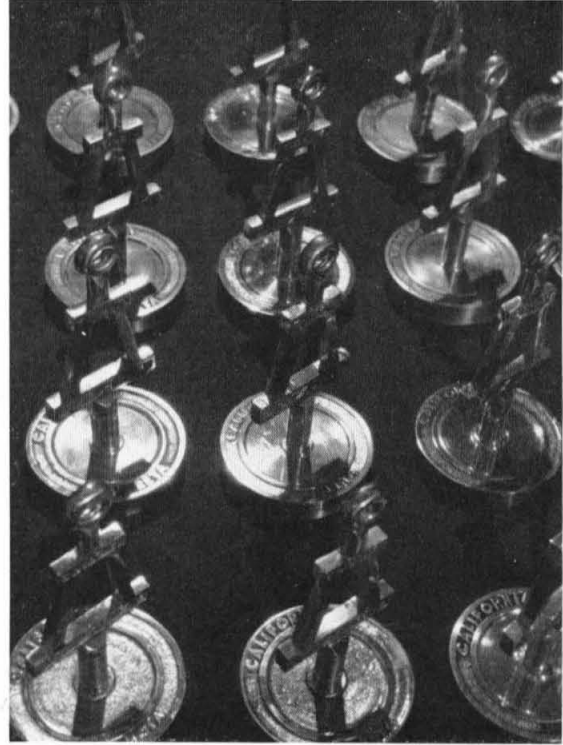
JIM HUMMEL, HARDY MARTEL, KENT TERWILLIGER, GEORGE BOWEN



TAU BETA PI

Caltech's chapter of Tau Beta Pi spent this year under the able leadership of President Kent Terwilliger and Vice President Robert Stappler. The other officers were George Bowen and Hardy Martel who took over the jobs of Corresponding Secretary and Recording Secretary. The chapter's money was handled by James Hummel.

Active this year, as last, the Taubates again ran the instructor-rating poll, a program designed to improve the instruction at Caltech, as well as maintaining their free tutoring service. On the social side, the Taubates held a semi-formal dance in the spring to honor the retiring officers. Two initiation banquets were held for the new pledges.



DAVE HOGNESS, JAMES HUMMEL, JEROME JACOBS, WALTER JOHN, WILLIAM KARZAS, RICHARD KING, CHARLES KNIGHT
 F. KRASIN, CLAUDE LANE, DAVID LIBERMAN, HENRY LONG, RALPH LOVEBERG, JOHN MARSHALL, HARDY MARTEL, MERLE MORGAN
 WILLIAM MYERS, IRVING ODGERS, WILLIAM PALMER, BYRNE PERRY, RONALD QUANDT, WERNER RIESENFELD, MARVIN RUDIN, CLEMENT SAVANT
 MIKE SELLEN, WILLIAM SIMONS, VIRGIL SIMS JR., ROBERT SINKER, DON SIX, KENT TERWILLIGER, DONALD TRYK, THOMAS TURNER
 VICTOR VAN LINT, THAD VREELAND, ROBERT WALQUIST, MARTIN WALT, ROBERT WATERS, JACK WHITE, HUGH WOODBURY, ESEL WORRELL



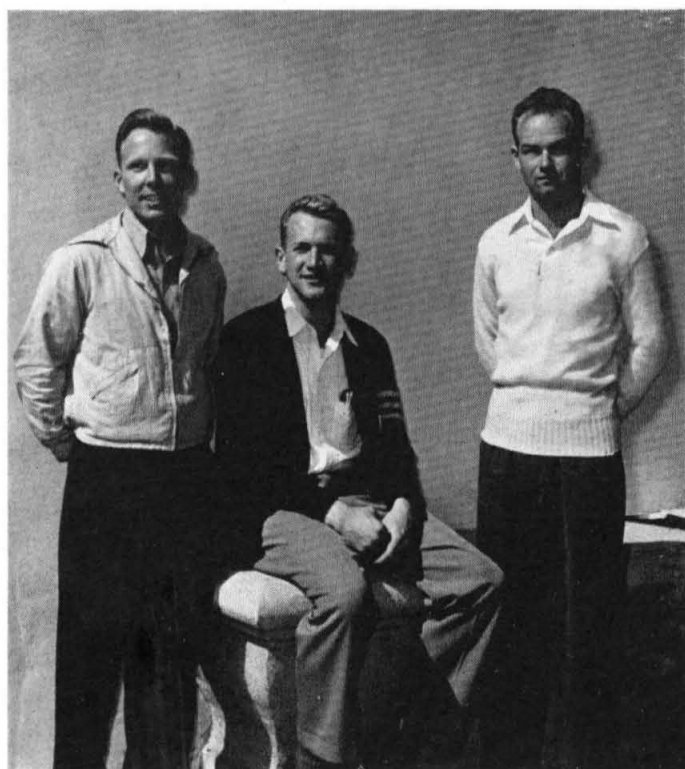


STAN BARNES, STAN BOICOURT, BILL BRADLEY, E. J. BROWN, THORNE BUTLER, HUGH CARTER, MILTON CARUS
 AL. ESCHNER, O. GARDNER, BOB HAUFE, ERLE HEFNER, WAYNE HERZIG, BRAD HOUSER, JIM HUMMEL
 JOHN KARIOTIS, BOB KURLAND, DENNIS LONG, ULRICH MERTEN, WALT MUDGETT, BILL PALMER, CARL PRICE
 PAUL SALTMAN, DICK SCHUSTER, MIKE SELLEN, CHAS SHALLER, CHARLES STEESE, BILL WOODS, FRED WOOD

HONOR KEYS

At the end of every school year the Honor Key is awarded to students who are outstanding in their participation in extra-curricular activities. The Key is awarded to men who have demonstrated their willingness not merely to be "joiners" but those who have taken an active part in campus organizations.

The Honor Point Committee has been set up to review the application of prospective recipients. Those men not receiving enough Honor Points to receive the Key receive an Honor Certificate.



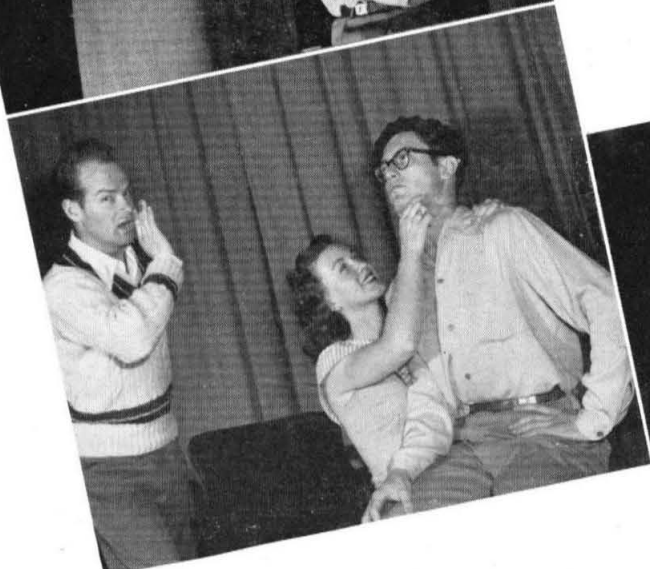
HONOR POINT COMMITTEE:
 O. GARDINER, D. LONG, C. PRICE



JIM LAFLEUR, ALEX DESSLER, CHAS SHALLER, JESSE WEIL, SHIRLEY DEAN, DAVE OAKLEY, JIM HENDRICKSON
 GEORGE ABELL, HELEN STABLER, STU GOLDMAN, BRAD HOUSER, GLORIA MURPHY, JIM HUMMEL, CARL FOX, CARL PRICE, ETT PARKER

DRAMA CLUB

This year the traditional classic play was discarded by the Caltech Drama Group, and a hilarious presentation of Caltech was enthusiastically received by an appreciative audience. The play, "Maid in the Iceplant" or "Beethoven, Bananas and Beer" was written by Tech's dean of thespians, Carl Price. Bubbling with scintillating wit and jibes at several members of the Institute's staff, the play had everything needed for success, not the least of which was Gloria Murphy.



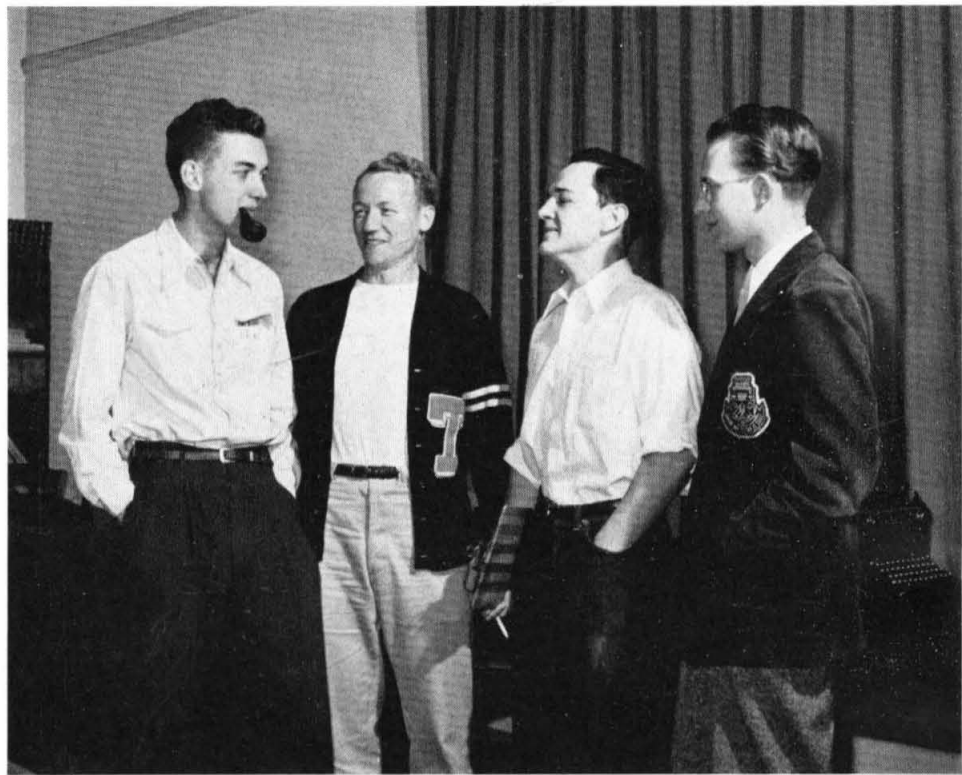


THE 1949

EDITORS: MALANOSKI, ACTIVITIES; SHALLER, SPORTS; MUDGETT, HOUSES.

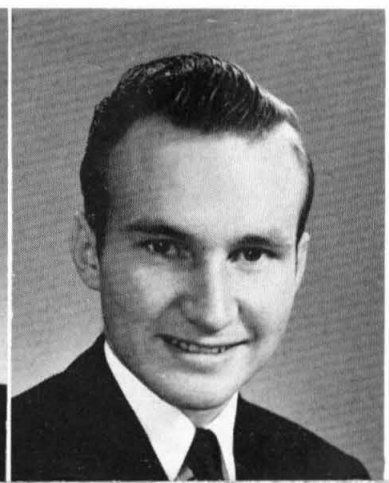
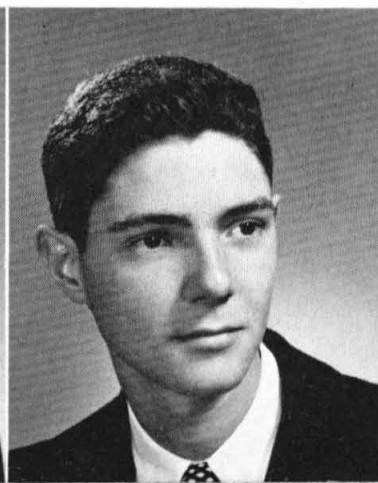
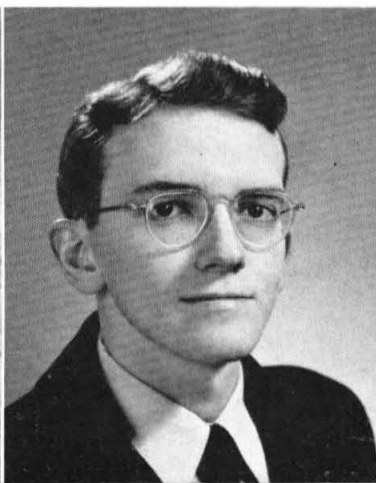


EDITOR, BOB HAUFE



EDITORS: ANDERSON, CLASSES; E. J. BROWN, SENIORS; MOORE, DIVISIONAL; HUMMEL, FACULTY.

ERIC JOHANSON, MANAGING EDITOR; HUGH STODDART, PHOTOGRAPHY EDITOR; JON GOERKE, ART EDITOR; MILTON CARUS, BUSINESS MANAGER.



BIG T



STAFF: JON GOERKE, SHALLER, STEESE, MUDGETT, BOB HAUFE, BRUCE STOWE, NEAL HURLEY.

A local philosopher once said that a Caltech education "Begins in confusion and ends in despair." This year's Big T, true to the above, had a career of confused despairation.

Taking for its theme the Institute's research laboratories, including those located off-campus, the Big T has Section Title Pages designed by Hugh Stoddart, depicting several of these projects.

The faculty section was edited by Jim Hummel; Classes, Carl Anderson; Seniors, Erle Brown; Activities, Toni Malanoski; Houses, Walt Mudgett; and Sports, Chas. Shaller. The book is encased in a cover designed by Jon Goerke, this year's Art Editor, and Editor-in-Chief-Elect of the 1950 Big T. Last year's high standard of photography was maintained by the Photography Editor, Hugh Stoddart.

Milt Carus, as Business Manager, was responsible for the financial condition of the book. The editorial reins of the publication were held by Editor-in-Chief Bob Haufe.



BUSINESS STAFF OF THE 1949 BIG T.

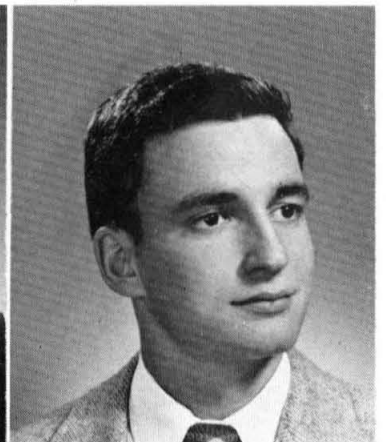
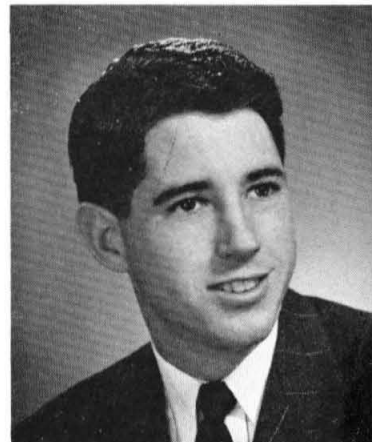


BRUCE STOWE, ALEX DRAPES, BOB HAUFE, BILL WRIGHT, LEE ROSS, CHARLES STEESE

CALIFORNIA TECH



JIM HUMMEL, EDITOR

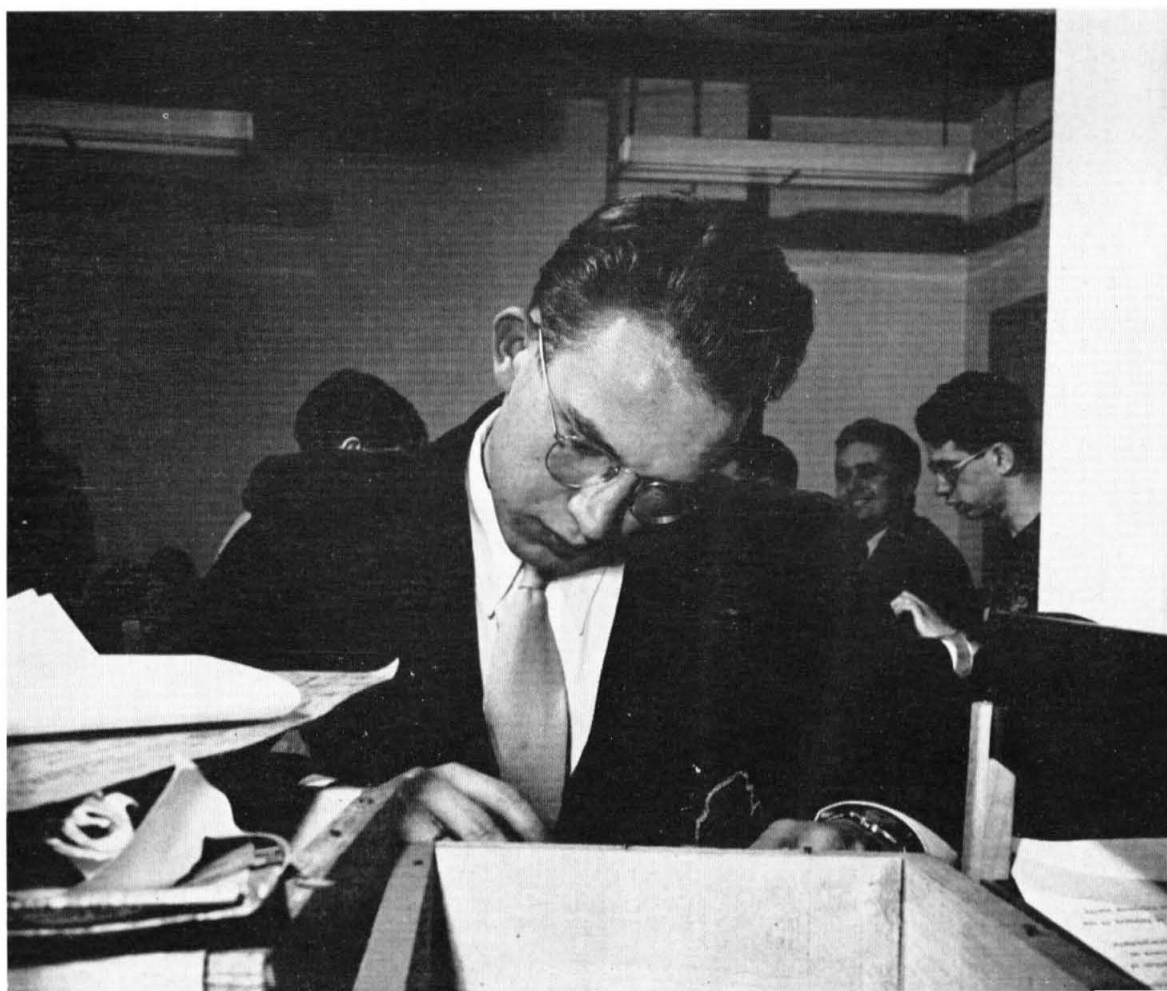


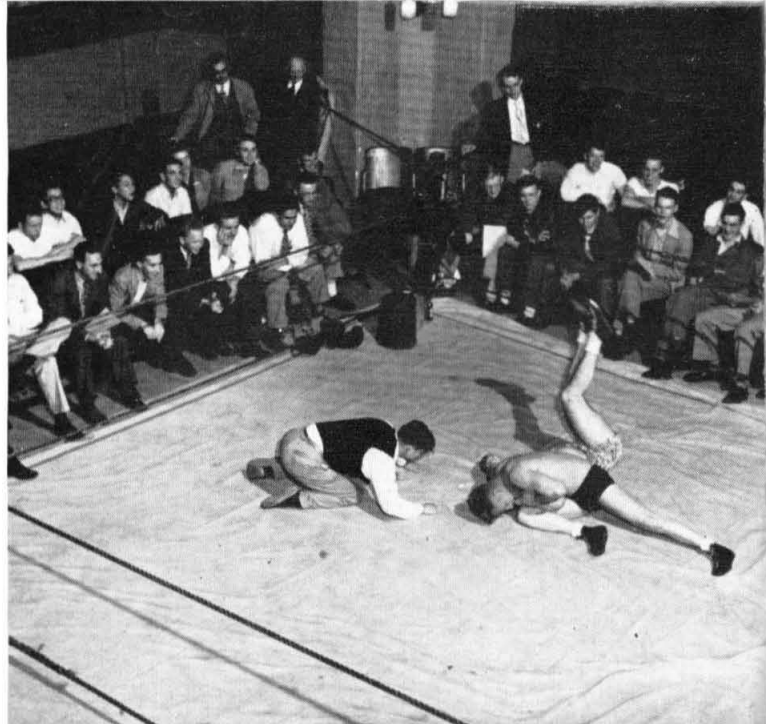
ERLE HEFNER, MANAGING EDITOR; BILL BRADLEY, BUSINESS
MANAGER



BUSINESS STAFF: WIN SOULE, CHARLES STEESE, BILL BRADLEY

The student weekly newspaper, the **California Tech**, made thirty appearances this past year, thanks largely to Editor Jim Hummel, a hard-working staff, and business manager Bill Bradley, who turned in his second consecutive year as chief ad-getter. The staff of close to forty men, consisted of reporters, copy and rewrite men, photographers, feature writers and others who did a little of everything. The news sheet continued as a six-column paper with four or six pages each week, depending upon the amount of news and advertisements. With a large share of the present staff returning next year, prospects for the **Tech** in '49-'50 look very bright.







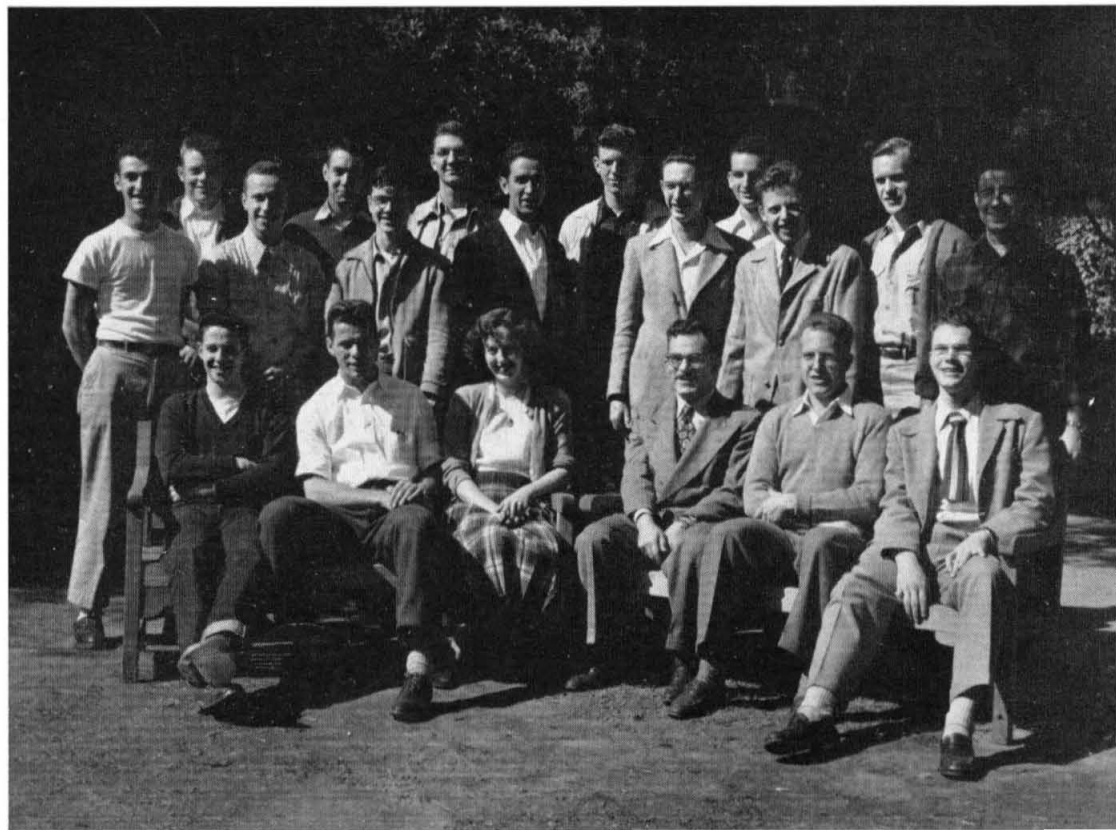
VERN EDWARDS, BOB CRICHTON, JOHN FEE, HARRY BEGG, WES HERSHEY

Y M C A

The Caltech YMCA can well be proud of its work here on campus.

Under the student leadership of Housman, Edwards, Crichton, Begg, and Fee and completing its third year under the capable guidance of Wes Hershey, the "Y" has continued to grow in its influence on student life here at Tech.

By a fine program of Forums, Faculty Firesides, Lunch Clubs, Radio Round Tables, Religious Fellowship Groups, and the many other activities and services that it provides, the "Y" has done well in continuing its purpose to supplement the academic program of the Institute by stimulating and aiding men to grow in spiritual and ethical insight.



SITTING: BOB COBB, VERN EDWARDS, "SIS" STABLER, WES HERSHEY, JOHN FEE, L. BAGGERLY. STANDING: BILL KARZAS, JOHN LEWIS, GEORGE COOKE, BOB CRICHTON, BJERKLIE, FRED DRURY, STAN BOICOURT, DICK LIBBY, BOB SMITH, LES. EARNEST, PETER KNOEPFLIER, HARRY BEGG, JACK McEWING

MUSICALE



THE CALTECH MUSICALE, A GROUP DEVOTED TO THE ENJOYMENT OF FINE MUSIC.

GLEE CLUB



LAURIS JONES, DIRECTOR OF GLEE CLUB AND ORCHESTRA

FIRST ROW: JONES, BATES, DOOLIN, CURRAY, MOORE, EILENBERG, HUMMEL, DENTON
SECOND ROW: BAIER, SWEET, MERTEN, VANLINT, RINEHART, GREEN, PREVOST, STEESE, DAILY, BELLMAN





FRONT: TAYLOR, HECHTIN, CALLEY, VANLINT, DAVE JOHNSTON, DAN APPLEBY, WALTER JOHN, ELLIOT
 REAR: C. R. GATES, W. B. RIESENFELD, M. B. CARUS, BILL HAEFLIGER, SOUX, DE GRASSE, DENTON, WEIL, L. JONES, BIELER, BELLMAN, DIXON, SELLEN, FOSSIER, SAMPSON, BEGG, MAX MATTHEWS, AL ESCHNER

ORCHESTRA

BAND

RUEL MERCURE, JR., BOB TERRIERE, PAUL ARMSTRONG, PAUL THONN, JR., DICK BARTLETT, BOB BARNES, BOB HOWARD, BOB DeGRASSE, DON SIX, RAY HEGGLAND, CHAS. BATES, TOM CONNOLLY, MAX MATTHEWS, JESSE WEIL, MIKE SELLEN, BOBB LAFF, WAYNE HERZIG, SAMPSON, STONG.





SITTING: LARRY DYER, J. V. ROLYK, J. WALTERS, O. GARDINER, JOHN SHUTZ, ADVISOR, TOM VREBOLOVICH, STAN GRONER, DICK FAIRALL

FIRST ROW: LEO BREIMAN, KEEPES BRUCE, ULRICH MERTEN, BERNARD RUDIN, RALPH STONE, RICHARD BROWN, LESTER GOODWIN, CLEM SAVANT, BOB SMITH, FRED WOOD, DAVE MacKENZIE

SECOND ROW: BERNARD SHORE, JOHN ROGERS, RICHARD WEEKS, D. E. CALLEY, PAUL KIDDER, JAMES KENNEY, JOSEPH BEEK, ERNST GEHRELS, W. BEEBE

At Stockton, at Bakersfield, at U.C.L.A., and at Redlands, Caltech's debate squad made itself known this year. Both in size and in quality the group was exceptional, and the result was that the team brought back honors from every tournament it attended.

Between tournaments, the debaters gave exhibitions before various men's clubs and school organizations, gaining much valuable experience from these encounters. Especially memorable was the Caltech-Oxy exhibition debate given in Occidental's women's lounge.

The honorary debating fraternity, Phi Kappa Delta, continued

to grow under the leadership of its President and Vice-President, Bernard Rudin and Leo Breiman.

The big event of the year was the Caltech Invitational Tournament which was attended by about two hundred students from schools throughout California, Utah, and Nevada. The meet was the second annual event of its kind and proved to be a great success.

With the able coaching of Dr. John Schutz and Tom Vrebalovich, many of the underclassmen in the group showed great improvement during the course of the year. These men insure the continued strength of the squad during the next few years.

DEBATING

RADIO CLUB

Confusion moved in as the Radio Club took over its new quarters in 401 Bridge. The mass of equipment was completely inoperative at the start of the year. Roy Gould's transmitter was especially frustrating; the metallic monster defied the skill of every radio ham on the coast, both singly and collectively. By the end of the year, however, through the efforts of Bob DeGasse and others, the ether was disturbed on various bands.

Many new members showed up without tickets. Code practice procedures were established, and most of these new members are well on their way toward earning amateur licenses.

This year the club has shown considerable development. Although there is a lack of licensed men, because of the war years, there is every indication that there will be many licensed hams in the following years. The Club now has permanent quarters and quite a rig.

ROBERT MADDEN, ROY GOULD, WILLIAM McLELLAN, ERNST GEHRELS

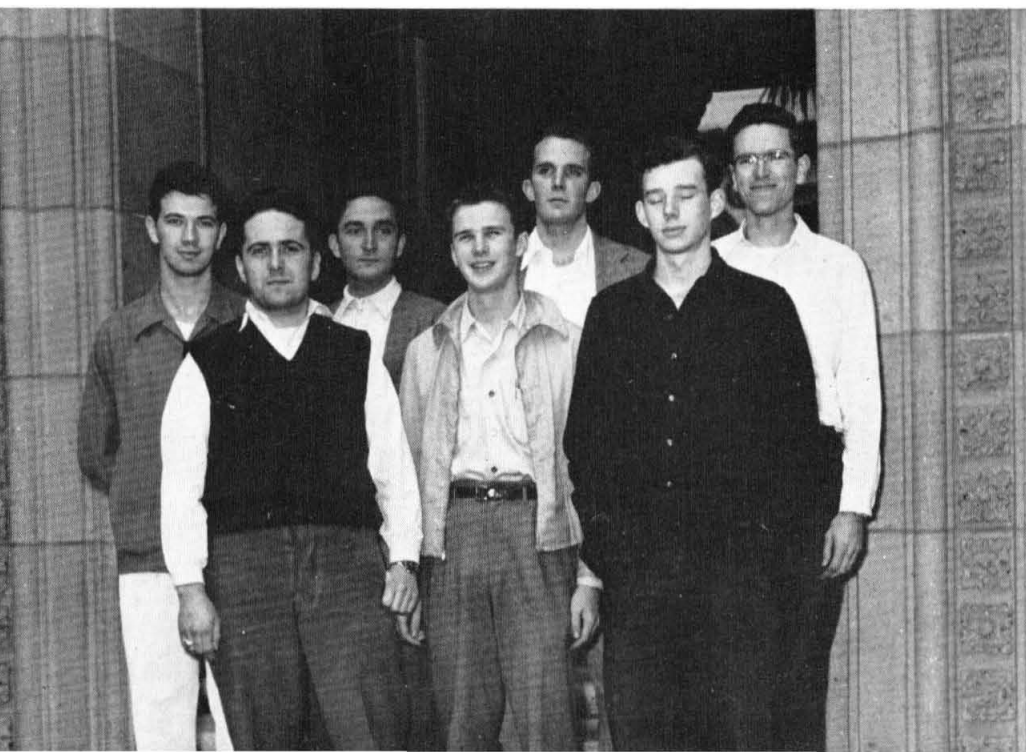


MATH CLUB

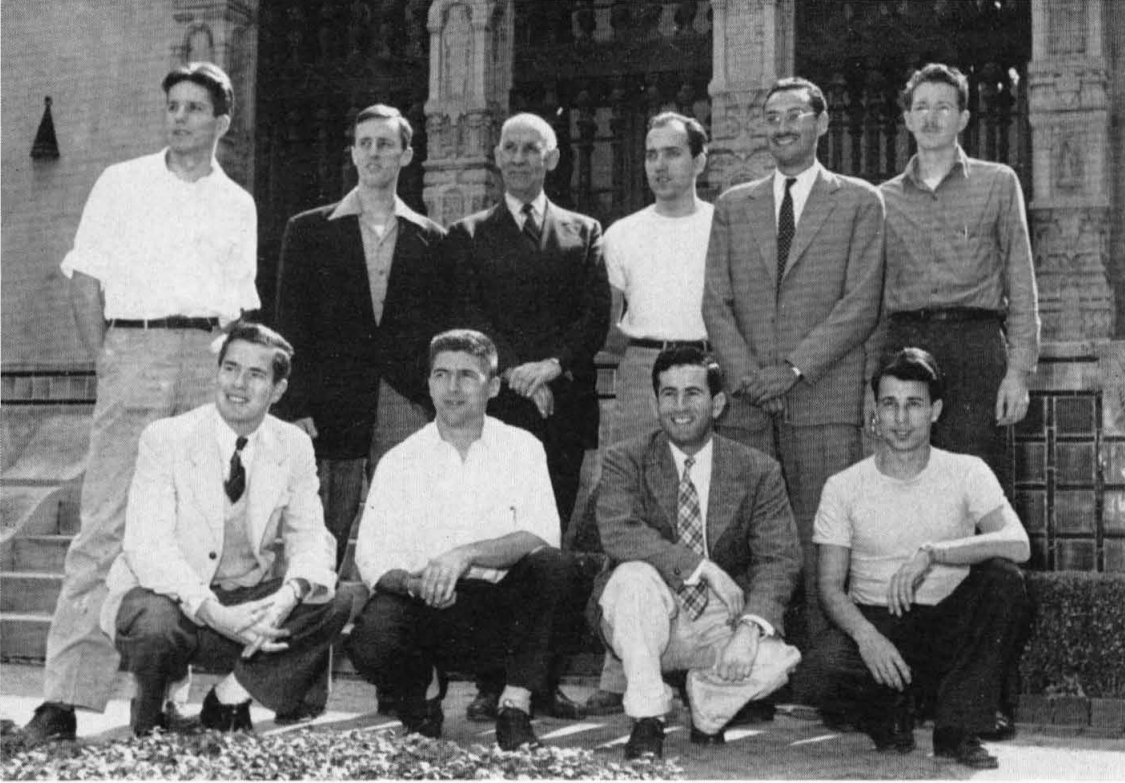
FRONT ROW: D. A. LIBERMAN,
W. B. RIESENFELD, D. H. COOPER,
S. A. ZWICK, CHAIRMAN.
STANDING: R. G. HEYNEMAN,
D. W. BRATTON, H. A. FORRES-
TER, S. P. COOK, J. A. HUMMEL,
M. LIPOW.



BIOLOGY CLUB



Among its many activities this year, the Biology Club participated in the Spring Field Trip, traveling to Lower California with Dr. Went and other members of the department to study the flora of that region.



CHEM CLUB

FIRST ROW: SID GIBBONS, BILL BAILY, RALPH LUTWACK, AARON FLETCHER.

SECOND ROW: DAVE HOGNESS, FRED SELLECK, PROF. LUCAS, TONY MALANOSKI, GERALD SICHEL, McKEE.

CALTECH STUDENT CHAPTER, AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS.



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A S C E

FRONT ROW: DAN MARKOFF, DENNIS LONG, RAYMOND DAVIS, JOHN RICHARDS, JOHN HEATH, DAVE BARON, GENE SIX.
 SECOND ROW: BRUCE HEDRICK, CHUCK KNIGHT, ART BRUINGTON, DAVE BROWNE, CHUCK FORESTER, BILL TAYLOR, GEORGE PETZAR, JOE DOBROWOLSKI, BILL PYLE.
 BACK ROWS: ROBERT PARKER, DARRELL HALE, FRANK DARLING, JOHN KARIOTIS, WALLACE BARNES (FACE OBSCURED), DWIGHT SCHROEDER, DAVE POWELL, JAY MONTGOMERY, BILL VICKEREY, MURRAY BORNSTEIN, MARSHALL POND, DICK PATTERSON, CECIL DRINKWARD, DON JENNINGS, ABE GEORGE, DEAN BLANCHARD.

ASME

FIRST ROW: ED. ALEXANDER, W. E. ARCHER, R. MYERS, BILL HARRIS, T. W. ROSE.
 SECOND ROW: CARLOS BEECK-NAVARRO, DEAN RAINS, CRAIG MARKS, KEITH KOHNEN, WELDON BERGREEN.
 THIRD ROW: S. FONG, BILL SIMONS, ERLE BROWN, HENRY FASOLA, FRED ADLER.
 FOURTH ROW: MR. CHIVINS, JOE CANTWELL, ROBERT KERMEEN, CHESTER ORR, ALLAN SAUNDERS.
 FIFTH ROW: HENRY SHAPIRO, DICK WRIGHT, WAYNE HERZIG, JAMES KENNY.
 SIXTH ROW: WILTON WEBSTER, FRANK HYLTON, PROF. HOLLANDER, (HON. CHMN.), HUGH CARTER, BOB DARROW, ANDREW HARRIS.



I R E



BILL RUMER, CLEM SAVANT, L. KATZ, F. C. SCHNEIDER, E. KATZ
ROY GOULD, BURT. RUTKIN, JEROME JACOBS, RAY DAVIS, ALFRED THIELE
HARDY MARTEL, WALTER HIRSCHBERG, DR. PICKERING, MARVIN RUDIN



S A E

JOE WECHSLER, CRAIG MARKS,
BILL WRIGHT, PETER KYROPOULOS,
HENRY LONG, ROBERT DARROW

CES

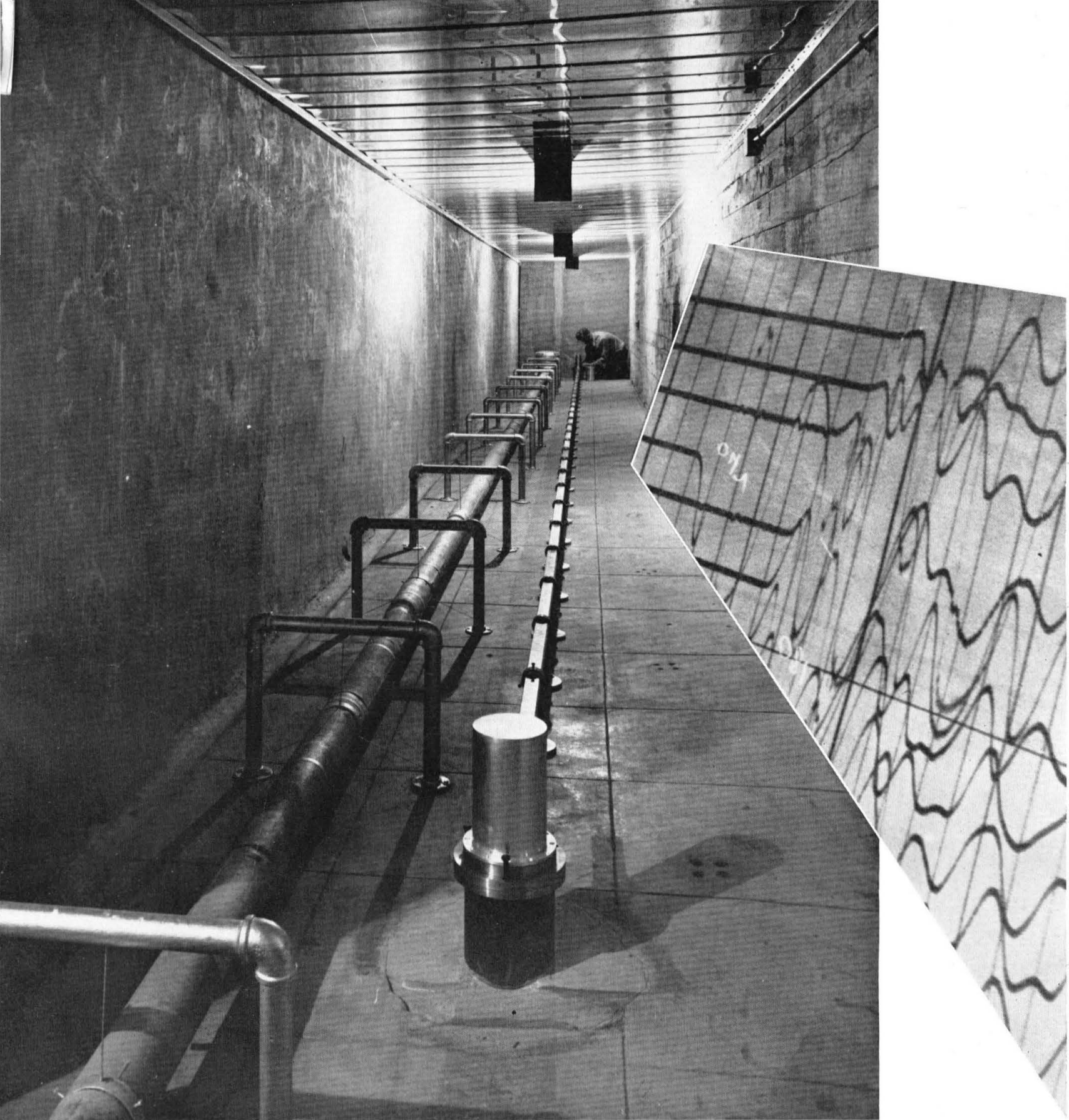
To broaden the scope of their activities, in 1947 the professional engineering societies on campus formed the Consolidated Engineering Society. As originally conceived by Dean Foster Strong and Prof. Peter Kyropoulos, the CES was intended to give freshmen and sophomores an opportunity to learn something about activities in the various engineering fields before choosing an option.

Thus, the principal organizational function of the Society is to arrange periodic meetings, usually in the form of an hour talk by a prominent engineer. The responsibility for scheduling programs rotates among the member societies. Anyone on campus is welcome to attend the meetings.

These consolidated meetings have made it possible to obtain fine speakers who might have been reluctant to speak to smaller groups. Also, in deference to the lack of specialized interest in an audience augmented by underclassmen and engineering students of other options, the member societies have attempted to arrange programs of much more general interest than would ordinarily be scheduled.

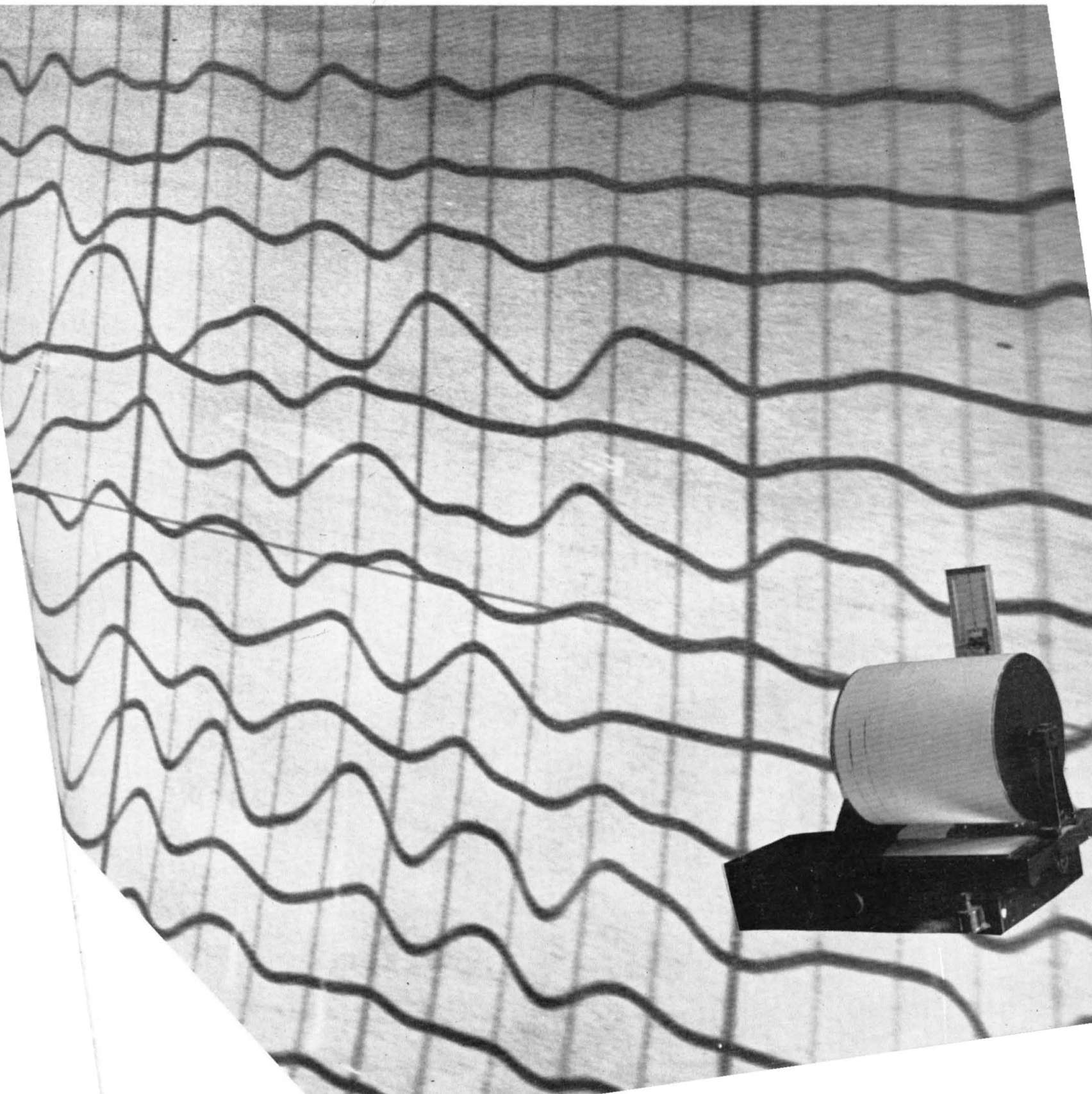
This year, the program has been particularly active, with speakers covering such varied topics as the Registration Act for Engineers, wartime radar development, a subway system for Metropolitan Los Angeles, and aircraft design development. The CES looks back on a satisfying year of constructive accomplishment.

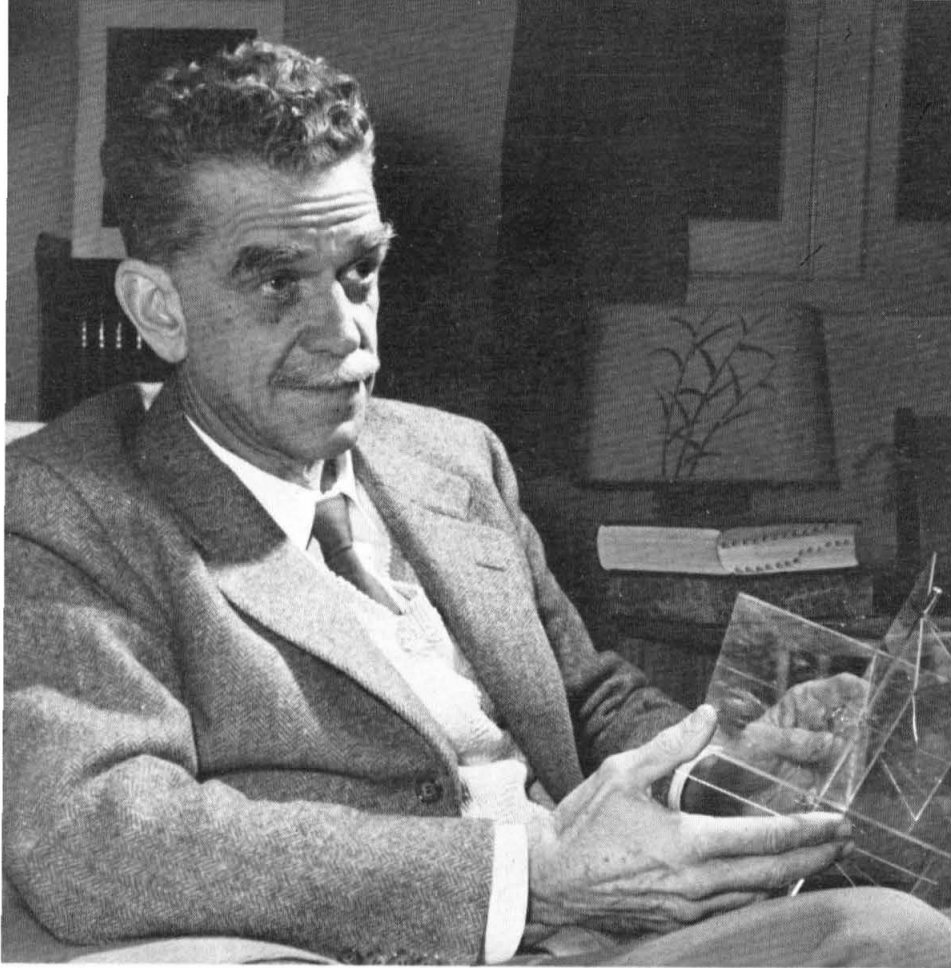




SEISMOLOGICAL LABORATORY—ALTADENA

HOUSES





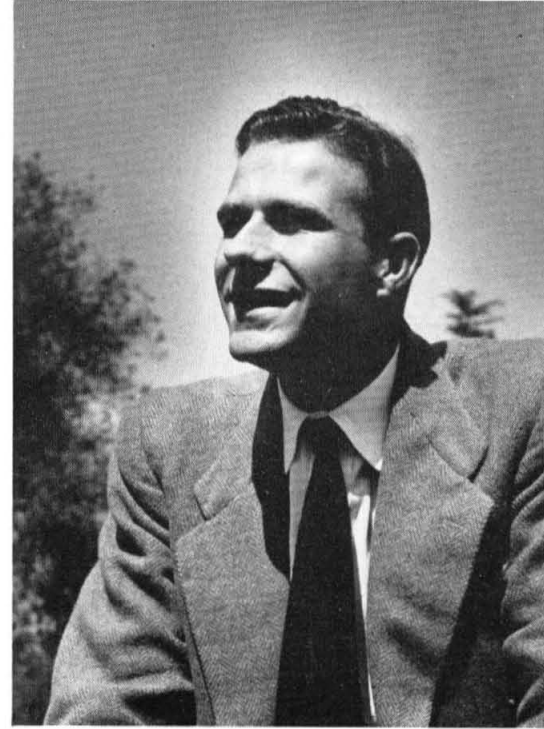
MASTER OF THE STUDENT HOUSES

THE LATE COL. E. C. GOLDSWORTHY





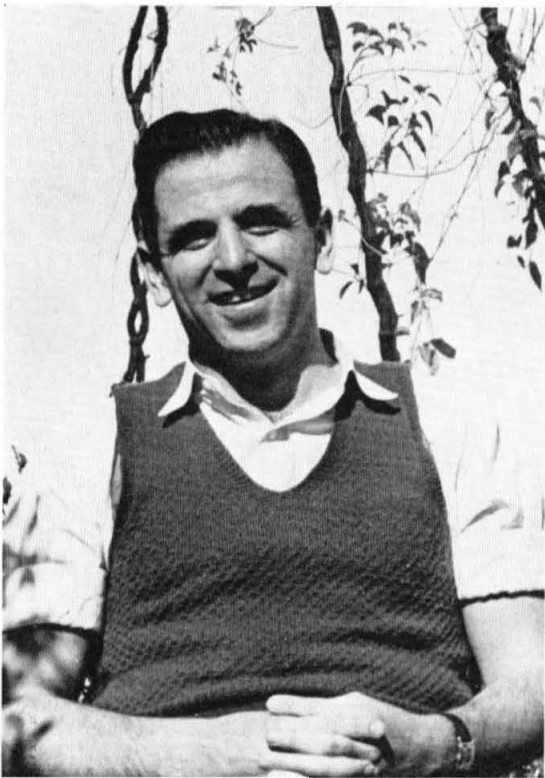
RUBE METTLER, RICKETTS



CAREL OTTE, BLACKER

RESIDENT ASSOCIATES

NORMAN BULMAN, FLEMING

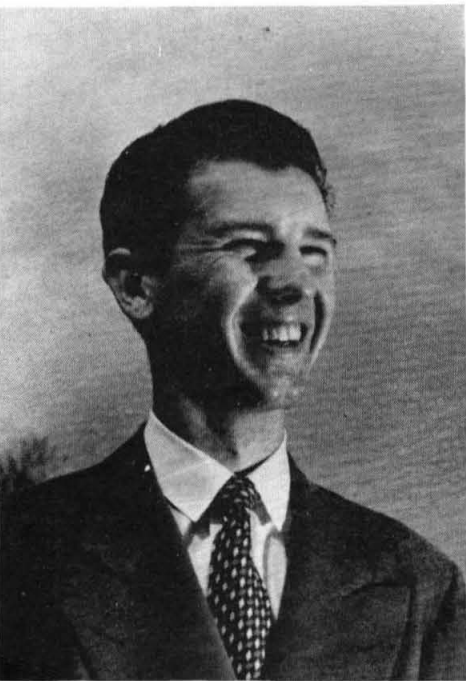


GEORGE SMITH, DABNEY



BLACKER

ART BRUINGTON



BOYD GAGE, WARREN WATERS, JOHN FEE



Blacker unquestionably set the pace for original and successful social activities this year. Hugh Stoddart was a fountainhead of artistic originality; Bill Freed, now student body social chairman, used a Hollywood background to excellent advantage, and the "name" entertainment came running.

The fabulous, never-to-be-forgotten-in-a-thousand-years Interhouse dance was more on the order of a combined earth-moving, brush-clearing, flood-control operation than a dance; yet, when a thousand man-hours of labor, a hundred sandbags, acres of canvas, a month's quota of water, and untold units of elbow grease, paint, sweat, and tears were finally assembled, there it was, and it looked like Hell—literally. In fact, it was Hades in every detail from a real river Styx to a gigantic Lucifer, brooding over his domain and shooting hot electric flame from between his horns.

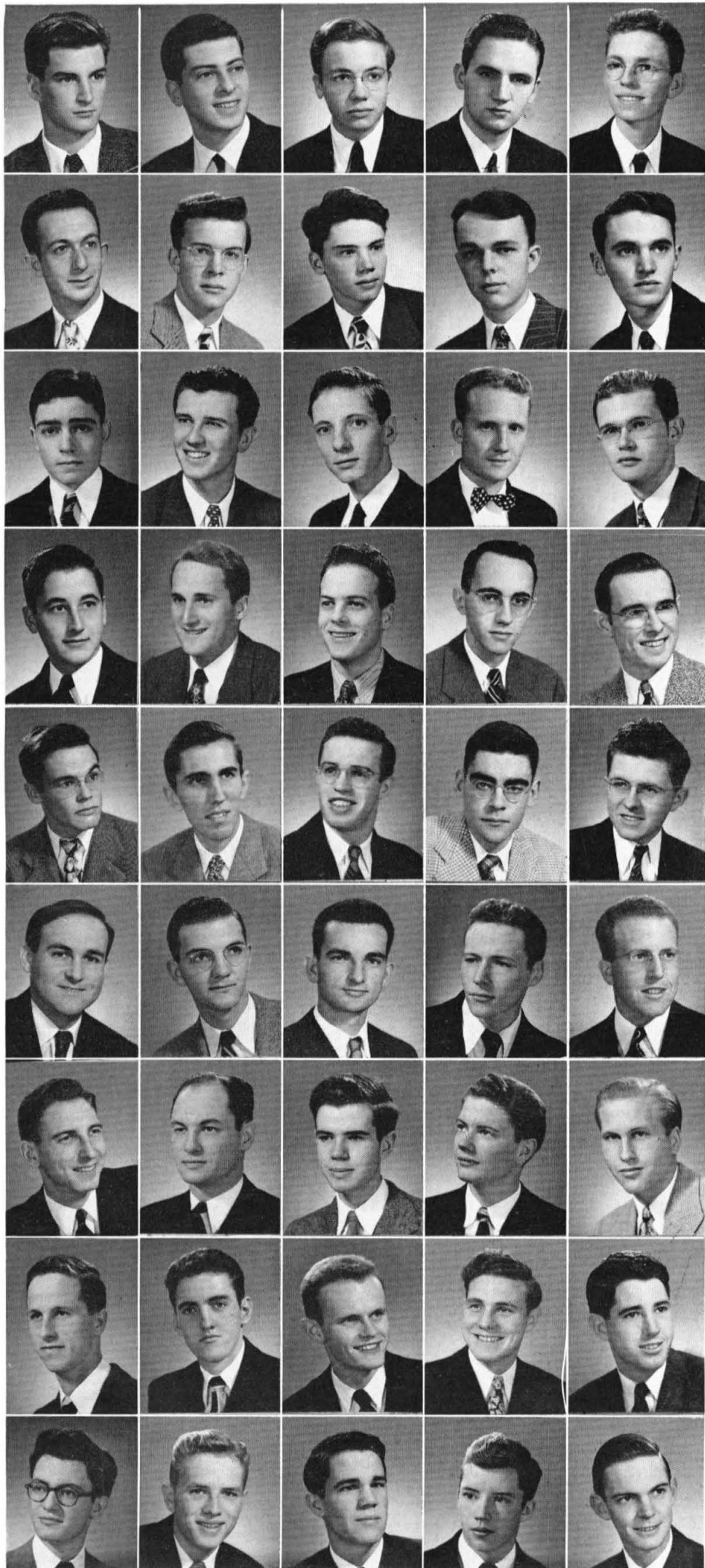
Blacker then changed from the frantic to the ethereal and sedate for the Christmas formal. Soft blue lights, a tall, blue-lit tree, and quiet, blue music lent charm and peace to the Yuletide season. Again, a sudden change of pace, and Blackermen found themselves beginning second term amidst clouds of suds emanating from their favorite refreshment as they fought the good fight and almost defeated Fleming in the noble combat of the crew. In common parlance, such an affair has been known by the misnomer, "Barn Dance."

Then, before the snows left the high valleys—even before it had all fallen, the midnight oil burned bright for several nights while Blacker's lovers of smooth white slopes and cozy, warm fireplaces got the weekend's snaking done in advance. The three days were Elysium itself—; the scene, a chalet at Lake Arrowhead, the surroundings, seven-foot snow drifts. The pastimes—skiing, tobogganing, or spending the evenings dancing, singing, or just sitting by the fire.

Toward the end of second term came a Saturday night which saw dignified old Blacker lounge converted into a den of iniquity in the manner of the Gold Rush days. Millions changed hands across the gaming tables while the bank's rate of exchange held steady at fifty phoneybucks for a dime. Blacker toughs and their molls tossed down the apple juice at an alarming rate.

Filling in between these more noteworthy affairs was a full schedule of theatre parties, record dances, beach and mountain parties, and exchange parties with local colleges, all designed to bring to each Blacker man a maximum chance to establish himself socially.





JARED ABELL
 HARVEY AMSTER
 DANIEL APPLEMAN
 MYRON ARCAND
 FRED ARMITAGE

DAVE BARON
 RICHARD BARTLETT
 CHARLES BATES
 JOHN BOPPART
 RAY BOWERMAN

JULIAN BRODY
 ART BRUINGTON
 JOHN BRUSSOLO
 FRANK BUMB
 WILLIAM BURRIS

SHERMAN BUTLER
 THORNE BUTLER
 KYLE CATTERLIN
 HOWARD COHEN
 DUANE COOPER

RICHARD CORNELIUS
 CLIFFORD COX
 JOE CURRAY
 ART CUSE
 ROBERT DeGRASSE

WILLIAM DOOLIN
 FRED DRURY
 LESTER EARNEST
 TED EINWOHNER
 JOHN FEE

WILLIAM FREED
 BOYD GAGE
 ERNST GEHRELS
 LESTER GOODWIN
 RAY GREUTERT

STAN GRONER
 MICHEAL HALL
 ANDREW HARRIS
 JOHN HEATH
 EARL HEFNER

JIM HENDRICKSON
 CHARLES HOWARD
 JOHN HOWELL
 PETER HOWELL
 FLOYD HUMPHREY

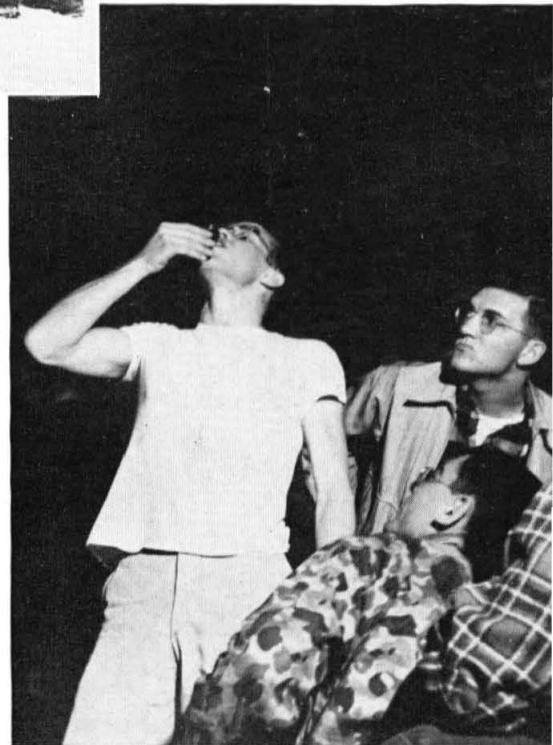


BLACKER



Vigorous Blackerites surprised the field in annexing the Interhouse Trophy Race lead with unbeaten teams in basketball and cross-country the beginning of the first term. Through the year tough competition handed the House some seconds and thirds in one of the closest Interhouse contests recorded, but Blacker fielded outstanding teams in softball, bowling, touch football, and volleyball. Memorable was the exciting play-off game between Blacker and Ricketts for the football championship—characterized by Blacker's tricky offense and Rickett's rugged defense.

Second only to Fleming in percentage of House membership on varsity teams, Blacker men have helped Tech to victorious seasons in many sports. Outstanding performances were recorded by Jack Poindexter in tennis, Pete Mason in track, Bill Palmer in swimming, and Art Bruntington in basketball.



BLACKER

The '48-'49 school year will long be remembered on the Southeast corner of the campus as a memorable one for the history of Blacker House. As never before, Blacker men rose to the call for leaders in every branch of student life; Tech Varsity and Frosh athletic teams were weighted with large representations of Blackerites, and, in a series of remarkable achievements, the house Social Committee threw together its collective genius to present the most outstanding schedule of unique and varied recreational events seen on campus in many years.

Emerging weary but happy from the wet, spontaneous initiation appropriate to one of his exalted position, jovial Art Bruington took the reins of office as President late last year, and with the aid of Boyd Gage, Warren Waters, and John Fee, proceeded to set an example for future generations of organizers to follow. Bill Palmer (of breast-stroke fame) put team after team of top Interhouse contenders on the field, while Earl Hefner, Sophomore extraordinary, moved up from his editorship of the "Little T" to take command of the "California Tech".

Spring elections were another demonstration of Blacker's leading position in Tech affairs as five of the nine ASCIT directorships went to house men. Ralph Lovberg assumed the presidency of the student body, John Fee became ASCIT Treasurer, and Bill Freed's talents as Blacker Social Chairman were amply recognized as he was elected First Representative. Jim Hendrickson took over as ASCIT Publicity Manager while Stan Groner reached the highest Freshman office, that of Second Representative.



As the second term drew to a close, the house gavel again changed hands. Blackermen threw their votes in the hat, and the nod for top office went to Fred Drury, probably the house's chief proponent of Blacker supremacy. Frank Bumb as Vice President, Dick Bartlett, Secretary, and Jack Poindexter, Keeper of the Treasury, are the remainder of the new regime.

Tibetians sit and meditate; the Scots practice thrift; the men of Blacker assume and discharge social duties with ease and competence. Boyd Gage wrought eloquent testimony to this axiom as he launched a "Get re-acquainted" program for the mutual benefit of house members and the many associates and friends of Blacker in the surrounding community. A series of enjoyable bi-weekly "guest nights" were preludes to the annual "Associates' Tea", a pleasant Sunday afternoon in the Spring Quarter when men of the house mingled socially with these friends and faculty guests.



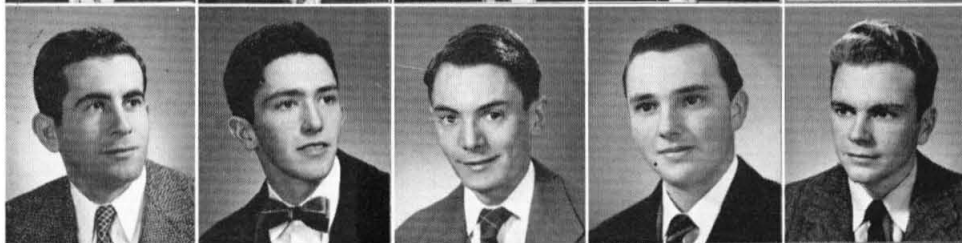
JAMES JOHNSON
ALAN JOHNSON



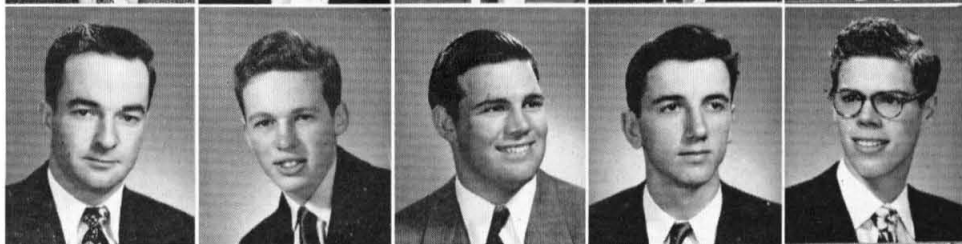
HIROSHI KAMAI
BYRON KARZAS
WILLIAM KARZAS
DALE KRAUSE
RALPH LOVBERG



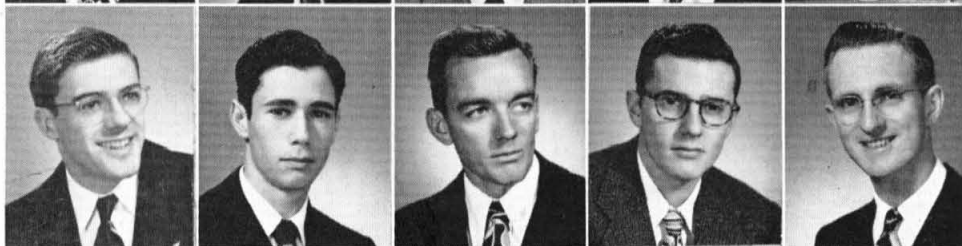
RALPH LUTWACK
JOHN MARSHALL
PETER MASON
JOHN McCOOL
JOHN McCOURT



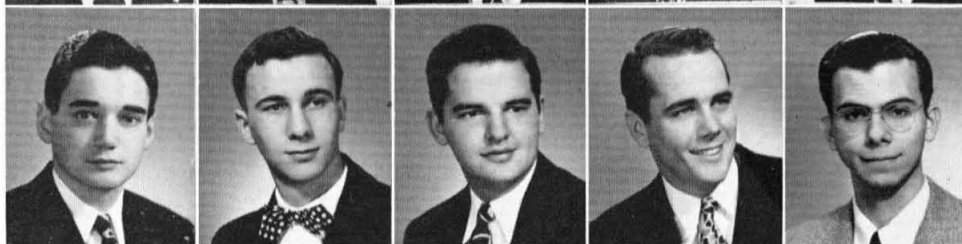
RICHARD McKINNON
SAMUEL MIDDLEBROOK
ARTHUR MILLER
JOHN MOSICH
PHIL ORVILLE



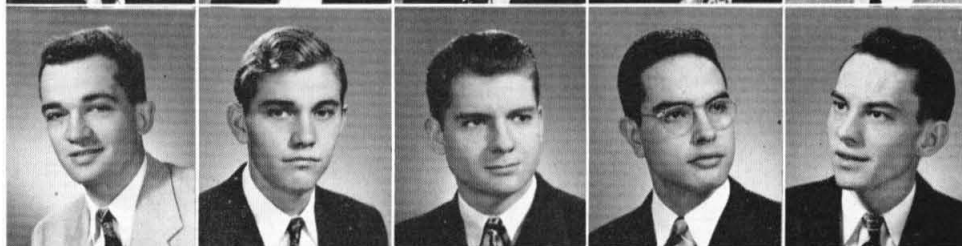
BILL PALMER
ROBERT BARNES
JOHN POINDEXTER
RICHARD POLLAK
WALTER PREVOST



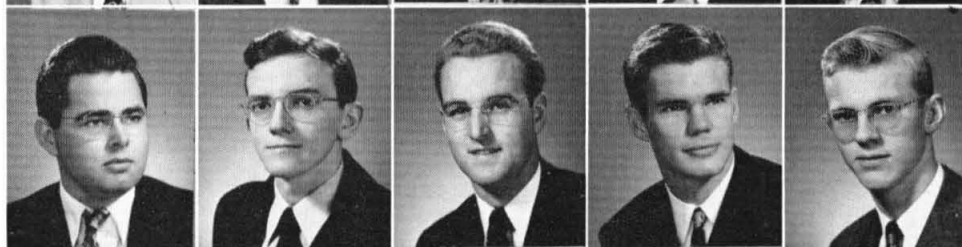
RICHARD PRYOR
EDWARD PYATT
WILLIAM RAMSEY
ED REINECKE
WERNER REISENFELD



MARION RINEHART
GEORGE SAWYER
DAN SCHUSTER
AUGUSTO SOUX
GENE SPENCER



WILLIAM STAATS
HUGH STODDART
SANFORD SWEET
WILLIAM SYLVIES
DONALD TAUTZ



RICHARD WATERS
WARREN WATERS
BURKE WELCH
ARTHUR WENNSTROM
WILLIAM WRIGHT



DABNEY

This year the men of Dabney enjoyed themselves at sparkling functions, participated wholeheartedly in a hard-driving athletic program, and actively engaged themselves in all school activities. House officers were Dave Hayward, president; Don Royce, vice-president; Bill Whitney, secretary; Dan Markoff, treasurer; Wayne Herzig, athletic manager; Weldon Bergreen, historian; and Martin Walt, librarian. In ASCIT offices were Hugh Carter, treasurer; John Kariotis, athletic manager; and Fred Wood, rally commissioner. Wayne Herzig was chairman of the ASME, as well as President of the Instituturs. Dabney is proud of its ability to do well in all fields of endeavor and it is indeed grateful to the men of Dabney for their tireless effort in making the house what it is.

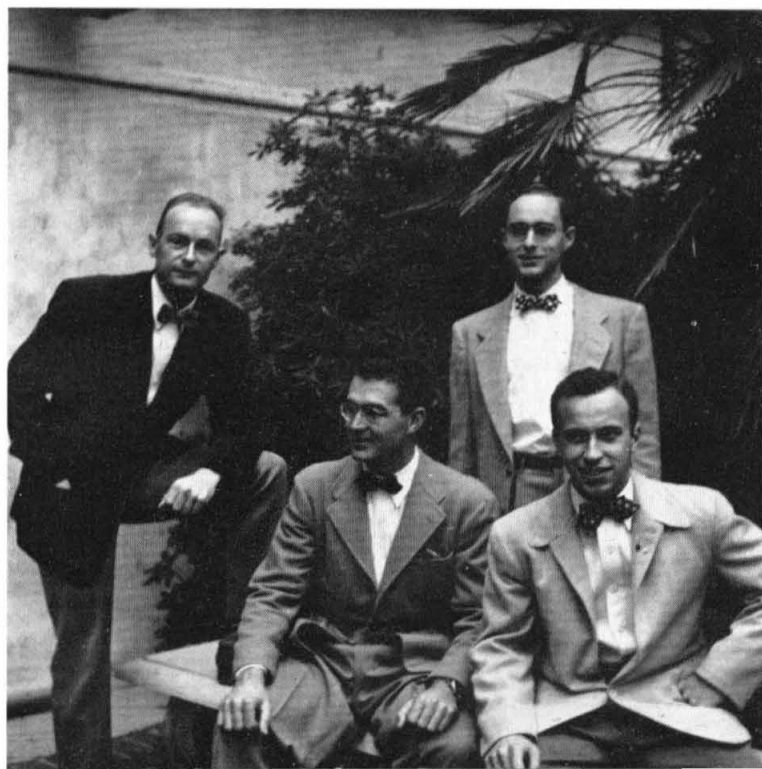


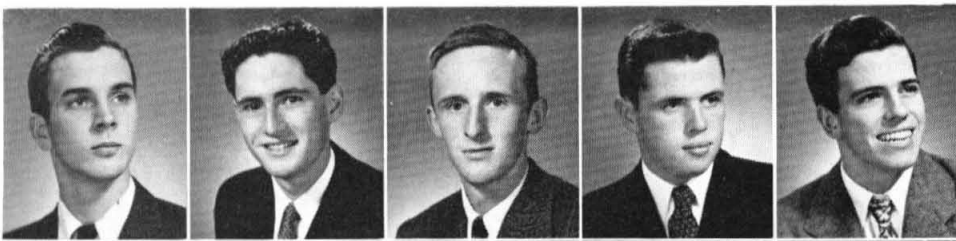


DAVE HAYWARD, PRESIDENT

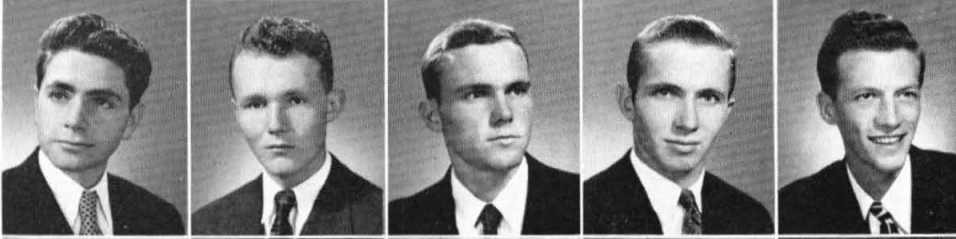


A trembling finger pointed to a shattered pane of glass across the Dabney court. Again it happened. And again and again. Nine times within a week did treasurer Markoff hear the tinkle of glass. Nine times did he receive a bill for damages, and nine times did he track down his man and drain from him a pint of blood. Ever efficient Markoff is the man—the man who through the use of thumbscrews, disappearing ink, and a broken down printing press was able to keep pace with the mile-a-minute social program, to complete the payments on the television set, and to announce to the world that Dabney is at long last operating in the black. Forgotten now are the days of old, when moths dwelt within the sacred vaults of Dabney, and the books knew not from whence cometh their next bottle of red ink.





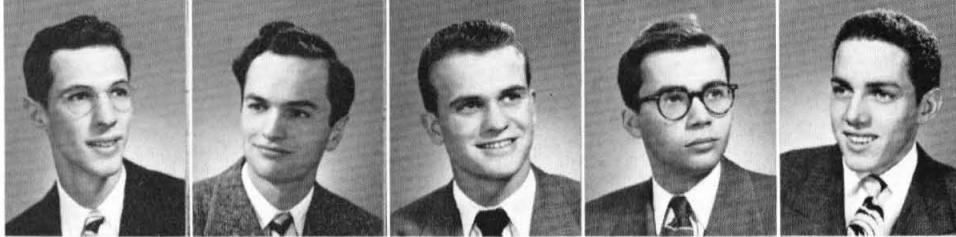
BILL AVERRE
 MIKE BADER
 DAVID BANKS
 BILL BARBAT
 BILL BARMORE



WELDON BERGREEN
 GEORGE BERGSTROM
 DEAN BLANCHARD
 JIM BLOM
 ELTON BRAYFORD



RICHARD BREWER
 RAYMOND BROW
 CLARK BRUNDIN
 JOSEPH CAIN
 HUGH CARTER



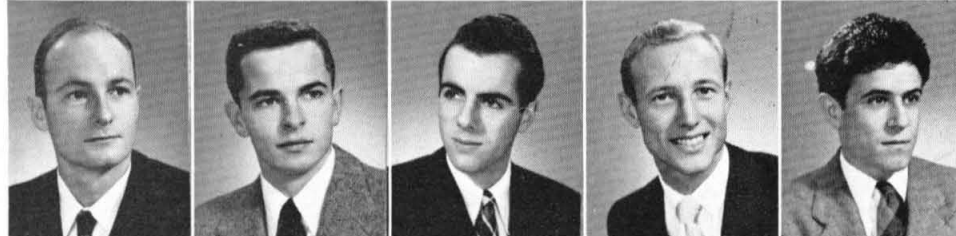
FERNANDO CORBATO
 JACK DAVY
 BOB DAVIS
 WALT DAIVSON
 DICK DICKINSON



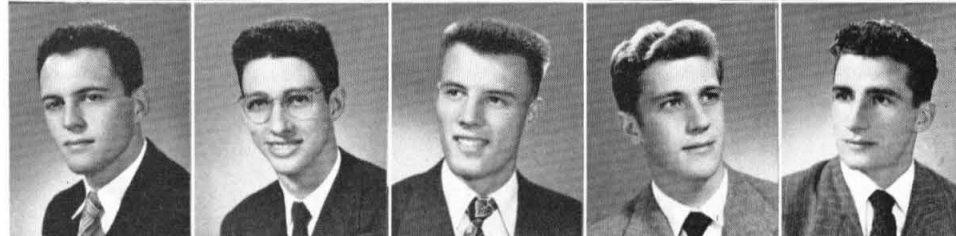
JOSEPH DOBROWOLSKI
 CECIL DRINKWARD
 EDWARD DuFORT
 HANK FASOLA
 SAMUEL FONG



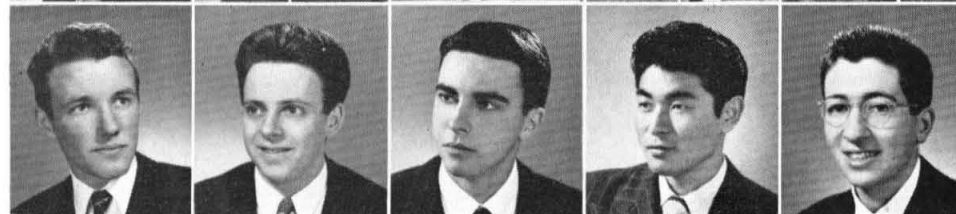
JON GOERKE
 NAT GOULD
 ROY GOULD
 TOM HAMILTON
 DIRCK HARTMANN



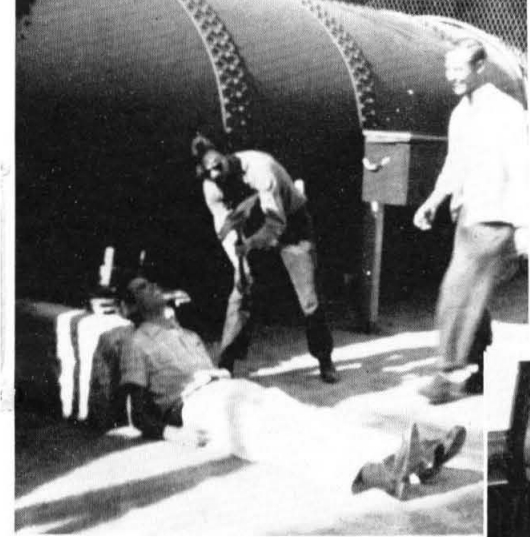
DAVE HAYWARD
 BRUCE HEDRICK
 JARVIN HEIMAN
 WAYNE HERZIG
 ROBERT HEYNEMAN



ALBERT HOOK
 BILL HOUGHTON
 WILLIAM IRWIN
 ERIC JOHANSSON
 JOHN KARIOTIS

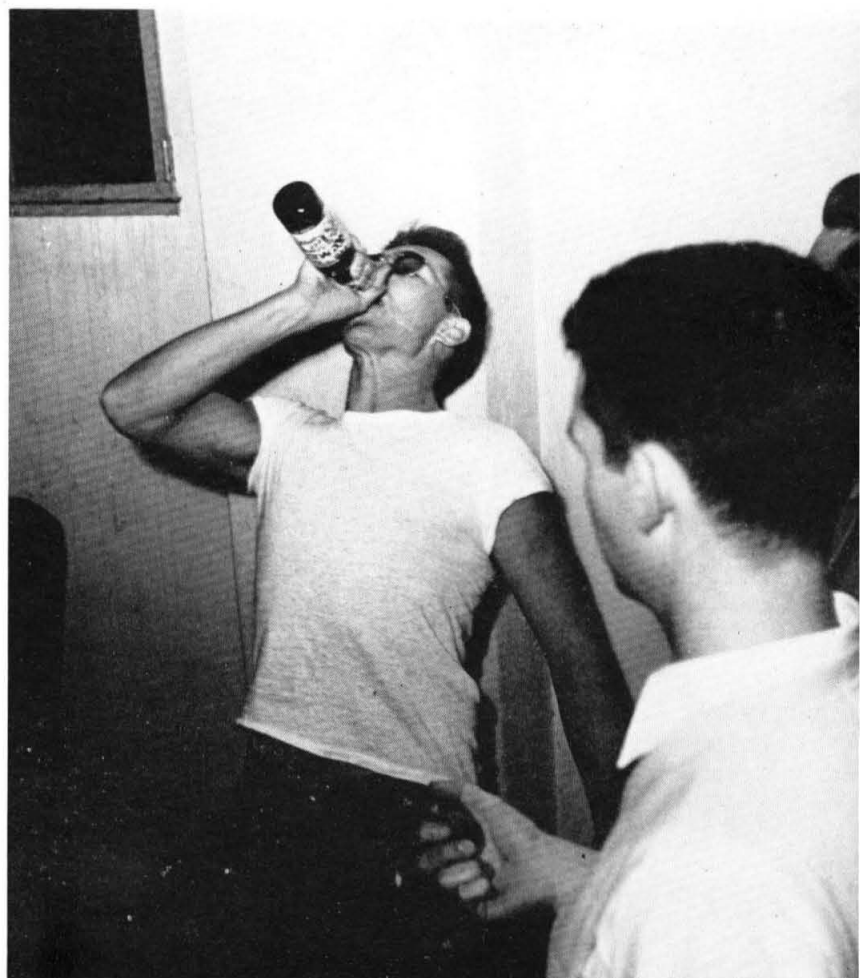


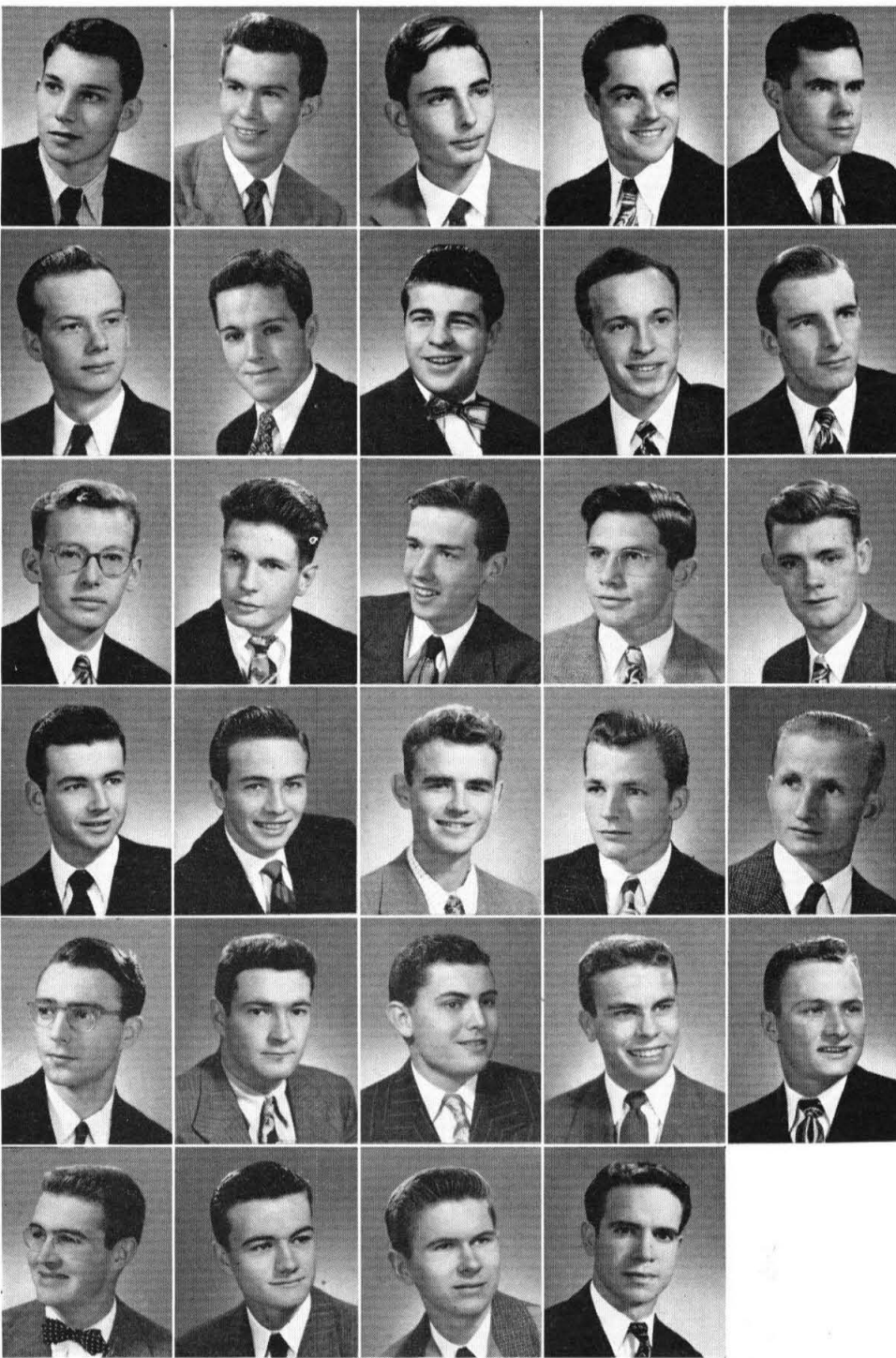
DICK KING
 PETER KNOEPFLER
 KEITH KOHNEN
 EDWARD KONO
 BOB KURLAND



DABNEY

Dabney Green became a familiar sight on the field of athletics, as the Darbs again contended vigorously for the Interhouse Trophy. The season opened with Basketball. Dabney fielded a team of mighty midgets, who had to bow to the bean-poles of two other houses and start the year in third place. Cross-country showed a shortage of long-winded, long-legged talent, and resulted in the cellar position. Then came baseball, and another third place. Tennis was a matter of grabbing another third. Then the Big Green Team rolled up its sleeves, sharpened its cleats, and swore its determination for the Big Push. It started with Softball. The whole house gave terrific support and the softball team came out on top. Next came track. A game bunch of Dabneyites, sparked by Stanaway, Horzig and Paulson took second place in the meet. In the swimming events, Dabney again copped a second. At press time the Big Green Team was seen to be in an overall second place.





BOB LAFF
 JIM LaFLEUR
 DAVE LEE
 DAN LeMAY
 HENRY LONG

FRANK LUDWIG
 DAVE MacKENZIE
 JOE MANGIN
 DAN MARKOFF
 CRAIG MARKS

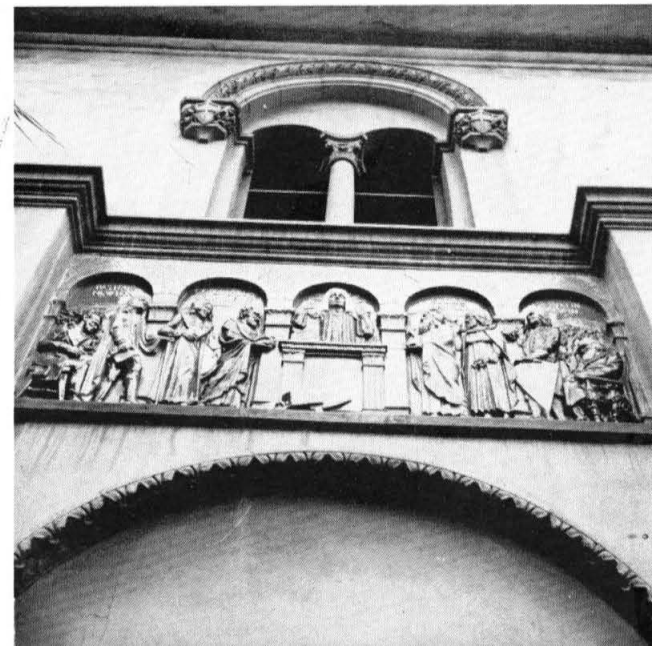
DICK McINTYRE
 JIM McQUISTON
 RUEL MERCURE
 GEORGE MERKEL
 LEON MICHAELSON

DONALD MORRISON
 CARLOS BEECK-NAVARRO
 JACK OTTESTAD
 CHARLES PAULSON
 THOMAS PAULSON

ROGER PICCIOTTO
 WILLIAM POPOWSKY
 BILL PYLE
 DEAN RAINS
 BRUCE ROBINSON

DON ROYCE
 WINSTON ROYCE
 TOM RUSSELL
 FRANK SHELTON

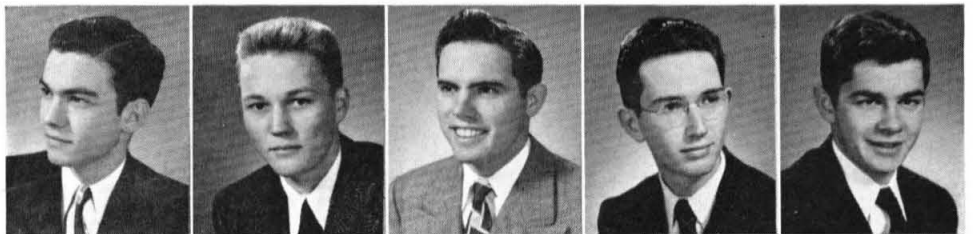
The Darbs continued a search for that elusive commodity, divertimento. Participating enthusiastically in an ample program of social functions, it can be said that they did succeed rather admirably in achieving this. Dabney's Lounge was converted, with large amounts of wood, paper, engineering ingenuity, and scotch tape, into a post-atomic subterranean cavern, as the house went all out for the Interhouse Dance. Early in the year the men journeyed east for the annual competition for the Dabney-Browning Milk Drinking Tourney, and lost the trophy to a red-hot Browning Crew. May Day was ushered in in fitting style with a Worker's Party, and the first anniversary of Bozart's Tavern was celebrated with candles, tables, and an all-evening floor show, at Bozart's Brawl. At exchange affairs with the gals of Oxy, Scripps, the CIT Campus, and the Pasadena Department stores, the men were given, and eagerly took, the opportunity to broaden their circle of contacts. Rounding out the program were post-game dances, a grass frolic at a nearby resort area, theater parties, and skating parties.



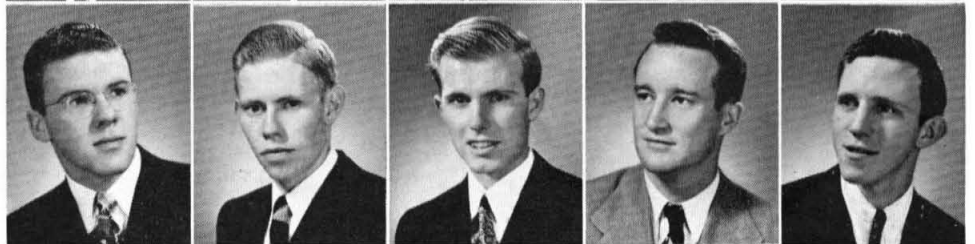


DABNEY

DON SHEPARD
RONALD SHREVE
BILL SIMONS
ROBERT SMITH
BERT SNIDER



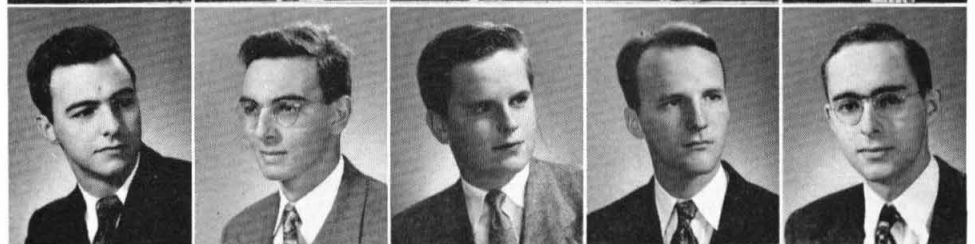
ROBERT STANAWAY
DON STEWART
ROBERT STEWART
KENT TERWILLIGER
HARRY TOWNSEND



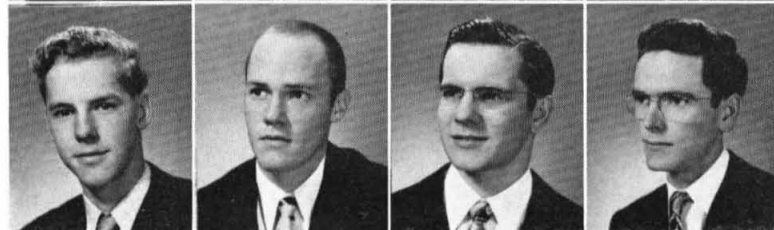
TOM TURNER
HOWELL TYSON
RUPERT VREUGDE
MARTIN WALT
DAVID WARREN



ROBERT WATERS
JESSE WEIL
EDWIN WELCH
DON WESTERVELT
BILL WHITNEY



KEITH WINSOR
FRED WOOD
ESEL WORRELL
JAMES YOUNG

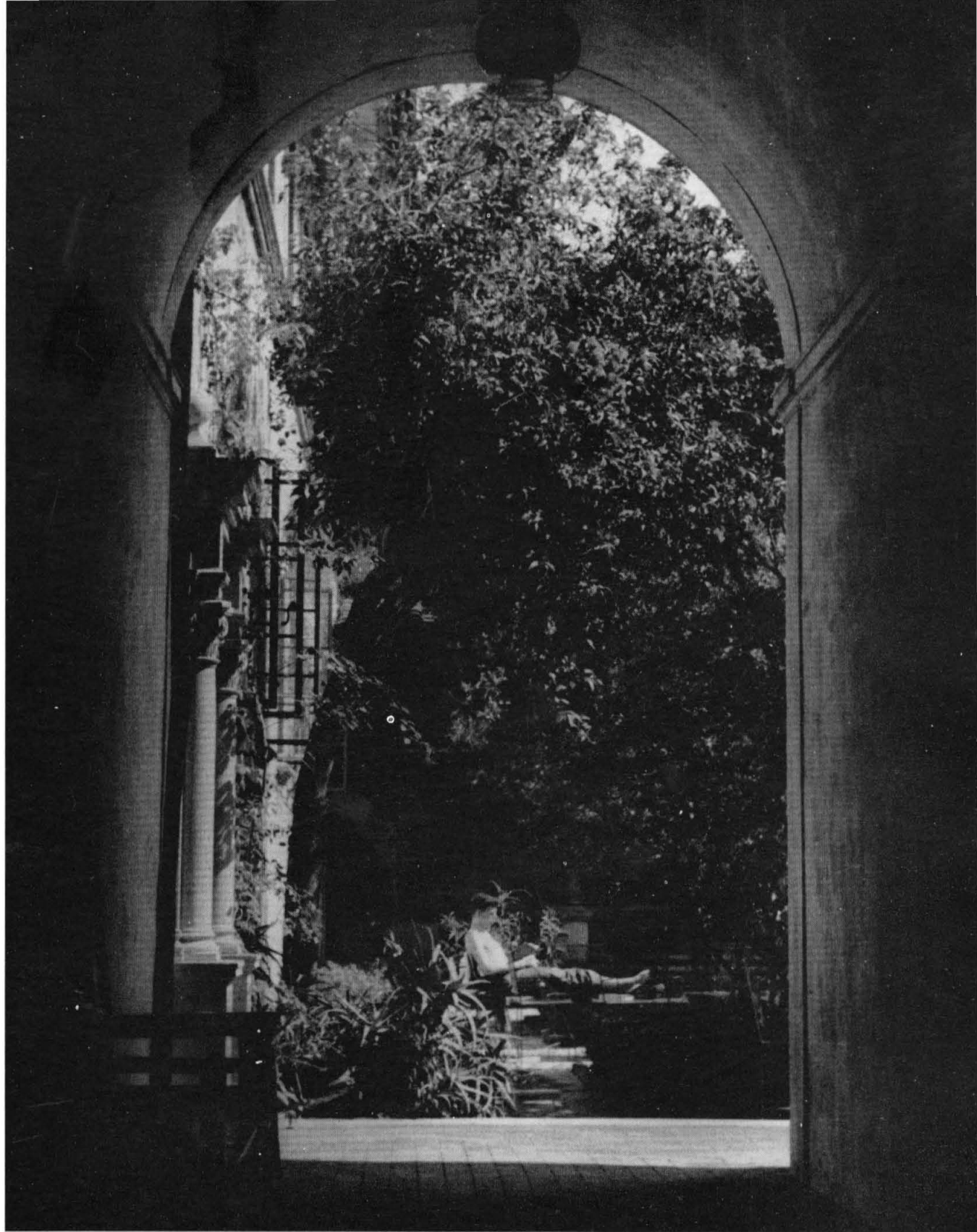




PAUL SALTMAN, PRESIDENT

Under the leadership of Paul "The Goon" Saltman, original possessor of the brittle beak, Fleming completed a highly successful year. It was marked by dominance not only in athletics, but also in many of the other phases of campus life. The student body was headed by Stan Barnes, with Dennis Long and Carl Price also on the Board. Bill Woods presided the Beavers, while roommate Schuster served as V. P. of that group, and as president of the Ski Club. Vern Edwards headed the "Y". "Bullet Bob" Funk served as president of the Varsity Club. Band Manager Mike Sellen prodded Band members from their pits. Ten men from Fleming received Honor Keys for their service to the student body, while seven house members were elected Tau Bates. Responsible for the increased House Spirit and for the success of the year were Paul Saltman, President; Erle Brown, Vice President; Jay Linderman, Secretary; Al Eschner, Entertainment Chairman; Bob Walquist, Treasurer; and Bill Woods, Social Chairman.





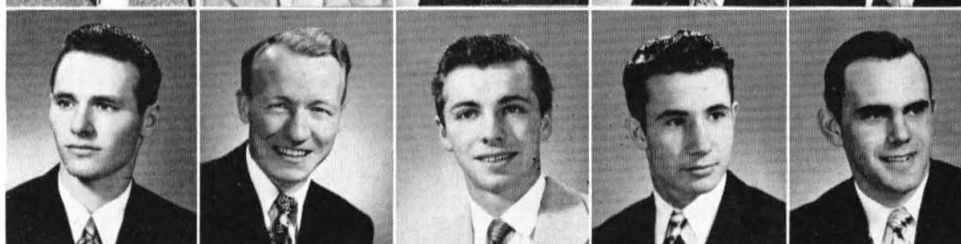
FLEMING



GEORGE ABELL
HARRIS ADAMS
ED ALEXANDER
CARL ANDERSON
DON ARNOLD



DON BAKER
STAN BARNES
DON BARRIE
DICK BENNET
BOB BIBLE



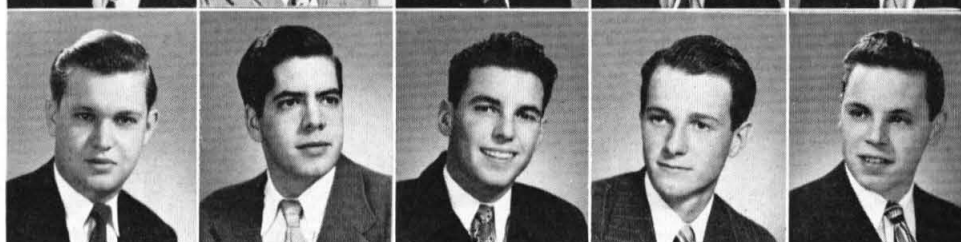
DOUG BROWN
ERLE BROWN
JOHN CAGLE
ODELL CARSON
MELL CASSIDY



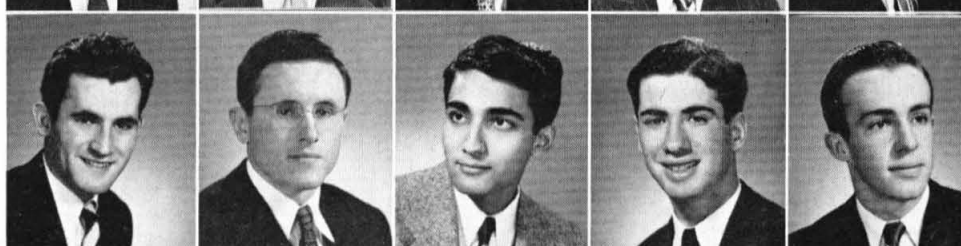
HENRY CLUTZ
SAM COOK
GEORGE COOKE
BILL COX
ARMAND CRUMP



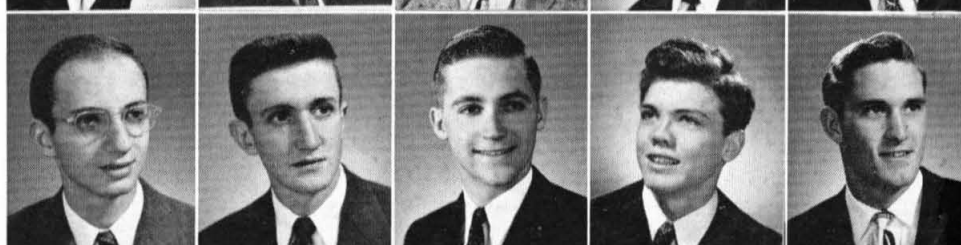
DEAN DAILY
FRANK DARLING
EDWIN DOOLIN
VERN EDWARDS
WALT EDWARDS



FRED EISEN
CLAYTON ENGLAR
ALBERT ESCHNER
DICK FAIRALL
BILL FITCH



ROBERT FORRESTER
ROBERT FUNK
WAHEED GHURI
STUART GOLDMAN
NORMAN GRAY



ALAN HABER
KEN HAMMOND
BILL HARRIS
WALT HARTUNG
DON HIBBARD



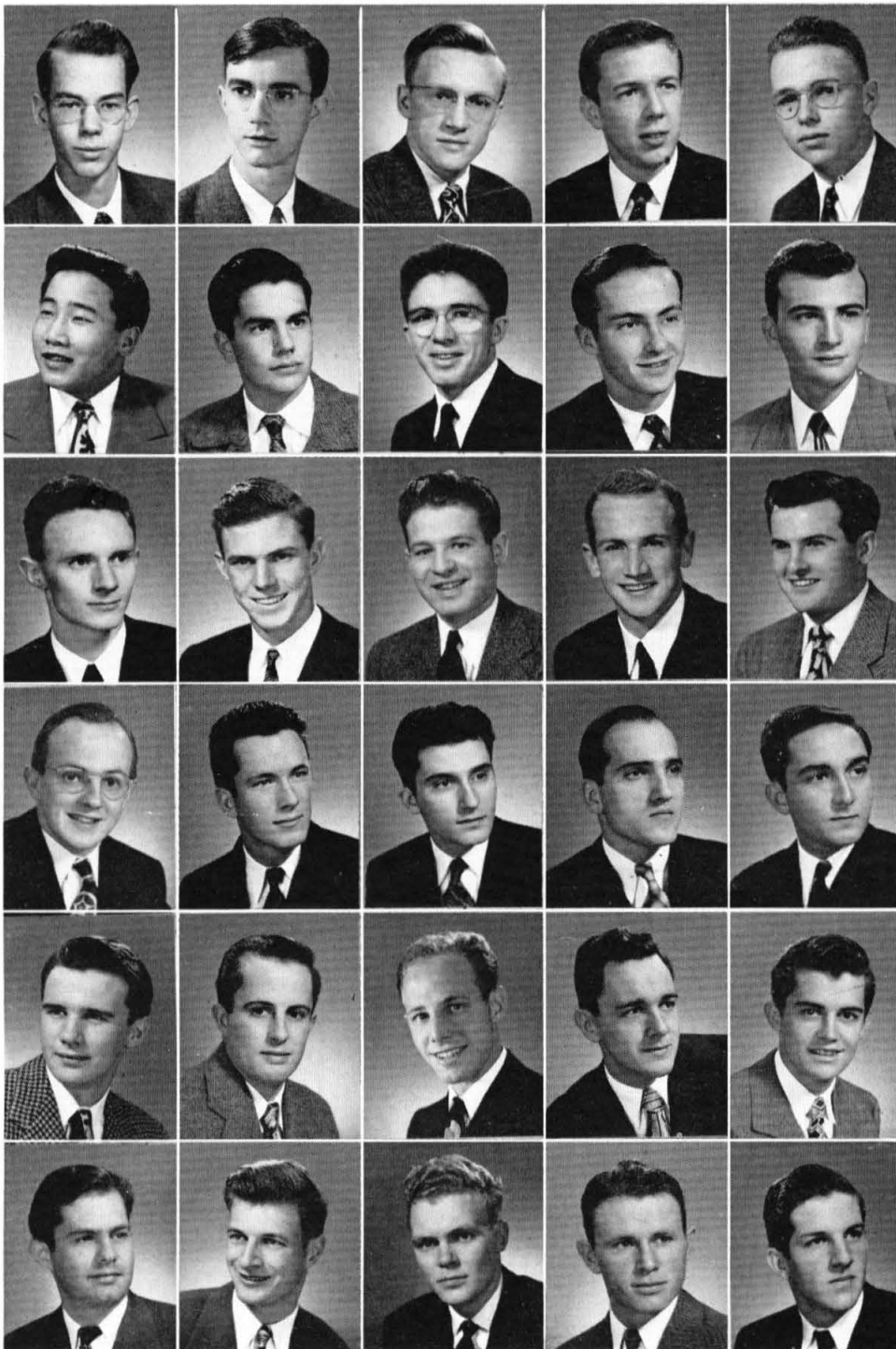
WILLIAM HIGGINS
BURT HOUSMAN
LEE HUANG
NEAL HURLEY
JOHN INMAN



FLEMING

Under the capable direction of Al Eschner, and his Social Committee, the athletes indulged in many and varied forms of social life. A large number of exchanges were held, including the tapping of a new source of women through the distribution of postcards to Pasadena lovelies. Among the outstanding successes of the year were the Annual Ricketts-Fleming Spring Formal. The Interhouse Dance, in which Science was turned to more practical means with a tremendous brewery, was highlighted by an ingenious meter designed by Jack Scantlin. Proving that dissipation and athletic supremacy are not really incompatible, the barn dances proved to be most flowing affairs, the victory over Blacker in the crew race being one of the high points. Journeying far afield to the beaches and the mountains, Fleming men found relaxation in the outdoors. One of the events of the second term was the Mardi Gras Formal, which found the lounge colorfully decked out amid great festivity.





DAVID JOHNSON
JOHN JOHNSON
FRED JONES
RICHARD JONES
TAYLOR JOYNER

MERLE KAM
MEL KATZ
ROY KEIR
HANK KESWICK
MARSHALL KLARFELD

BUD LARSH
DICK LIBBEY
HAROLD LINDERMAN
DENNIS LONG
JIM LUSCOMB

FRED MACHETANZ
DAVE MADDEN
ROBERT MADDEN
TONI MALANOSKI
EDWIN MATZNER

MALCOLM McKENNA
JACK MOFFAT
JAY MONTGOMERY
DON MOORE
JOHN MORRISON

WALT MUDGETT
RIDLEY MYERS
FRED NICOLAI
CHUCK NORMAN
GEORGE NORWOOD

While its men formed the bulk of Tech's intercollegiate athletic teams, thereby winning the Varsity Alumni Trophy for Fleming, The Big Red Team's men dominated Interhouse athletics the same way they have since 1933. Fleming got off to a slow start in the fall, but Montgomery, Scantlin, Anderson, and Sampson managed to grab third in cross-country. Grey, Shore Pardee, Barrie, Machetanz, Bible, and Rogers eased past Dabney in a close game to take second place in Basketball behind Blacker. With Grey, Smith, Haber, Shore, and Darling leading the way, Fleming copped a tie for first in interhouse baseball and was leading the Trophy race for the first time.

Second term saw the Big Red Team jump into a commanding lead for the Trophy. Woods, Price, Schuyler, Edwards, and Dave Johnson trounced everybody but Ricketts in tennis. Softball was not Fleming's strong point this year, but Funk, Smith, Haber, Dolan, Bible, Hibbard, Darling, and Machetanz gained an even split in their four games. Madden, Norman, Carson, Scantlin and Lewis were individual winners in the Interhouse Track Meet, as Fleming took top place in track for the third straight year. The Fleming contingent also splashed faster than the other houses as Yeazell, Cagle, Fairall, and Hammond led their team to victory in the swimming meet. By taking a tie for second in touch football, Fleming clinched the Interhouse Trophy with one sport yet to go.

FLEMING

STEVE PARDEE

DALLAS PECK
NORMAN PECK
BOB PERPALL
CARL PRICE
BILL PROUD

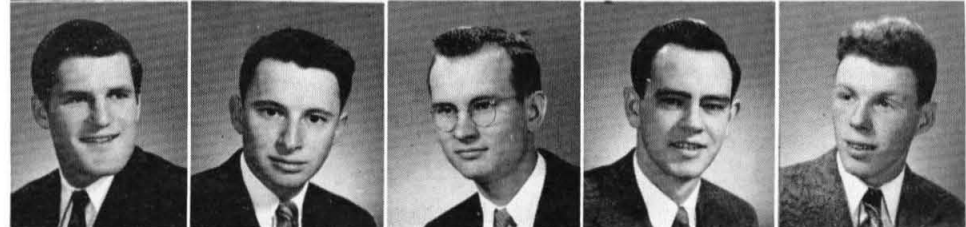
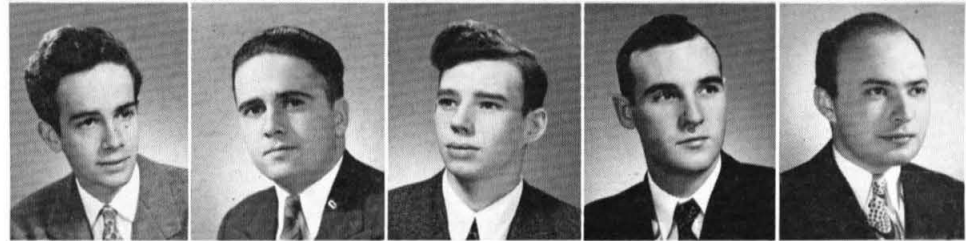
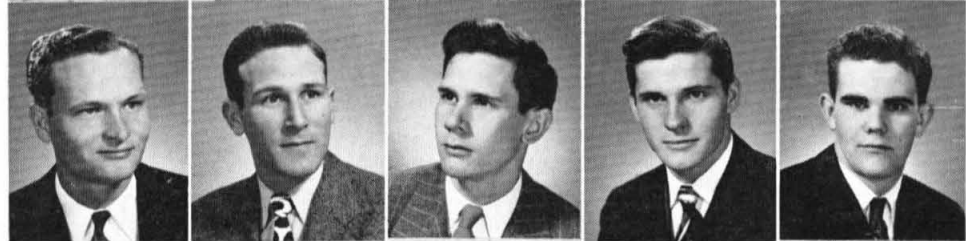
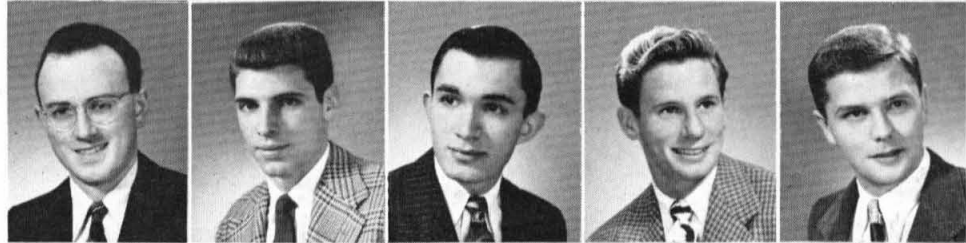
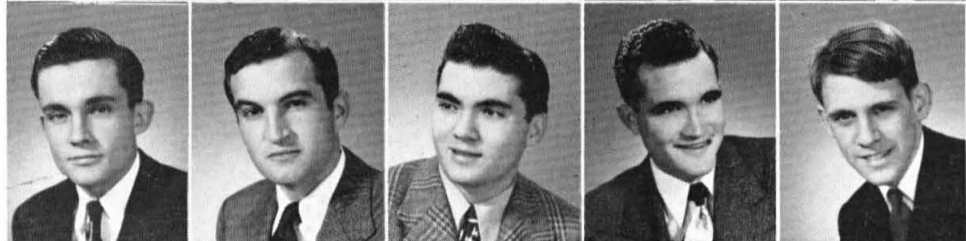
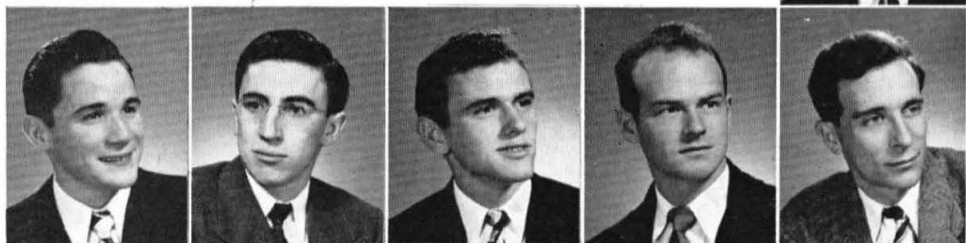
RONALD QUANDT
REX RAGON
DAVE RATHJE
JOHN RICHARTZ
JOHN ROGERS

LEE ROSS
PAUL SALTMAN
BILL SAMPSON
JACK SCANTLIN
ED SCHLINGER

DWIGHT SCHROEDER
DICK SCHUSTER
MIKE SELLEN
CHAS SHALLER
DEANE SMITH

FRED SMITH
BRUCE STOWE
DONALD SUTTON
ROBERT TERRIERE
CHARLES WALLANCE

BOB WALQUIST
JOHN WALTER
MILO WEBBER
BILL WOODS
PETER YEAZELL



RICKETTS



The capable president of Ricketts House this year was Dave Browne who was faced with the man-sized job of guiding the fortunes of the House as well as looking after his wife and three (count 'em) children. Dave was assisted by a competent crew of house officers. Milt Andres, under the watchful eye of every conscious house member, handled the funds and by adroit maneuvering, kept the red ink off of the balance sheet. Ted Bowen, who still claims that a house secretary doesn't **have** to know how to spell, kept the minutes and read them occasionally. Vice-President Bill Bradley provided the sparkling social program which kept the house members living just for the weekends.

Never to be outdone in the political arena, Ricketts furnished a number of ASCIT officers this year. These included Stan Boicourt, Ollie Gardner, Jim Hummel, Bob Haufe, Bill Bradley, and Blouke Carus. The skillful touch of the Ricketts man was also felt in all other activities on campus.

For lighthearted entertainment at odd moments, the members of Ricketts were found tussling over the famous brake drum, dousing each other with water (all in fun, of course), playing the inevitable game of bridge in the lounge, lying on the lawn in the spring pretending to study, or building a snow woman dedicated to Scripps girls during the inclement winter.

Pledgemaster Chuck Forester kept the freshmen on their toes and chairs during the initiation period while John Holmes indoctrinated them to the traditional rites of Ricketts' own "Ball Pall".





MILT ANDRES, BILL BRADLEY, TED BROWN



DAVE BROWNE

Zenith of the 48-49 social season was the second annual Apache Dance. Garbed à la Quartier Latin, Rowdies and femmes met at the candle-lit "Cabaret Ricketts", internationally famous underworld rendezvous. The Paris basement atmosphere was prevalent; lights were low, spirits high, beards long and skirts short.

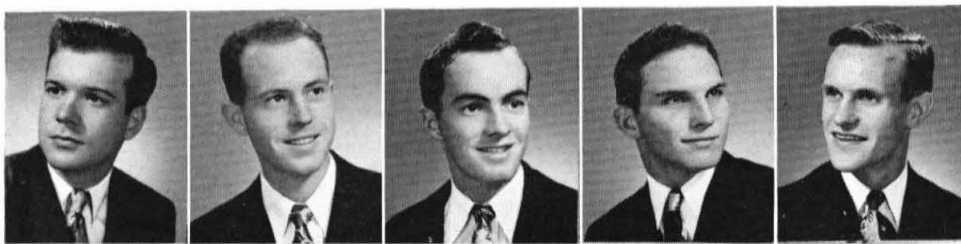
Guests at the Interhouse Dance found the lounge ingeniously transported to the top of a cloud; above stars glimmered, below, the dancer's feet were lost in swirling mist. Saint Peter, assisted by Father Time, presided over the ethereal domain.

Tuxedos were removed from the moth balls twice this year. Dabney lounge was the setting for the Valentine Formal, which featured an almost intermission-less orchestra, and Phil Halverson's sensational heart-shaped doorway. The Spring Moonlight Dance, held on that clear May night, was a great success. Couples danced under the stars in the Ricketts-Fleming patio while olive branches overhead swayed gently in the evening breeze.

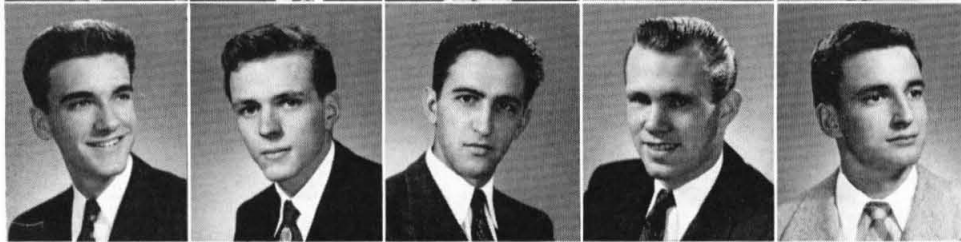
Not to be overlooked, the rustic element had its fling at no less than three fine barn dances. Especially successful was the 175 couple, six-keg affair held in February at the Doherty's fine lodge in La Canada.

With the advent of spring and good weather, the beach became the spot of the moment. The sun worshippers got their fill at a round of beach parties that did justice to the best Hawaiian tradition. Many exchange dances were held, notably with Scripps and Occidental, giving the operators ample opportunity to fill their address books. The program was rounded out with several after-game dances and theater parties. The success of the social program was due in no small part to the arrangements of the capable Social Chairman, Bill Bradley, who well deserved the proverbial orchid for his efforts.

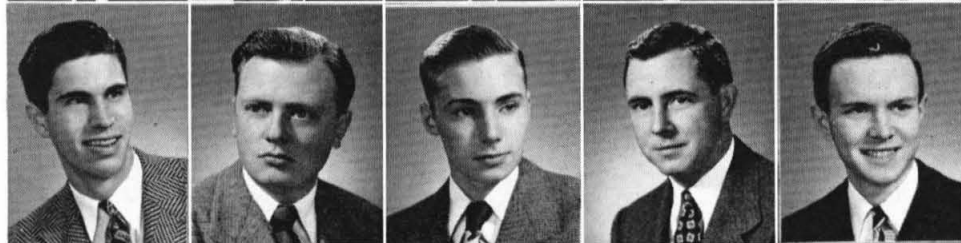




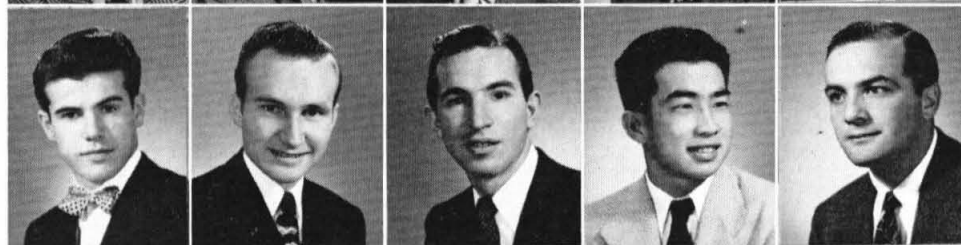
MILT ANDRES
 BILL ARCHER
 DON ASQUITH
 RODGER BAIER
 HARRY BEGG



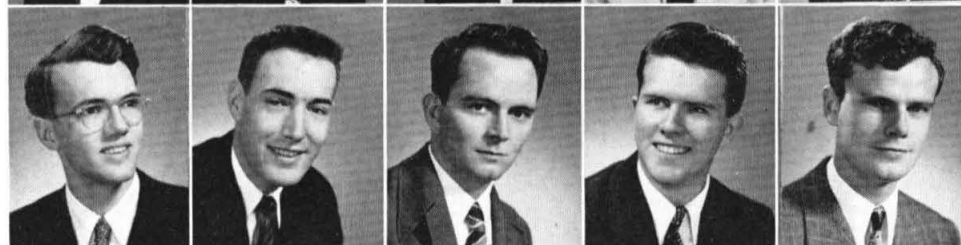
HENRY BELMAN
 TOM BENSON
 STAN BOICOURT
 TED BOWEN
 BILL BRADLEY



WOODY BRATNOBER
 DON BRATTON
 RICHARD BROWN
 DAVE BROWNE
 RONALD CALDWELL



MICHAEL CALLAGHAN
 BLOUKE CARUS
 ANDREW CHECK
 HERBERT CHU
 AL COHEN



RON CONNER
 BOB CRICHTON
 JOHN DANNON
 ROBERT DARROW
 RAY DAVIS



ALEXANDER DESSLER
 PATRICK DOHERTY
 ALEX DRAPES
 DAVE DURHAM
 JACK DYER



ERNEST DZENDOLET
 STANTON EILENBERG
 DAVID ELLIOTT
 JIM ENSLOW
 JOE FISCHER



CHARLES FORESTER
 CARL FOX
 KEN GARDINER
 OLLIE GARDNER
 JIM GILLET



ROBERT GRAFF
 JOHN GREENE
 RONALD GREENE
 JAMES HAAKE
 BILL HAEFLIGER



RICKETTS

Under the able leadership of Bob Darrow, the Rowdies upheld their reputation in Interhouse Athletics. Outstanding performances were made in skiing and bowling; and the Crew turned in the best time in Ricketts' history.

During the fall term the hardball team tied for first, thanks to Rube Kachadoorian's fine pitching; and the bowling team took a strong lead. Tuesday night became known as "no coats" night due to the bowling team's consistent wins Monday afternoon. Woody Bratnobar led the pinmen to so many victories that there was soon no competition for first place.

The winter term found the tennis team taking another first, with Carus heading the team; and after record snowfalls in the Southland, the Ricketts ski team was seldom found below four thousand feet. Having such able men as Bradley, Carus, Gardner, and Price comprising the team, the prospects could hardly be better for retaining the ski laurels. Also of great importance was the capture of the Discobolus by the bowling team and then the victory of the golf team over a confident opponent to retain the Discus Thrower.

Of most significance was the gaining of the Interhouse Beer Drinking Trophy. Never before had such a Crew been produced from Ricketts. Captain of the Crew, Jim Wilcox, proved his coaching ability in training eight men and discovering one Ted Polk, who seemed to defy all laws of fluid dynamics when he set an all time record of 3.7 seconds.

In other Interhouse sports, the Rowdies fielded hard fighting teams which often saw victory.





PHIL HALVERSON
DAVID HANNA
ROBERT HAUFE
CARL HIRSCH



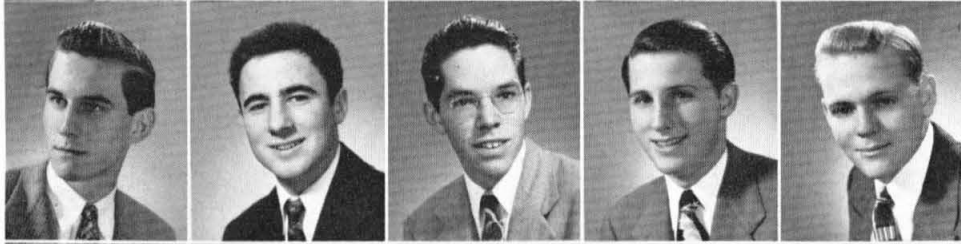
DAVE HOGNESS
JOHN HOLMES
BRAD HOUSER
JIM HUMMEL
WALTER JOHN



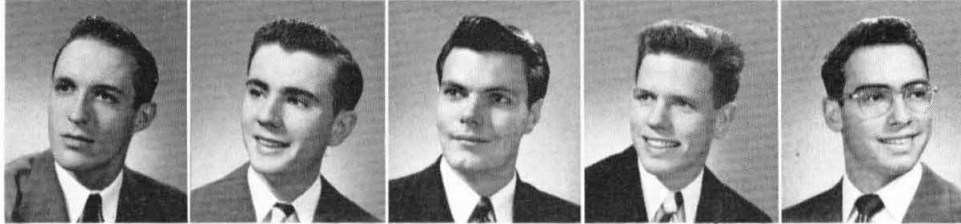
ROGER JOHNSON
RUBE KACHADOORIAN
BABE KARASAWA
FORREST KEY
DAN KING



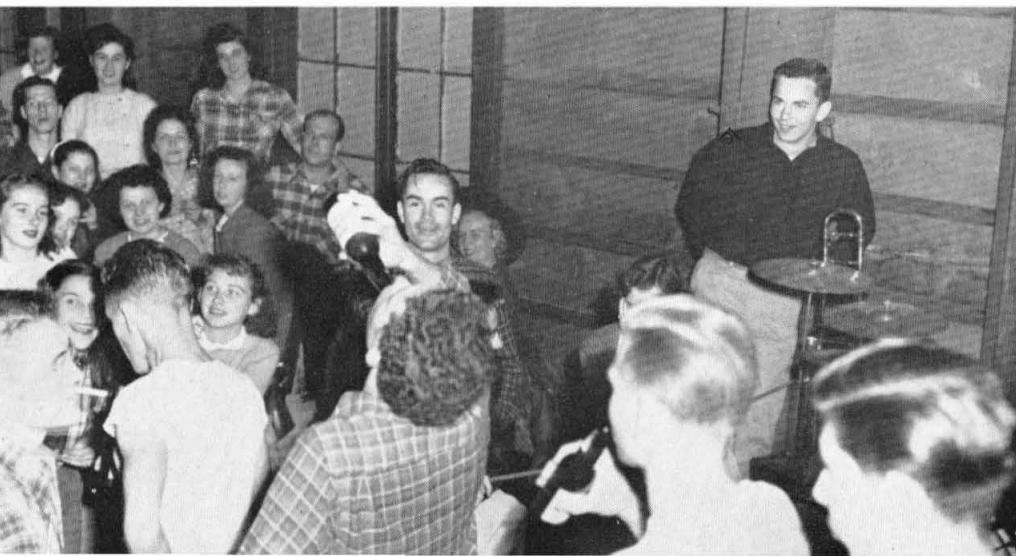
DICK KNIPE
DAVE KOONS
CARL LARSON
JAMES MALONE
MONTE MARKS



ALAN MARSHALL
JACK McEWING
DON MERRIFIELD
ULRICH MERTEN
JOHN MOSS



WILLIAM MYERS
RITCHEY NEWMAN
JOHN NOBLE
DAVID OAKLEY
BUD PALLAKOFF

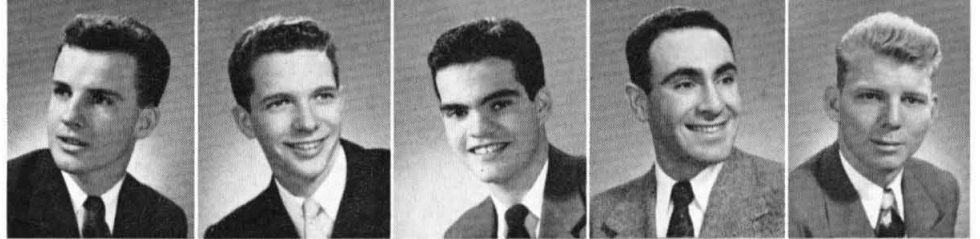


RICKETTS

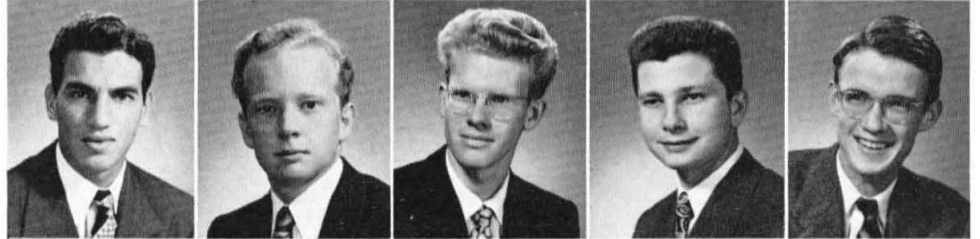
DON PETERSON
BOB PILLING
TED POLK
VIC PORIZKY
HOWARD PRESTON



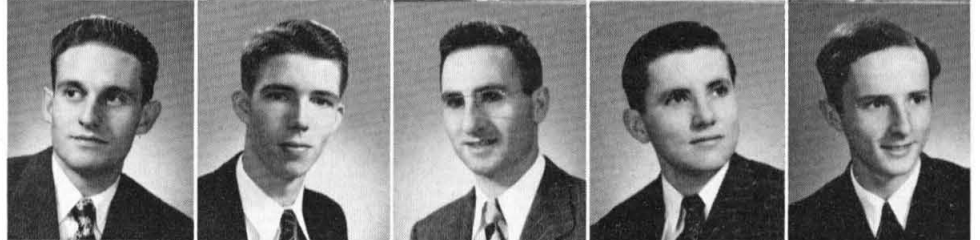
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PHIL RANDOLPH
SERGIO RODRIGUEZ
BURT RUTKIN
NORM SCHROEDER



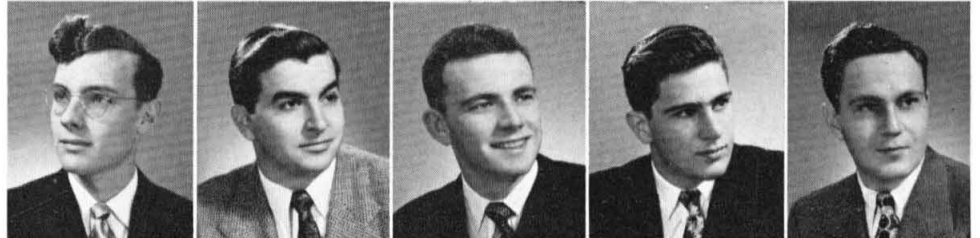
AL SERENO
GENE SHAKESPEARE
VERN SMITH
RICHARD SMYTH
WIN SOULE



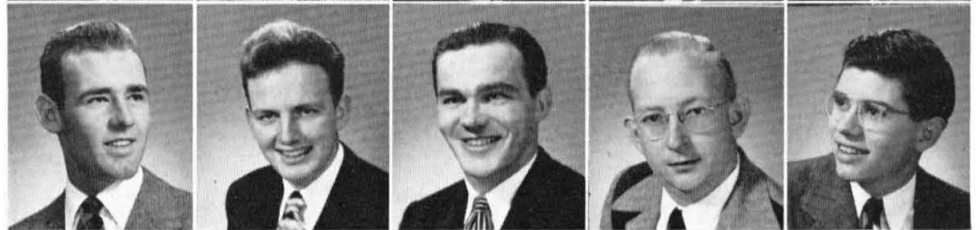
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CHARLES STEESE
SIDNEY STONE
KENT STRATTON
RICHARD TAYLOR

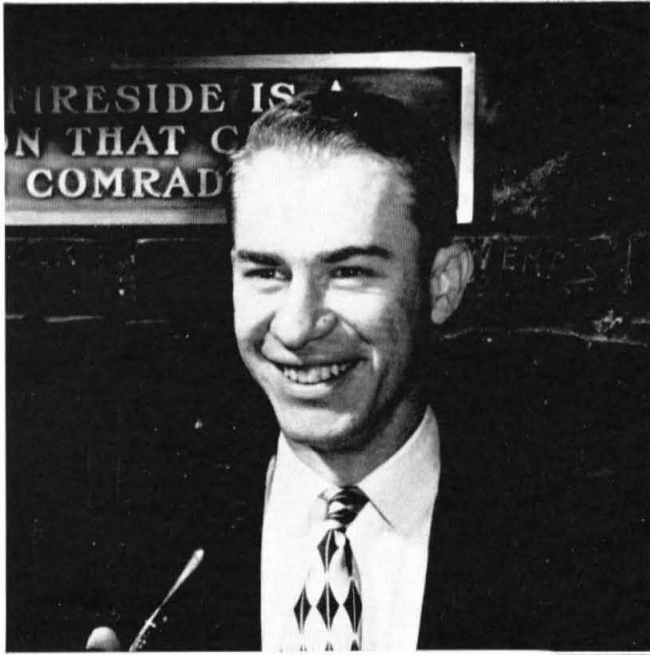


VICTOR VAN LINT
DAVID VIGLIERCHIO
CHARLES WALKER
ERNEST WEBER
STEVEN WEISBROT



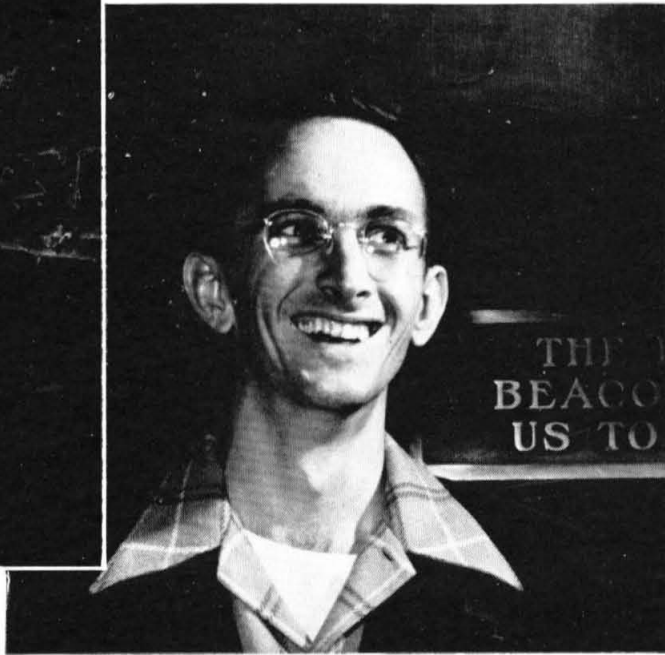
JIM WILCOX
JACK WILLIS
JEAN WIREN
ROBERT WORTHINGTON
DICK WRIGHT





WALT PFEIFFER

GENE MOORING





ESTAL WEST

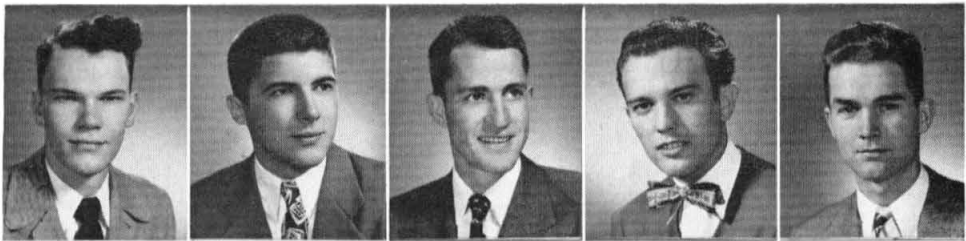
BOB CONNELLY



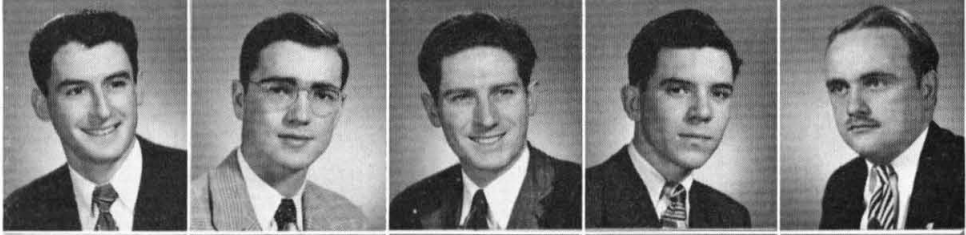
THROOP CLUB

In the fall of '48, Throop Club began a full and active year. Two weeks before school opened, a crew of Throop men spent a "wet" Saturday washing the exterior of the lounge and by registration day it had received its first coat of paint in many a year. Painting of the ceiling was completed by midterm and the improvement met with everyone's satisfaction.

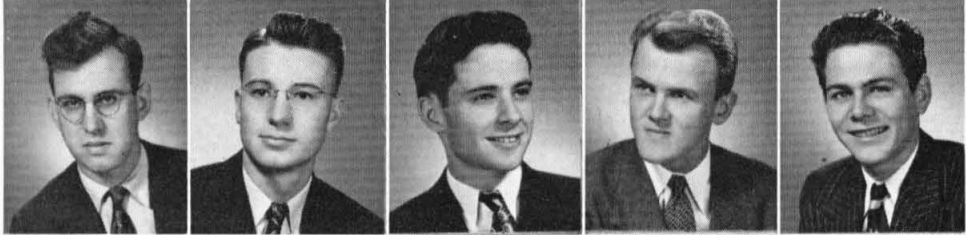
Throopers began the social year with the annual Get-Acquainted Stag where fabulous amounts of money were lost and fabulous amounts of iced tea were drunk. For the big Date Party of the first term, the Interhouse Dance, the lounge was converted to a Television Set, complete with tubes, resistors, condensers, wiring diagrams, and a fascinating kinescope. For exercise of uninhibitions, there was a distant barn dance with Ricketts at which the water-logged Throop Crew fell overboard and drowned, but came back to carry away the flamer trophy. The New Year's Eve party was traditionally boisterous, a rollicking combination of history and mistletoe. In early January, Throopers and dates sardined into the Ski Hut for a snow party replete with snow, and garnished with a California-style blizzard. The annual Throop-Ricketts Valentine Dance in Dabney Lounge proved a huge success. Music and decorations combined to provide an enjoyable evening for everyone. Bowling, miniature golf, theater parties, and house dances rounded out the social program.



LEO BAGGERLY
WILLIAM BAILEY
WILLIAM BASHAM
JOHN BAUGHER
WAYNE BEEBE



BOB BENTON
JOHN BJERKLIE
GALT BOOTH
WALTON BOYER
FRANKLYN BRADY



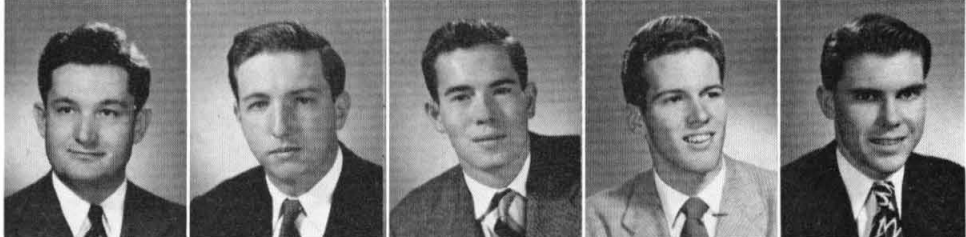
WHARTON BRYAN
RODNEY BUNKER
ROBERT COBB
LOWELL COCKEL
BOB CONNELLY



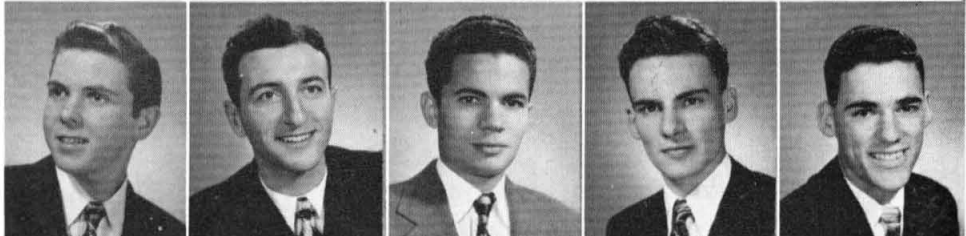
TOM CONNOLLY
GEORGE COOK
FRED DARMS
ED DAVIS
WILLIAM DIBBLE



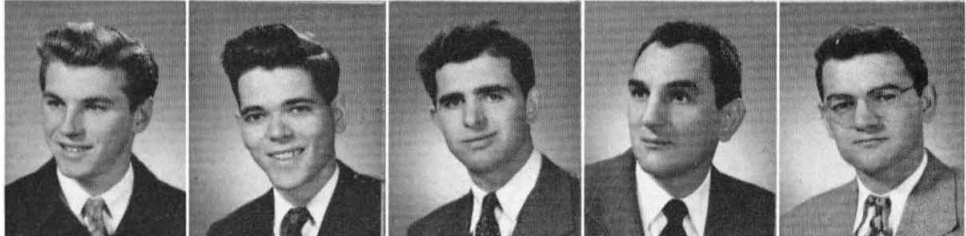
RALF ERICKSON
KENDALL FAMULARO
AARON FLETCHER
JOHN FLYNN
ALFRED GALE



VICTOR GATES
ABRAM GEORGE
SIDNEY GIBBINS
VANCE GRANGER
RAY HEGGLAND



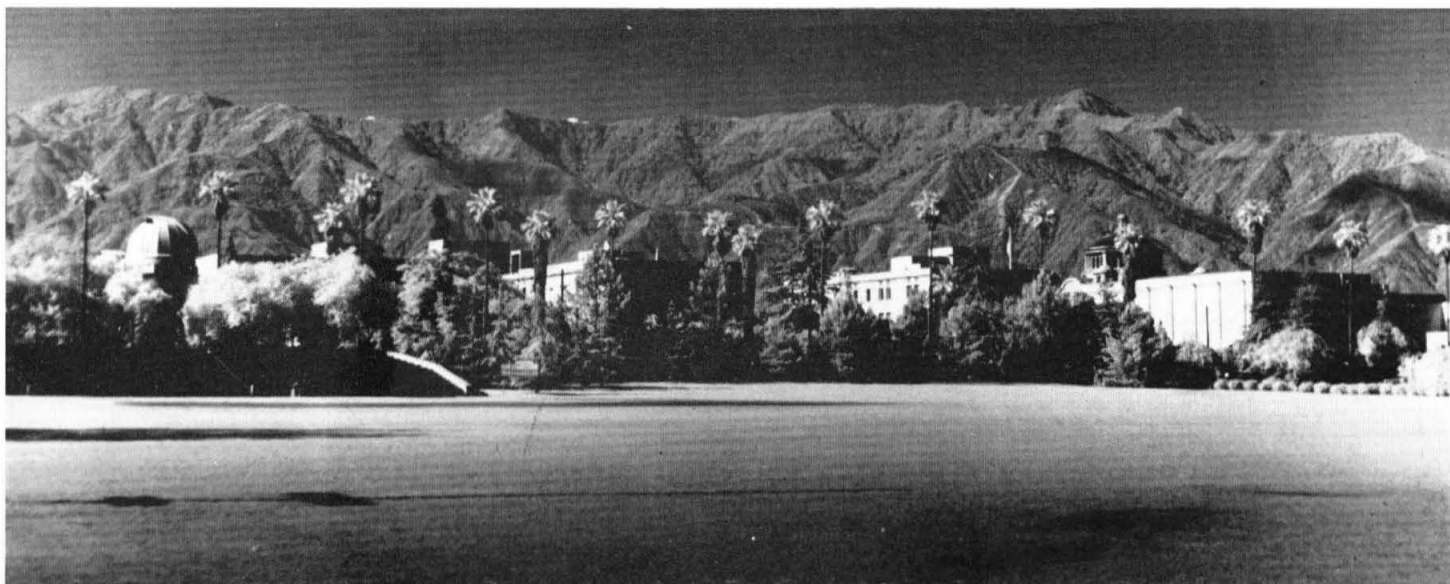
PAUL HELFRY
WALTER HIRSCHBERG
FRANK HOOPER
BOB JENNINGS
DON JENNINGS



BRUCE KEEPEE
BILL KELLEY
PAUL KIDDER
JOHN KOSTELAC
WILLIAM LANZ



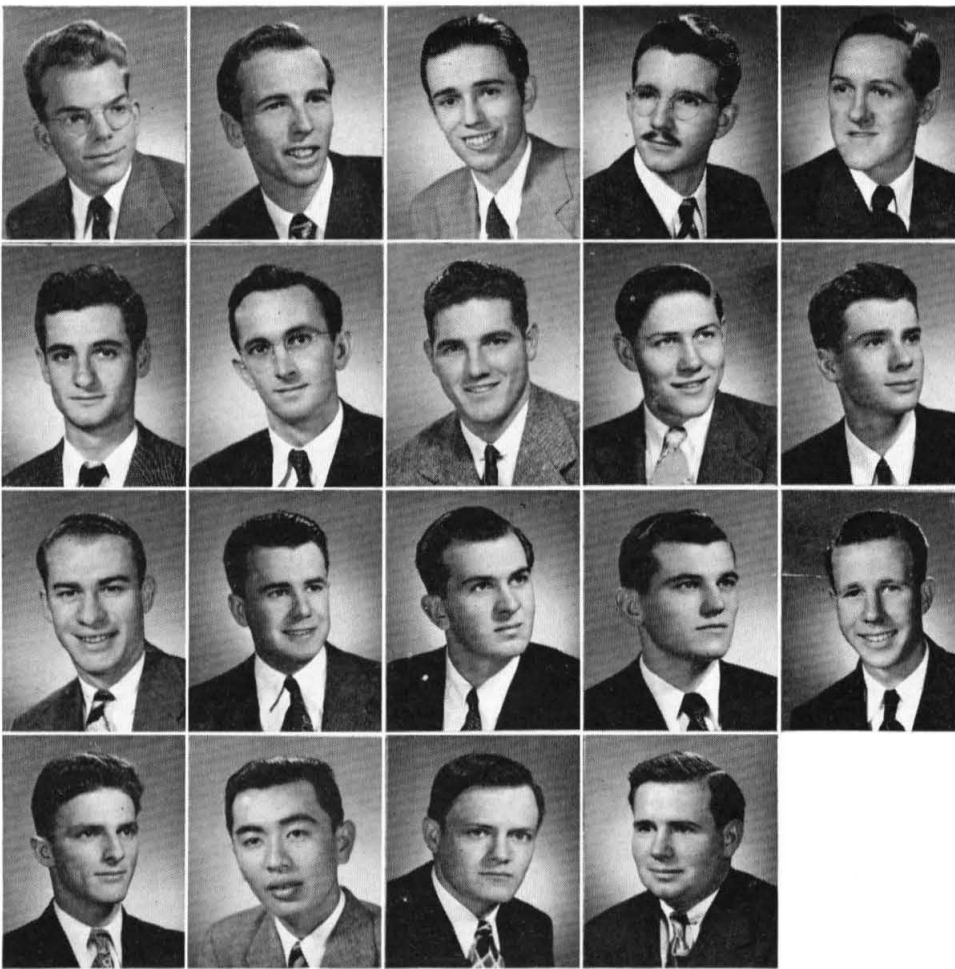
CHESTER LEHR
CLINTON LEW
CARROLL LINDHOLM
RICHARD LOVE
SCOTT LYNN



THROOP CLUB



This year Throop showed increased interest and ability in athletics, with men on most of the Varsity squads, and a large representation in Frosh sports. In interhouse competition, Throop made a valiant effort to battle its way out of athletic eclipse.

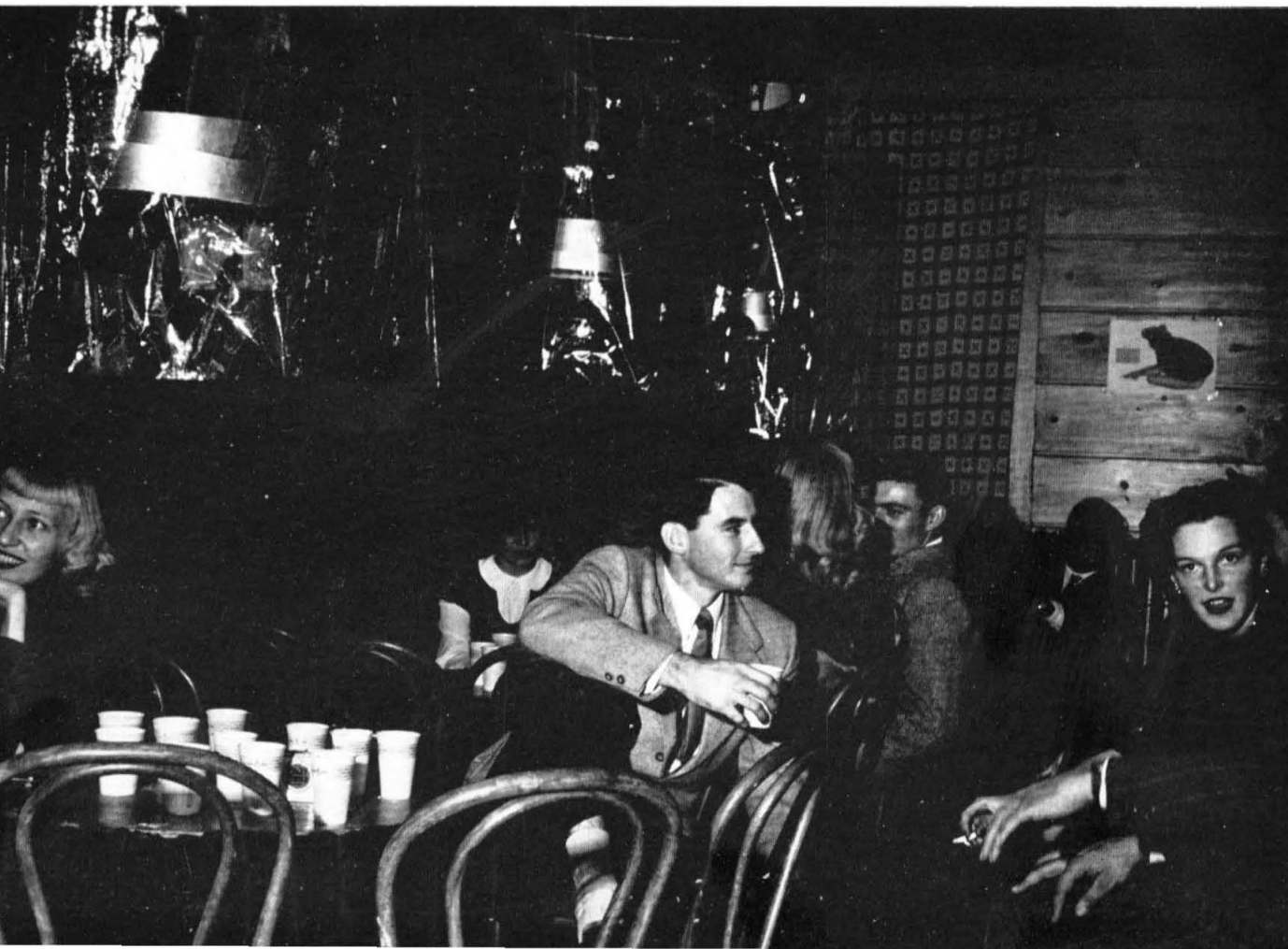


JAMES MANSFIELD
 JERRY MATHEWS
 DOUG McLEAN
 RICHARD McKAY
 JOHN McPHATE

CHARLES MILLER
 EUGENE MOORING
 BOB MUNRO
 DUANE NEVERMAN
 RICHARD PETERS

WALT PFEIFFER
 DON PICKRELL
 DANIEL POWELL
 STANLEY RAWN
 BILL RIHN

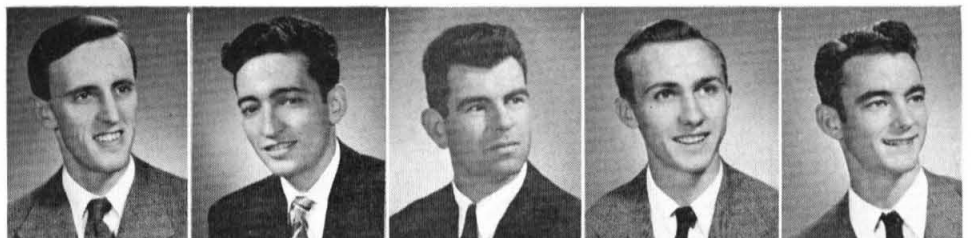
BERNARD RUDIN
 KAZUHIKO SATO
 LELAND SATRE
 FRED SCHNEIDER



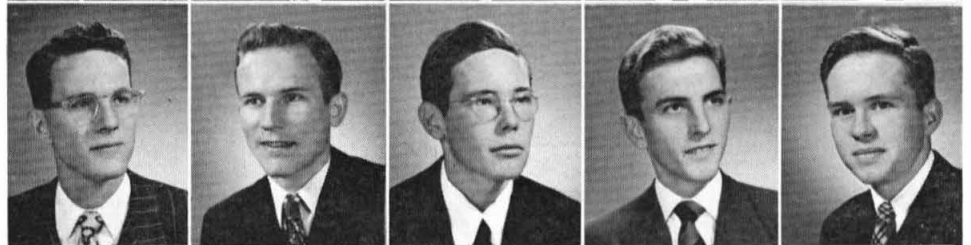


THROOP CLUB

FRED SELLECK
 ROLF SINCLAIR
 PAUL SKOGLUND
 ROD SMYTHE
 ROBERT STUBBINS

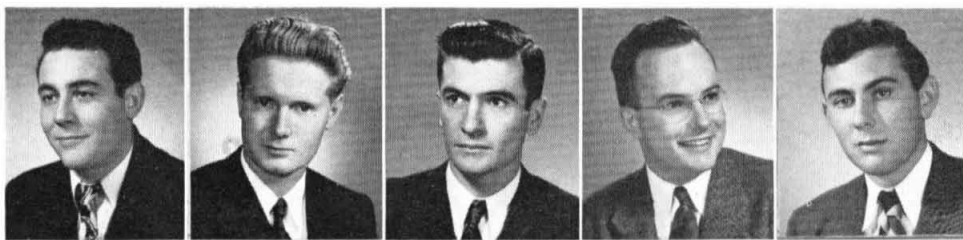


PAUL THONN
 DONALD TRYK
 PETER VERDIER
 MILTON VOGEL
 KENT WANLASS



WILLIAM WEBBER
 ESTAL WEST
 RICHARD WHITE
 CHARLES WILLITS
 EDGAR WONG

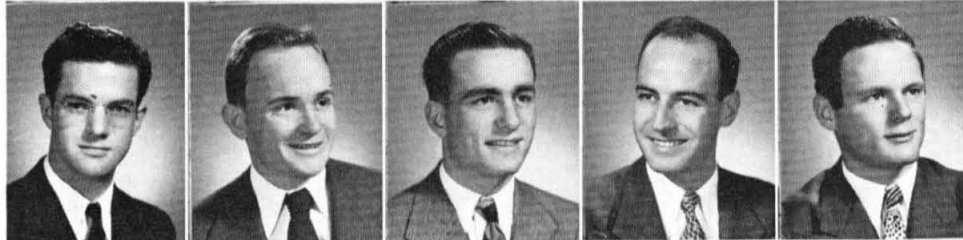




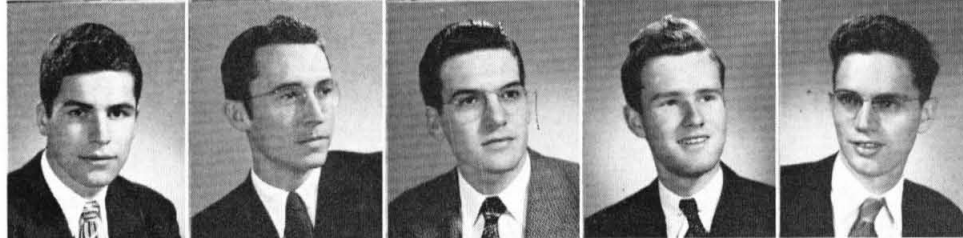
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OSCAR ANDERSON
WALLACE BARNES
JOHN BARR
MICHAEL BASIN



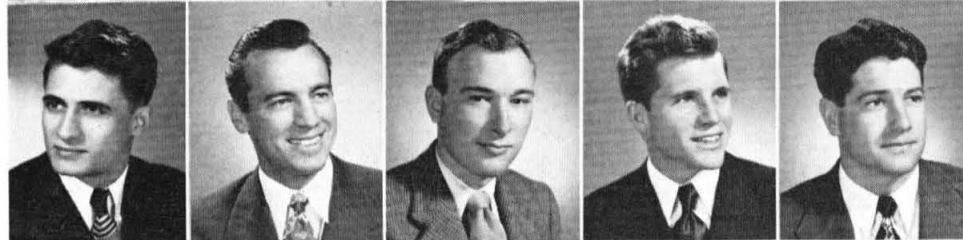
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FRANK BEARDSLEY
ERNEST BLAIR
GEORGE BROWN
EDWARD BAILEY



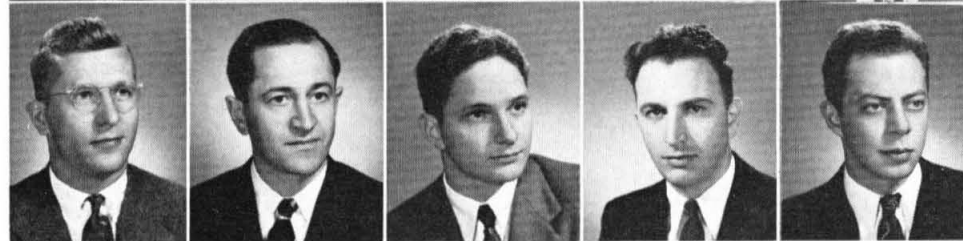
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PAUL CLARK
JOSEPH CONOVER
R. N. CURTIS
WARREN DANIELSON



NORMAN FINK
ROBERT FISHER
EDWARD FISK
JAMES GERHART
MYRVEN GIFT



JOE GREEN
DARRLE HALE
JOHN HANN
DON HANSON
PAUL HARRIS



PAUL HUBAY
FRANK HYLTON
JAMES IBERS
JEROME JACOBS
RAYMOND JOHRDE



NAOMI KASHIWABARA
ELI KATZ
LOUIS KATZ
FRANK KEINONEN
JAMES KENNEY



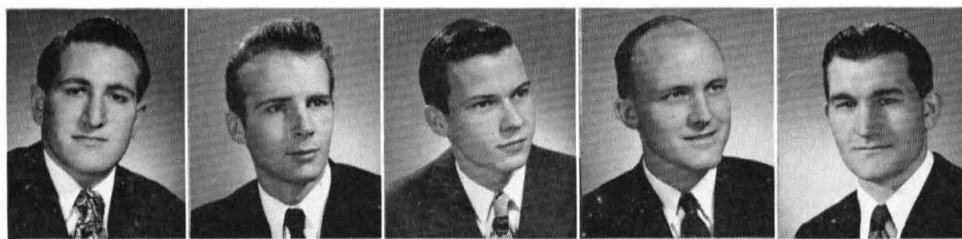
ROBERT KERMEEN
CHARLES KNIGHT
ROBERT KOFAHL
MAX KRESTON
IRV KRUMHOLZ



CLAUDE LANE
BILL LANSDOWN
THOMAS LAYTON
EDWARD LEVONIAN
DAVID LIBERMAN

OFF CAMPUS

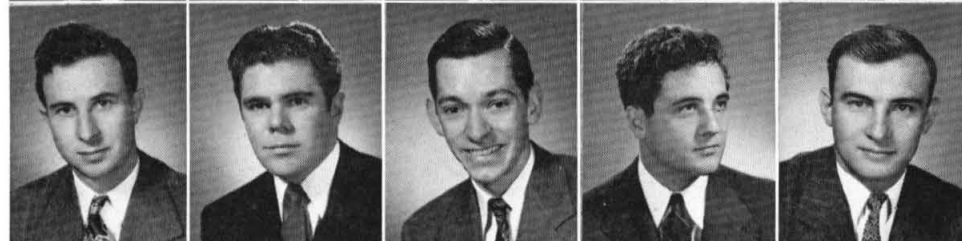




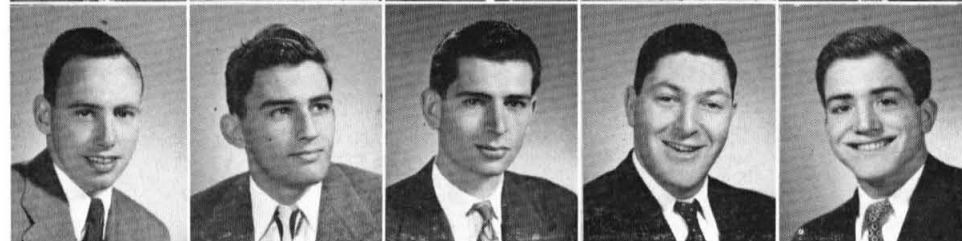
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DAVID MANNING
HARDY MARTEL
ALBERT McLELLAN
WILLIAM McLELLAN



ORSON MITCHELL
JACK MONES
RICHARD MORGAN
MERLE MORGAN
RALPH MORRISON



CHESTER ORR
DICK PATTERSON
BYRNE PERRY
THOMAS PETRULAS
GEORGE PETZAR



ROSWELL POTTS
JOHN REEDS
TED ROSE
MARTIN ROSS
MARVIN RUDIN



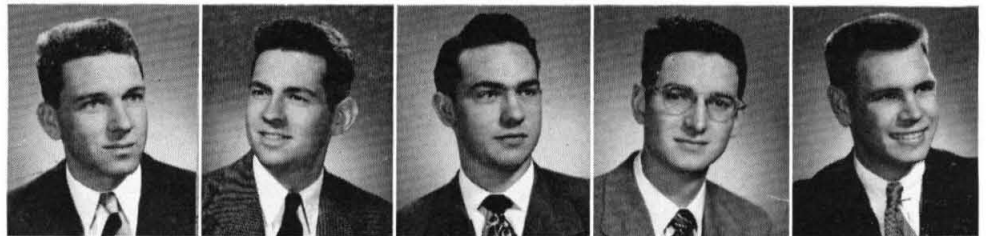
WILLIAM RUMER





OFF CAMPUS

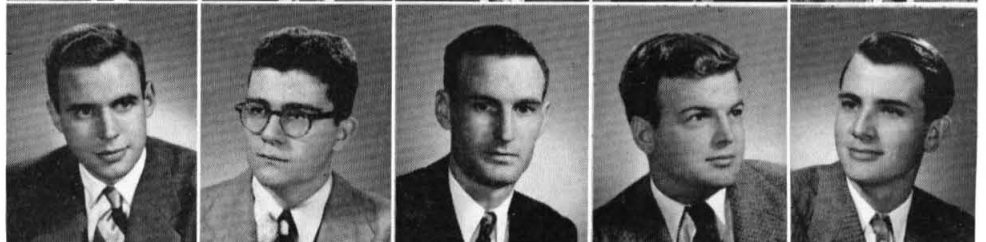
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 ALLAN SAUNDERS
 CLEM SAVANT
 RICHARD SCHOEN
 CLYDE SEITZ



HENRY SHAPIRO
 VIRGIL SIMS
 ROBERT SINKER
 DON SIX
 GENE SIX



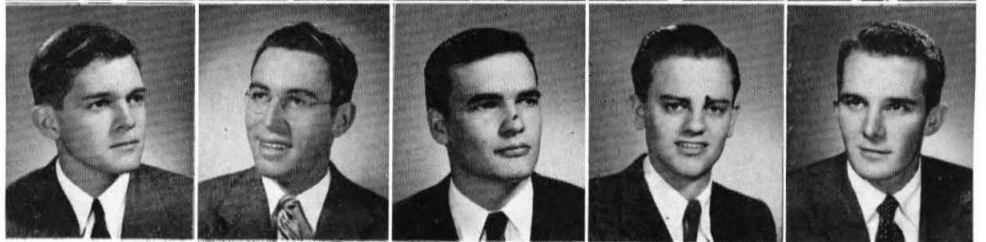
ARTHUR SPAULDING
 MELVIN SPRECHER
 TOM STAUFFER
 ROBERT STERT
 DON STILLMAN

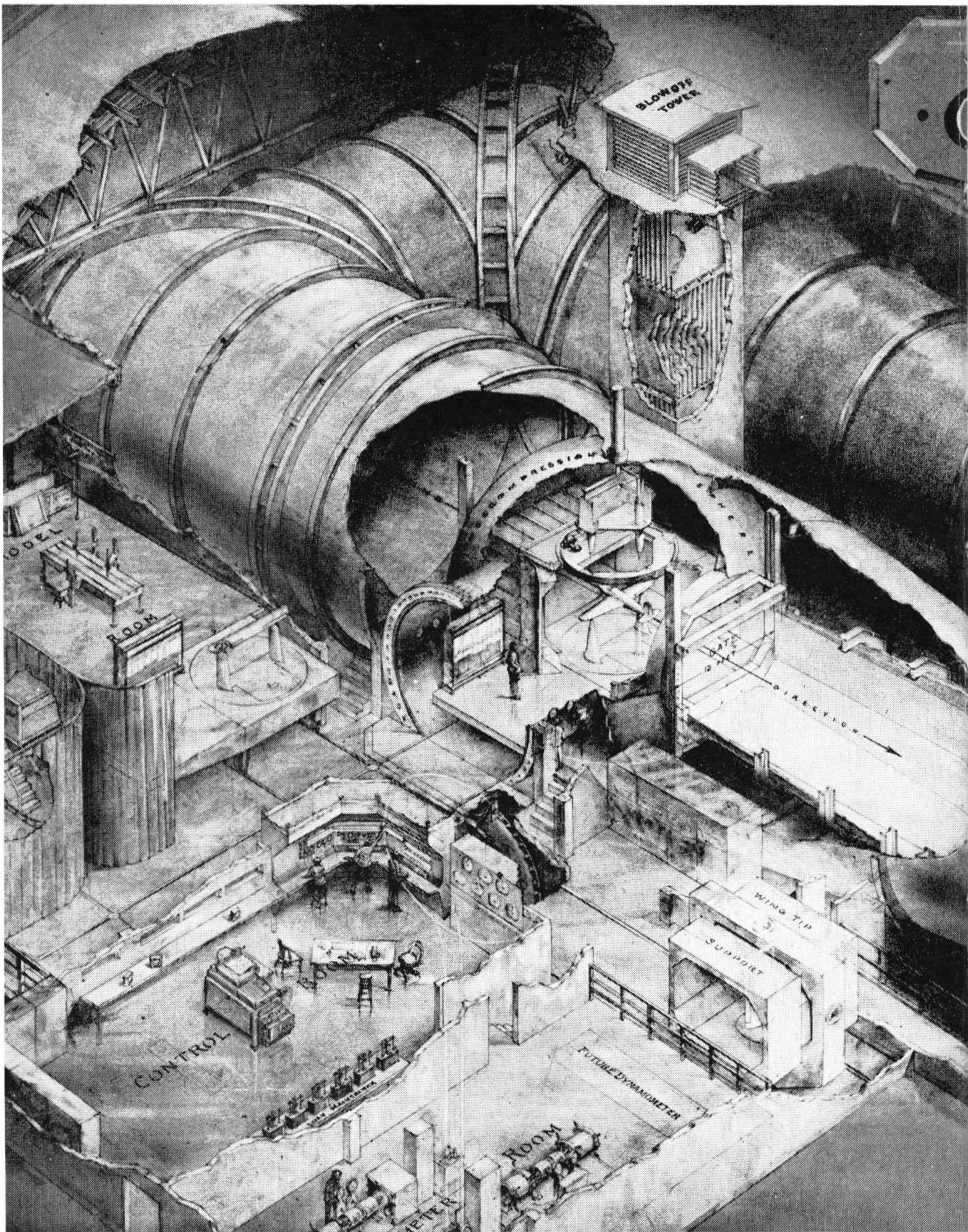


ALBERT SUNDSMO
 WILLIAM TAYLOR
 WILLIAM VICKREY
 THAD VREELAND
 THOMAS WAKEMAN



WILTON WEBSTER
 JACK WHITE
 WARREN WHITING
 HUGH WOODBURY
 GEORGE WOODWARD





COOPERATIVE WIND TUNNEL—PASADENA

SOUTHERN CALIFORNIA COOPERATIVE WIND TUNNEL

CONSOLIDATED-VULTEE

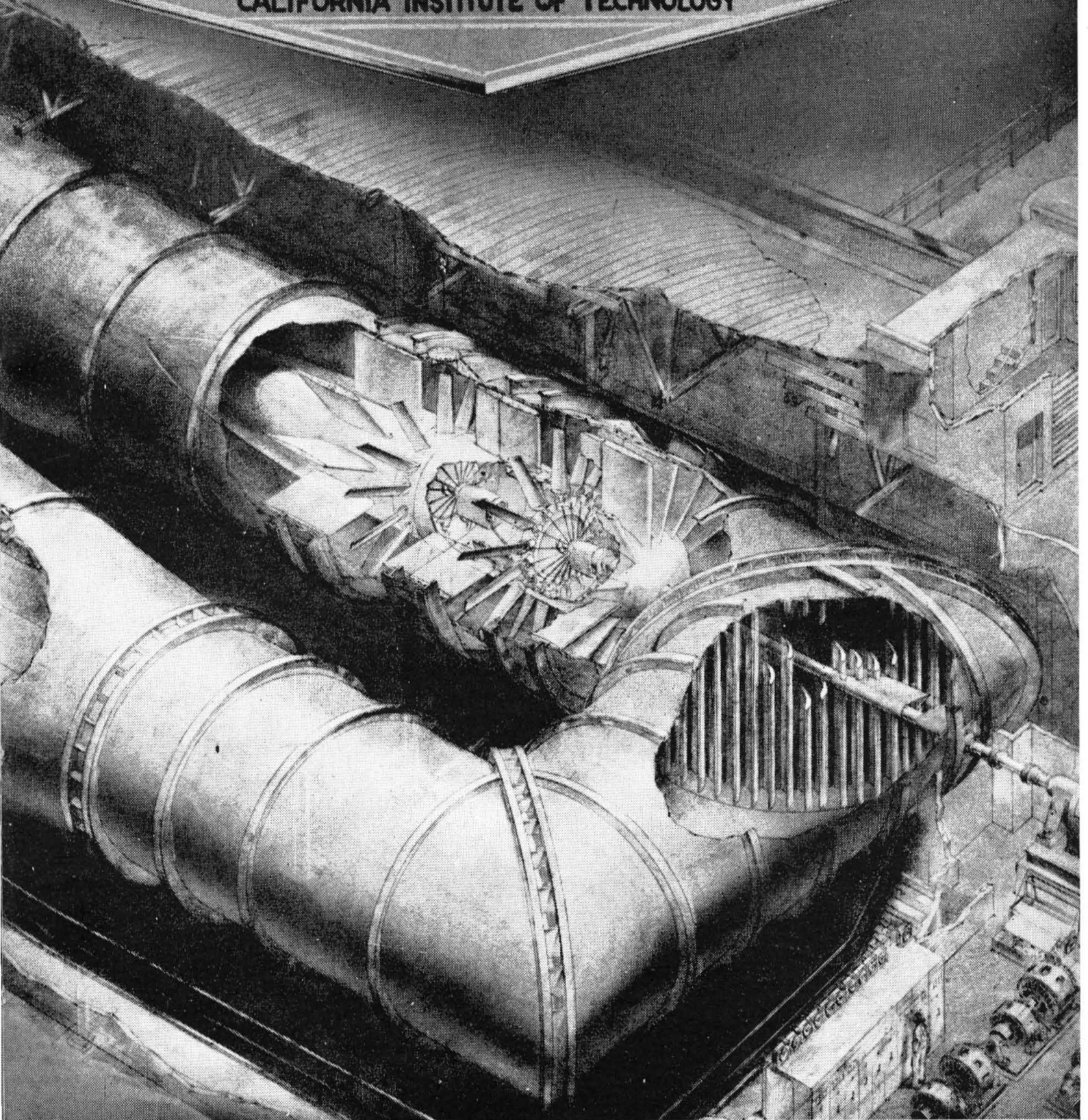
DOUGLAS

LOCKHEED

MCDONNELL

NORTH AMERICAN

CALIFORNIA INSTITUTE OF TECHNOLOGY



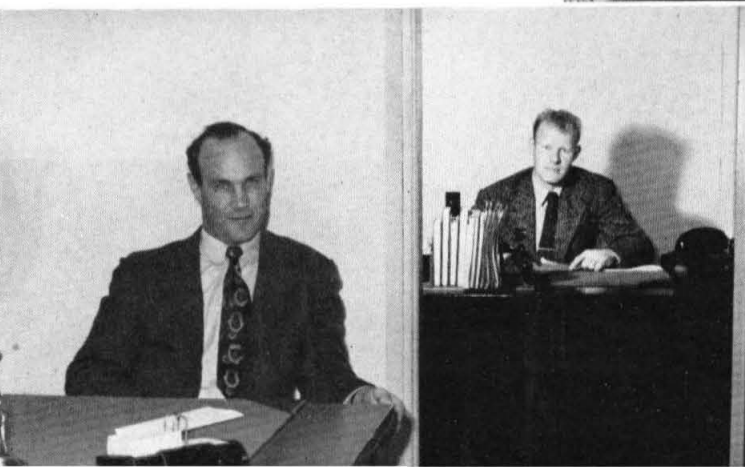
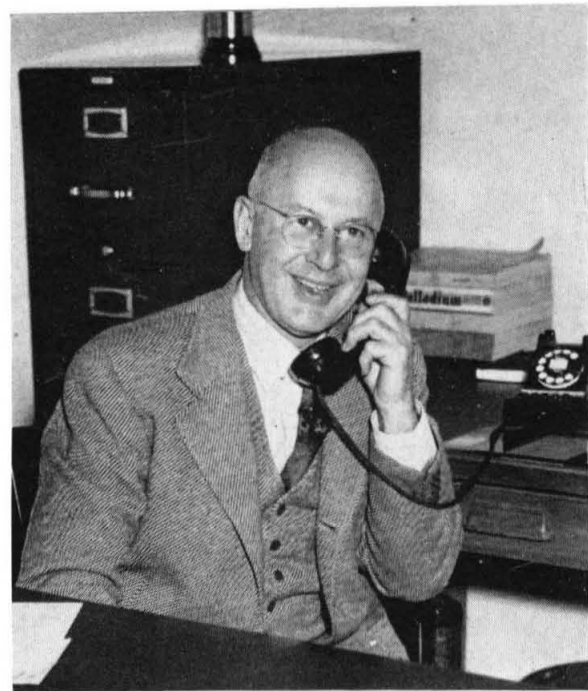
DRAWING BY RUSSELL W. PORTER

S P O R T S

ATHLETIC OFFICE



Here is the machine behind the machine; here last week's game is replayed, eligibilities are checked, and P.E. blue slips are issued; here reside the records of every exerted muscle since the Indians built Throop Hall.



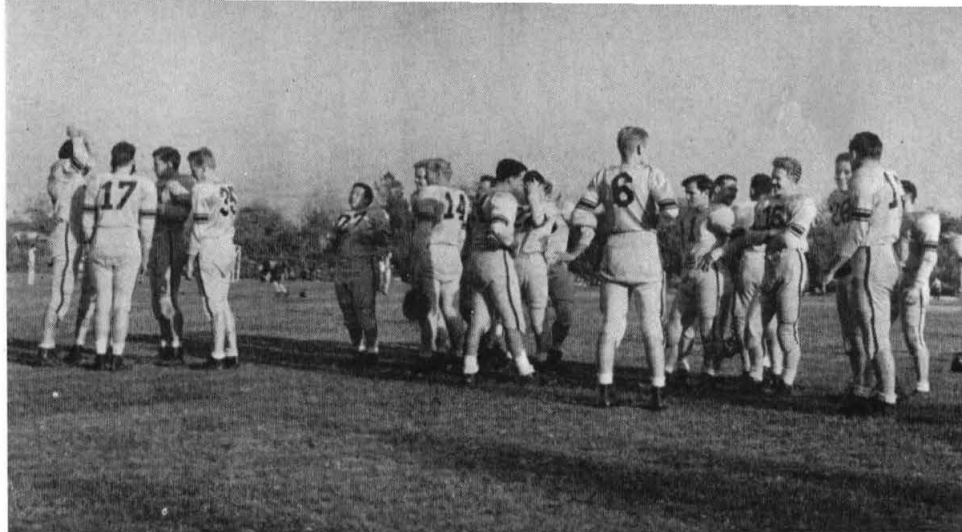
HAL MUSSELMAN

MIRIAM COYLE, LOUISE McGEE

ED PREISLER, JIM NERRIE

The muscle-trust spent most of its time this year in the fields and all but neglected to function; we are assured, however, of activities in various social lines beginning almost any day, at least to the extent of self-perpetuation.

The annual pilgrimage to the township's booze parlours met with its usual warm reception. Many were won to the new life.



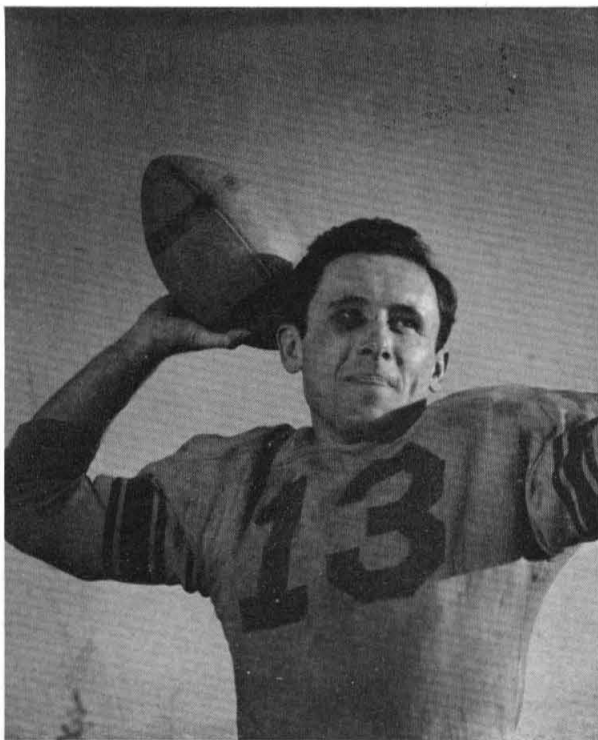
VARSITY CLUB



OFFICERS: BILL PALMER, MARTIN WALT, BOB FUNK, JAY MONTGOMERY

TOP ROW: MORRISON, CLARK, KARIOTIS, LONG, SALTMAN, COX,
DOUG BROWN, BASS, HIBBARD, SCHUSTER
SECOND ROW: WALT, HENDRICK, HALL, MARSHALL, HOUSER,
PALMER, BOICOURT, CURRAY, SCHROEDER, FUNK, MONTGOMERY,
SELLEN, PATTERSON
THIRD ROW: E. J. BROWN, HARRIS, KAM, BARNES
BOTTOM ROW: MARKS, SIMONS, NORMAN, WALQUIST, TYSON,
SHALLER





CAPT. BOB FUNK
COACH ANDERSON

FOOTBALL





TOP ROW: TAYLOR JOYNER, DON SCHMID, DENNIS LONG, ART MILLER, HAL TYSON, CRAIG MARKS, MANUEL BASS, JIM BLOM, HERMAN WALQUIST, RAY JOHRDE, DAVE POWELL, BILL RUMER.

SECOND ROW: PETE MERINGER, CHARLES BATES, NOEL REED, FORREST ALLINDER, BILL SYLVIES, ART BERNER, JOHN REEDS, BOB MUNO, JOHN LEWIS, E. I. KARIOTIS, ODELL CARSON, BILL MEUHLBURGER, AL SERENO, COACH ANDERSON.

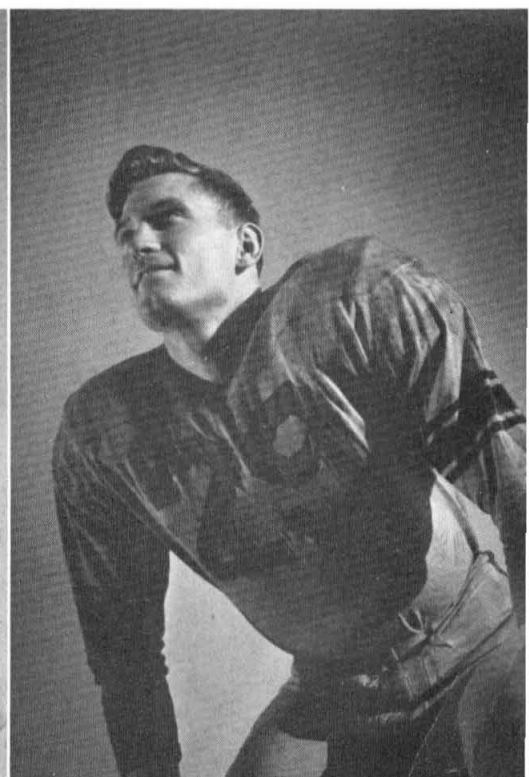
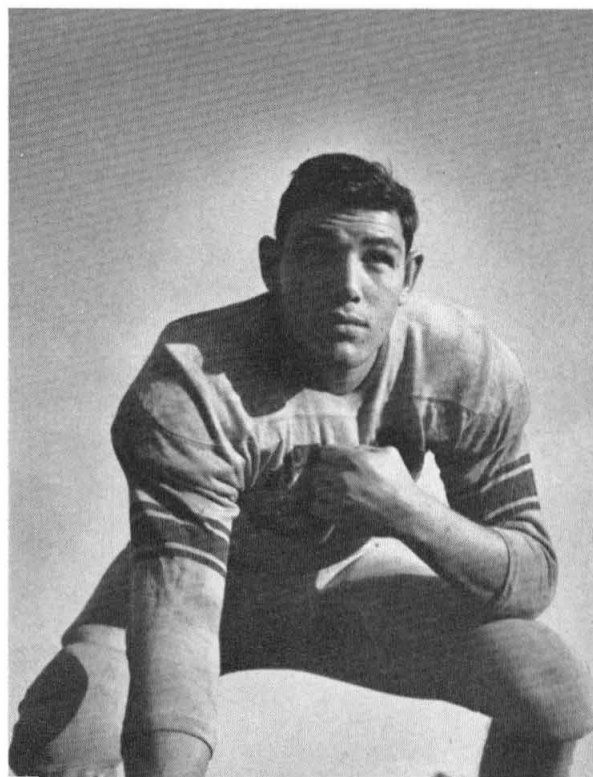
THIRD ROW: AL HOOK, BAIN DAYMAN, CHUCK NORMAN, CHARLES HOWARD, SCHOFIELD, BYRON KARZAS, DICK SCHUSTER, BOB FUNK, DON BAKER, DAVE MANNING, DON HIBBARD, JIM WILCOX.

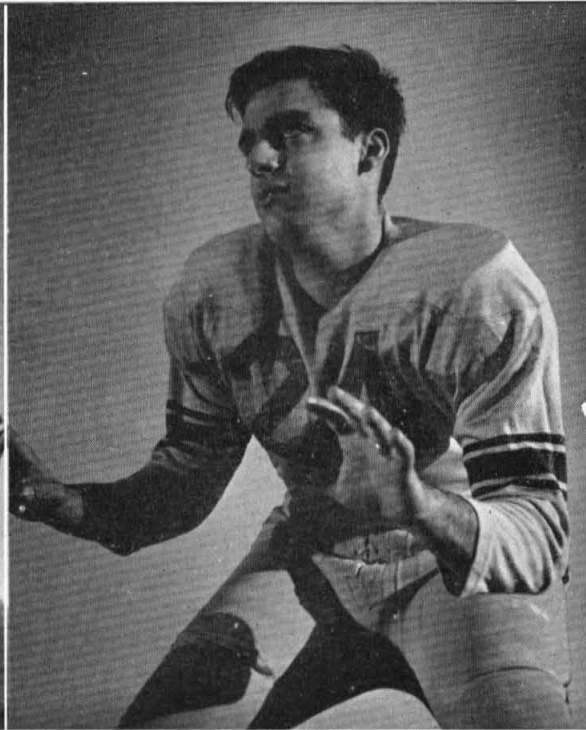
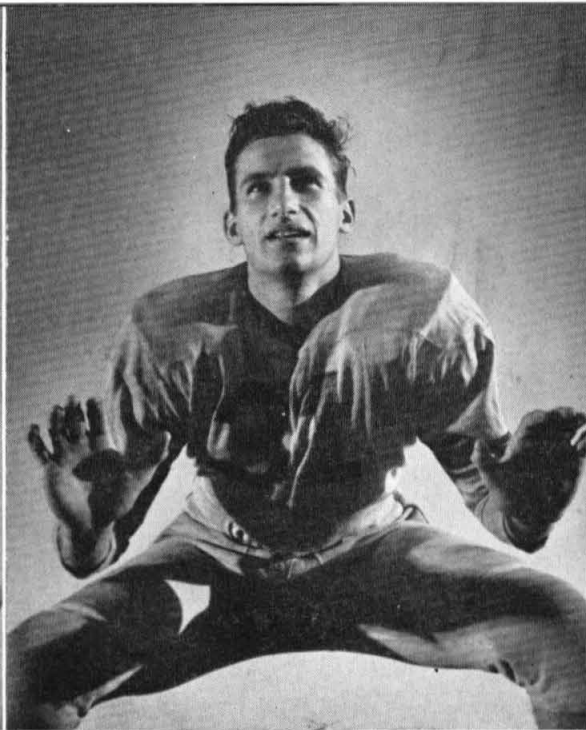
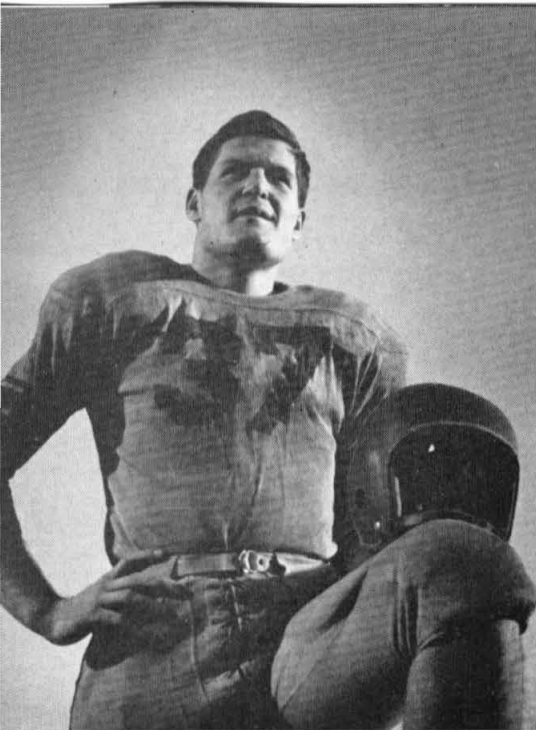
BOTTOM ROW: MERLE KAM, WALT BIGGERS, JOHN BJERKLIE, EDEL WORRAL, FRED DARMS, DAL PECK, NEAL PINGS.

MANUEL N. BASS, DON HIBBARD

What looked last spring to be the best Tech football squad in years, was torn to shreds by injuries before the first conference game; even so the squad showed plenty of power from time to time. It was really a fighting outfit in the Oxy and Pepperdine games.

That we were not lacking in rough men is shown by the honors to members of the team. Manuel N. Bass was picked to little All-America, and little All-Coast besides All-Conference where he, Dennis Long, and Herman Walquist swept the tackle berths. Don Hibbard at end and Craig Marks at guard also were elected to All-Conference.

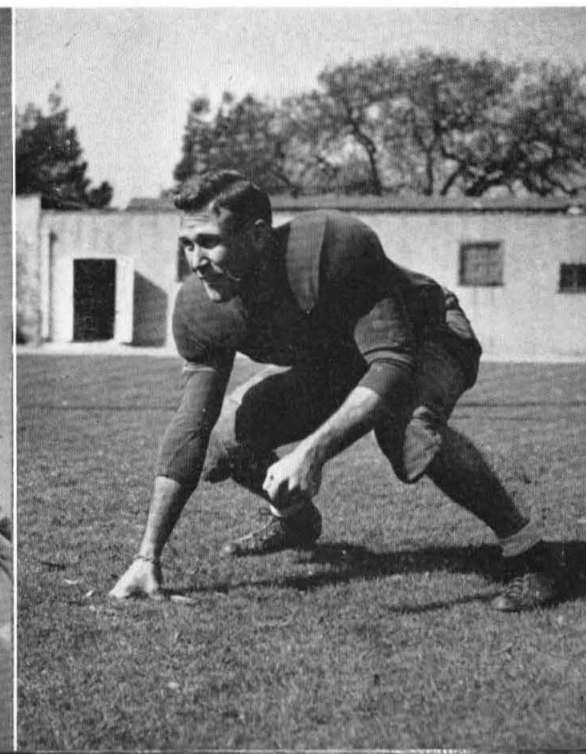




HERMAN, WALQUIST, JOHNNY KARIOTIS, BYRON KARZAS

In dropping the Pepperdine game by only a couple of PAT's the boys sent something of a shock of surprise through the experts. It was by far our best game; work horses like Kariotis and Funk played inspired ball. We need make no excuse for a team that played that kind of ball even though we won but one game all season.

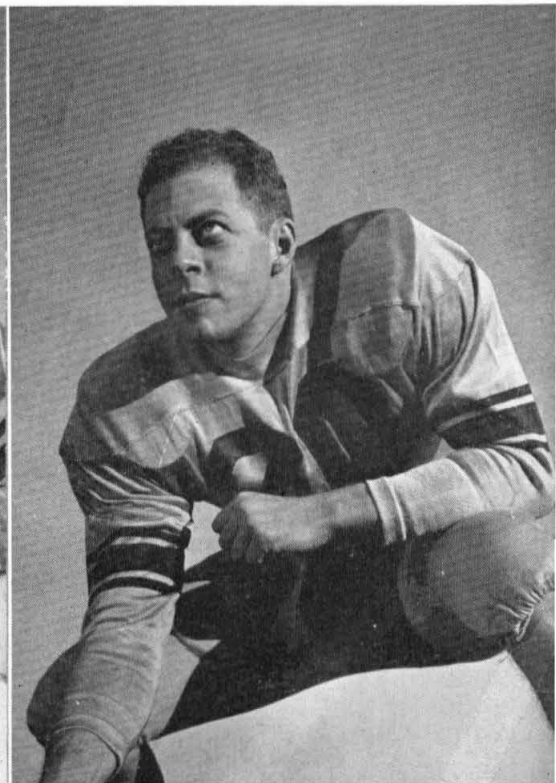
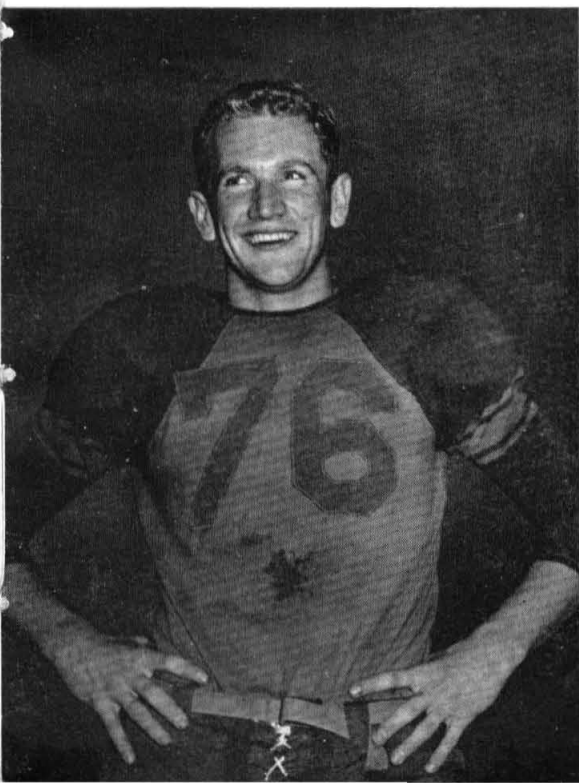
DAVE POWELL, FRED DARMS, DICK SCHUSTER

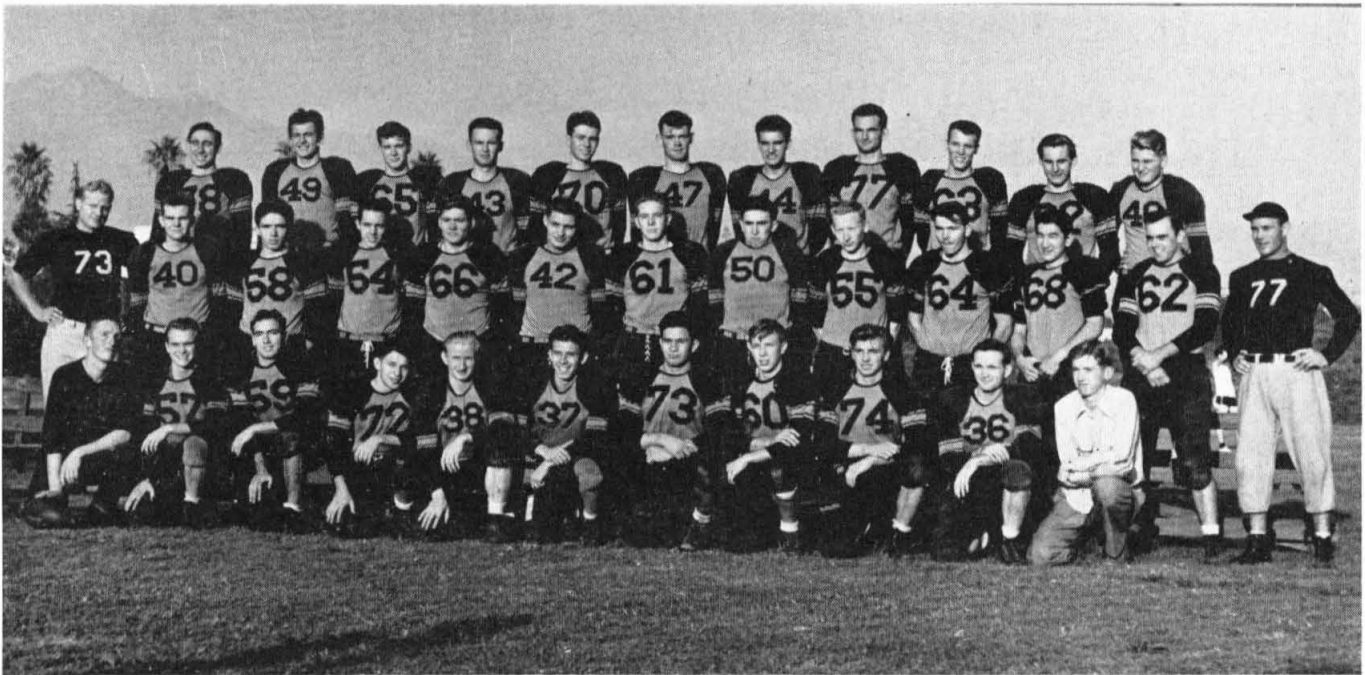




FOOTBALL

DENNIS LONG, FORREST ALLINDER, RAY JOHRDE





TOP: WOODY, PATAPOFF, BARTLETT, KEY, PETERS, MICHELSEN, BELLMAN, EARNEST, IRWIN, MARSHALL, DESTABELLE
 SECOND ROW: OLSON, SMITH, KEIR, DICKENSEN, LAMAR, FULLER, COOKE, PECK, GAINES, WISE, KARASAWA, CASSIDY, COACH PREISLER
 THIRD ROW: BANKS, DAVIS, PALAKOFF, LAFF, PAULSON, COOK, WEBER, JONES, CAGLE, ROSS, MERCURE

FROSH FOOTBALL



COACH ED PREISLER

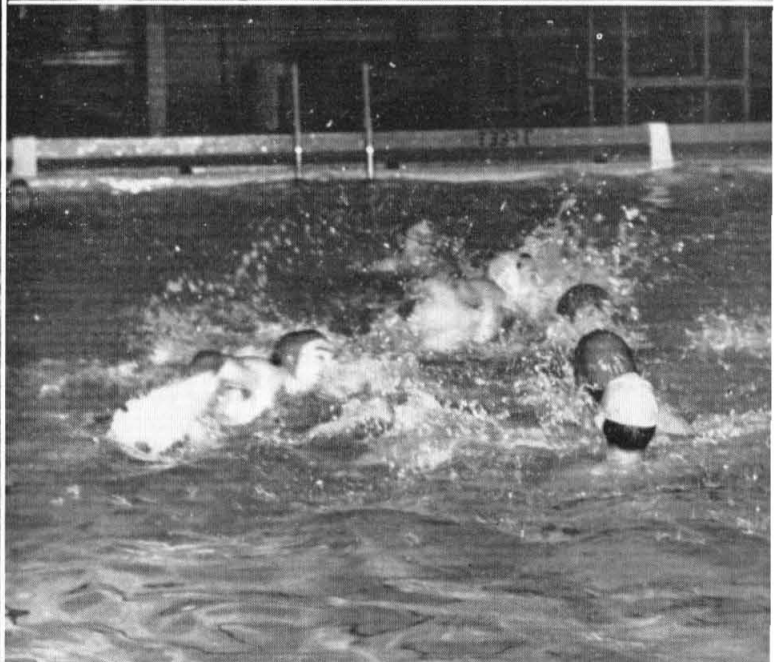
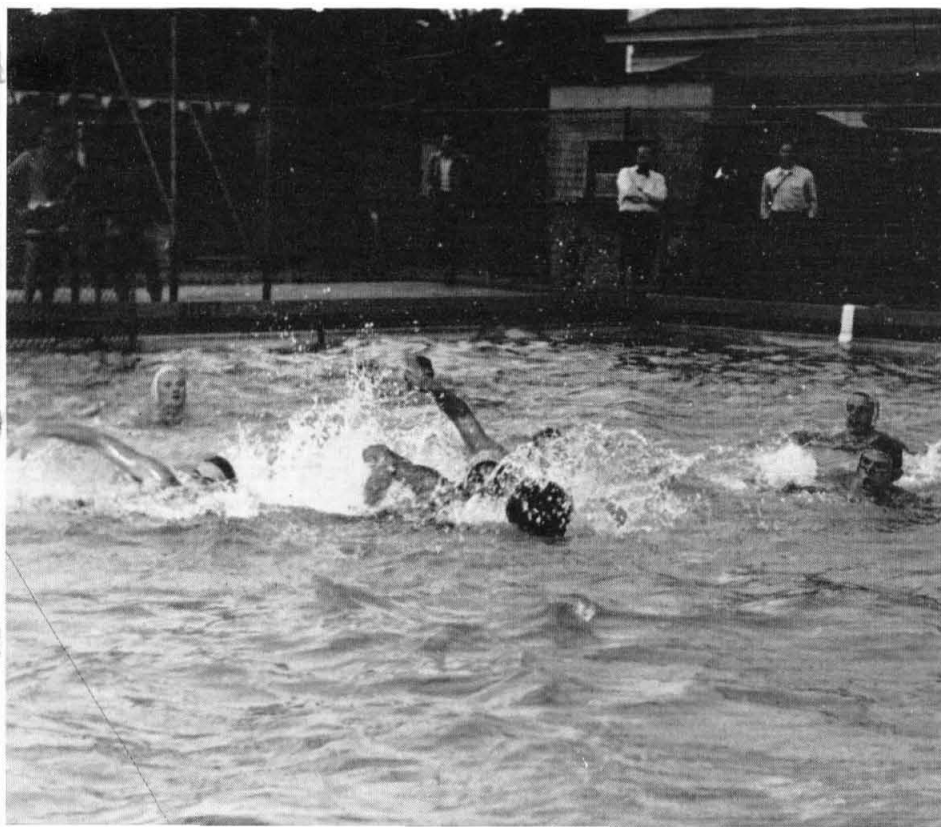
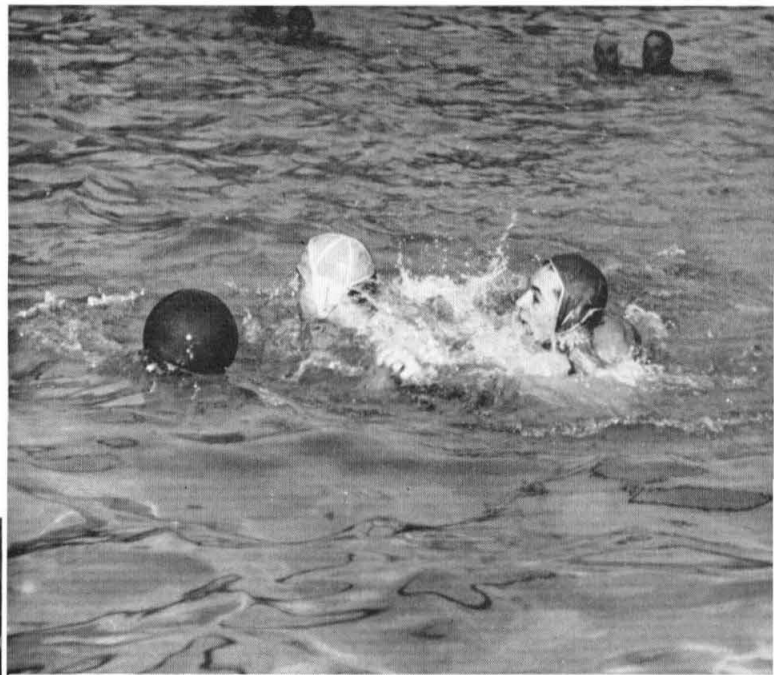
Tech's farm system, under the whip of Ed Preisler, had little luck in action. The Frosh managed to score but a single TD during the season, but the lads, few of who had been in a football suit before coming to Tech, learned pretty well and improved a lot in the course of the season. Next year we will all see how they learned and how they will put it to work.



With the returning experience of Waters, Palmer, Reinicke, Stert, Harris, Hall, and Schneider, and promising new material in the person of Dick Libby, the polo boys looked forward to a scoring season. The first game, against Muir C. C., seemed to uphold this sentiment, but a rapid succession of injuries left a crippling victory in the first team line-up.

Playing such a rugged list of advisories as U.C.L.A., San Jose State, and Loyola, the squad gave out with a series of remarkably close and hard fought games. But the disappointment of the year was the double loss to Oxy, once by one point and the other meeting by two goals.

WATER POLO





COACH BUD CARROLL



CROSS COUNTRY

FIRST ROW: KURLAND, SHAKESPEARE, BASHAM, ABELL, PETERSEN, MARSHALL, CORNELIUS, EDWARDS, BOWERMAN, LANS-DOWN, COACH CARROLL
 SECOND ROW: KARZAS, SMYTH, MASON, SELLEN, COBB, BROWN, HOUSER





FROSH

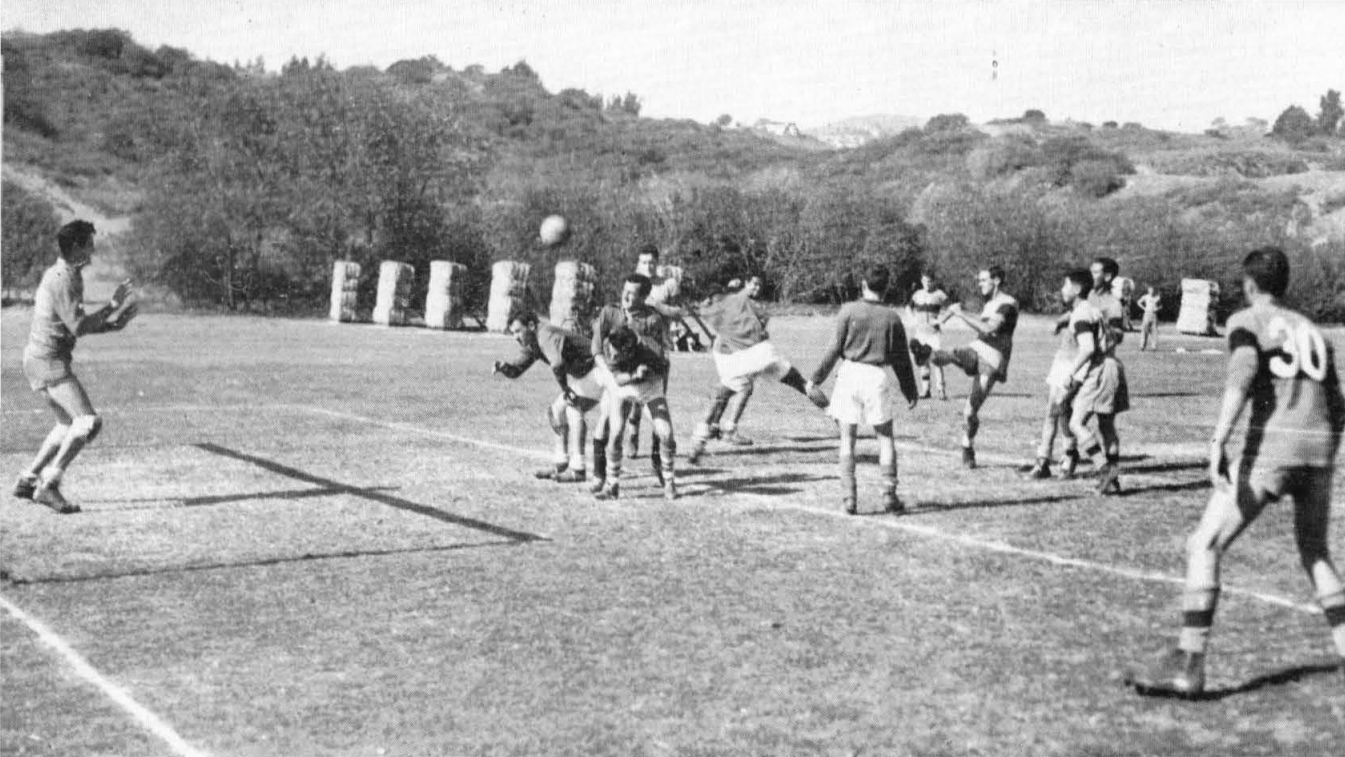
The Cross Country have good reason for pride; the trophy that Petersen is holding on the other page goes to the Conference champs, and it was a decisive victory. We got our five men in the first nine in the finale. The Frosh came through too, were just nipped for first place by Occidental. You've really got to hand it to the gut-busters who have shown that they're right at the top in about the most gruelling of all sports.

Only Oxy presented any difficulty for the Frosh leather lungers; they won all their other dual meets with facility and were just barely nipped by Oxy for the Conference laurel. Bill Pilkington was the big gun and Parnes and Ron Conner lent him a good deal of incentive.

A lot of credit should go to Bud Carroll who cajoled and bludgeoned both the frosh and the varsity to their fine records. But even without Bud and his pearl-handled bullwhip these boys will make life over the barriers rough in this Conference for three more years.

TOP ROW: RAWN, BUD CARROLL, FISCHER,
CONNOR, PARNES, KARZAS
KNEELING: PILKINGTON, BUTLER





Due to the activity of interested supporters, student, Faculty, and Staff, soccer was resumed this year as a varsity sport. When two students presented themselves before Mr. Mussleman and asked for a field, equipment, and recognition, they had nothing to offer but an idea. The idea might have died then, if not for the appearance of twenty-two men who were willing to gamble on the success of the sport. Help came as a result of many telephone calls to anyone who might know of collegiate teams from the first. Soccer clubs were our best contacts.

The first game was with U.S.C. Troy whipped the Bruins 4-0 and cleaned the Engineers 3-0. This game, even though a defeat, was enough to convince the Athletic Office that Cal Tech had a team. A Three Game Series was then played with U.C.L.A., resulting in one game which lasted 120 minutes. For an hour and forty minutes the Bruin was held,

but finally numbers told and the frosh reserves forced a goal on the tired Engineers.

The following week a game was played with Pomona. The visitors played excellent ball and held the Orange and White to a 1-1 tie. In a return match Galloping Dave Madden tipped the balance, and the Pomona team was thoroughly beaten 5-0.

With the season drawing to a close and a victory under their belts, the Engineers took on the L.A. All Stars. The first half the All Stars scored two goals and did as they pleased: the second half the Engineers got together and rolled through two of their own. They were refused an overtime by the referee, but had the consolation of knowing how the game would have ended if it had gone the limit.

At the close of the first season the members of the team had played the best Collegiate teams in the State in a manner to reflect credit on themselves and the school.

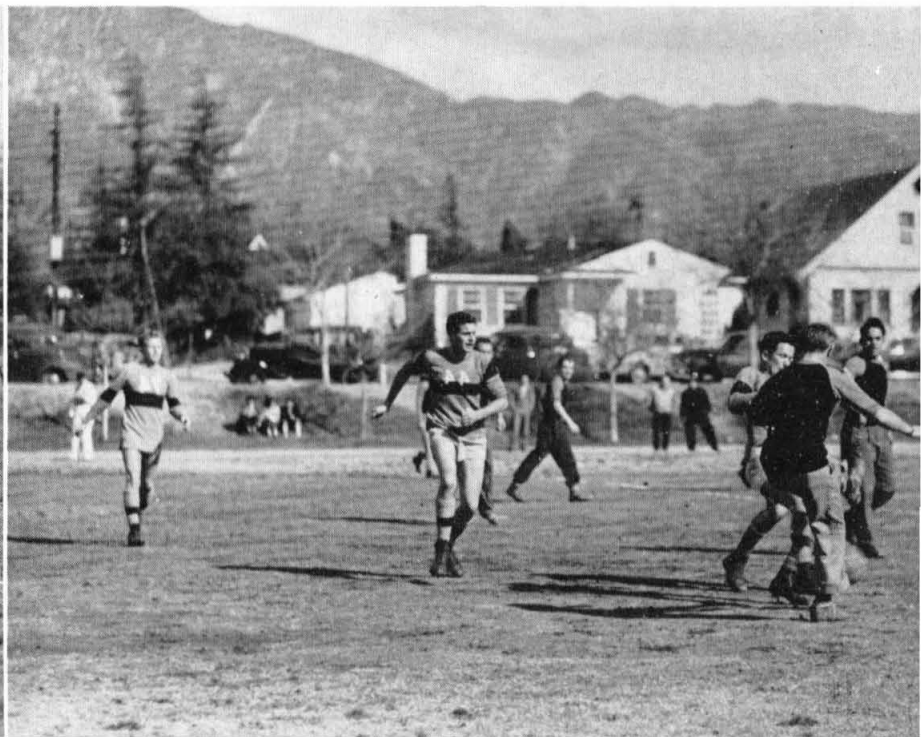




TOP ROW: DAVE MADDEN, LEO BAGERLY, DICK FAIRALL, DICK BENNET, JERRY SICHEL, BARRY SCHUYLER, CARL OTTE, HAL MARTIN

BOTTOM ROW: JACK SCANTLIN, ERNIE WEBER, HANK CLUTZ, STEVE CHONG, BRAD HOUSER, CARLOS NAVARRO, DAVE MacKENZIE, CHAS SHALLER

SOCCER





COACH SHY



BASKETBALL

The Caltech basketball team came out with its version of the "new look" in the opening game of the season against Redlands. Sporting flashy new uniforms and warm-up suits, and displaying a new zone defense, Coach Carl Shy's boys smothered the fast-break offense of the visiting Bulldogs to upset them 53-40.

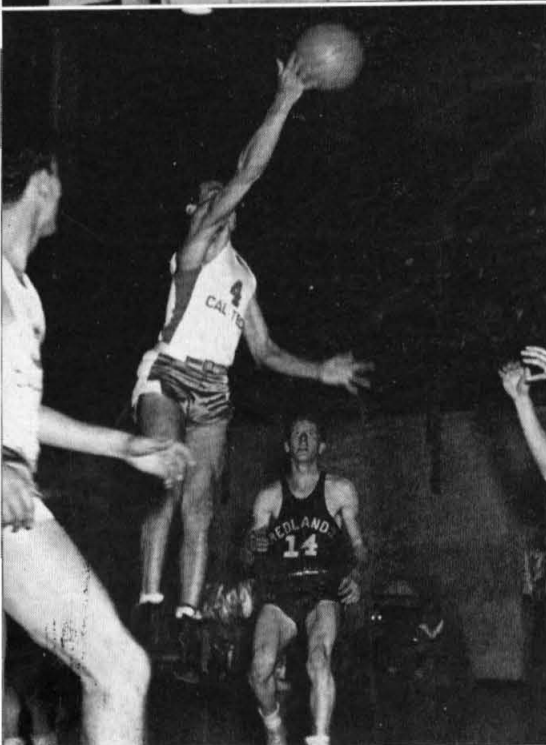
The following Saturday the Beavers were hosts to the Occidental varsity on the renovated Pasadena City College floor. Accurate long shots by the Tigers brought them an easy 63-41 victory over the Engineers.

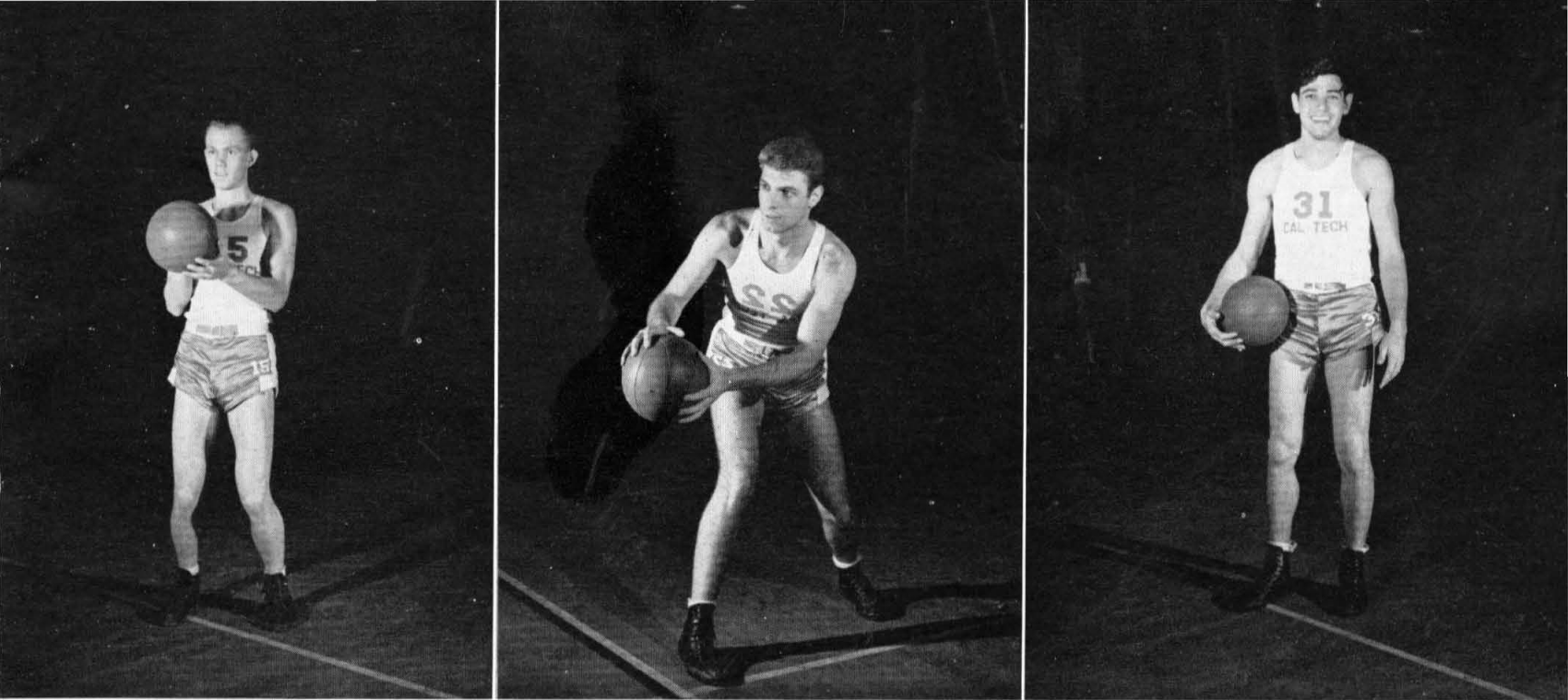
Still jinxed by their adopted "home court", the Tech team displayed a discouraging tendency to panic under pressure as they lost to Pomona, 42-40, after leading most of the game.

In the most thrilling game of the year, the Beavers nosed out Oxy 65-64 in a double overtime on the P.C.C. court. Center Paul Saltman led the scoring with 26 points.

After trailing by ten points at half the team made a game second half rally which fell just short as Whittier beat them 48-44 on the Poet's court.

Tech traveled to Redlands the next weekend only to lose a heartbreaker 50-48. The winning basket was made on an uncanny shot from midcourt which was in the air when the gun sounded to end the game.

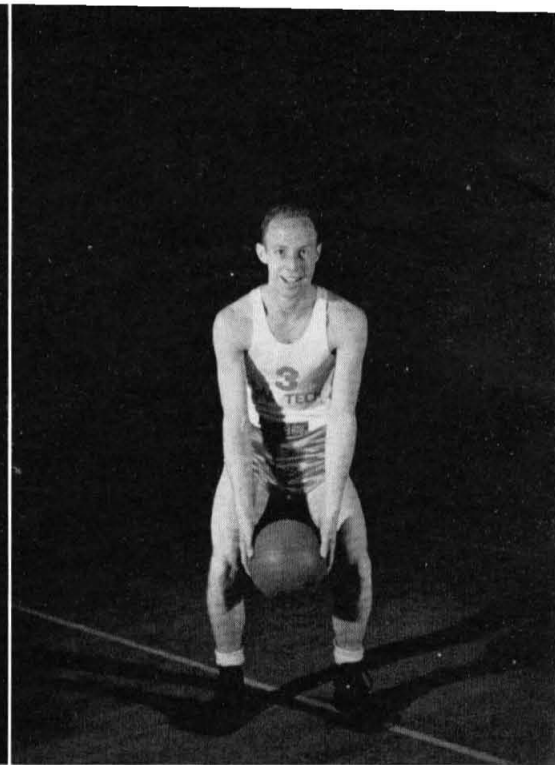
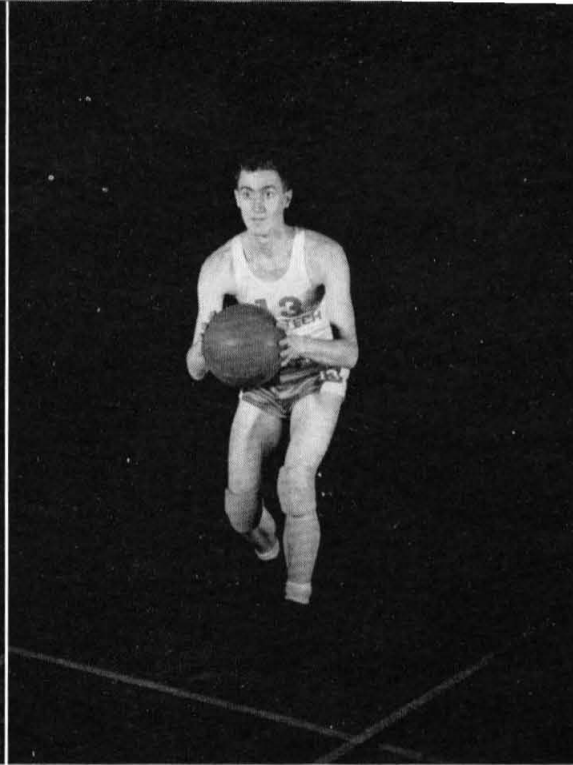
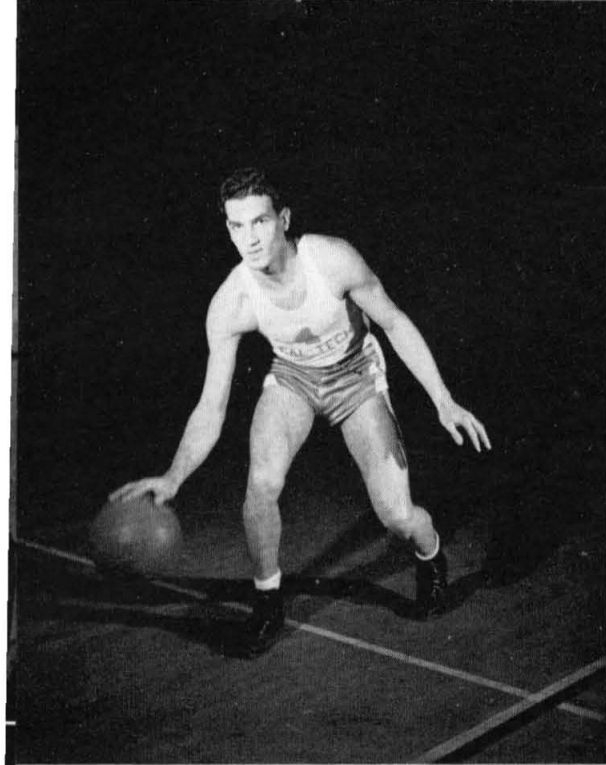




TED BOWEN, PAUL SALTMAN, MANUEL BASS

TOP ROW: BUTLER, SWEET, BRUINGTON, BASS, COX, ENGLAR
 ROW TWO: BOWEN, SALTMAN, SHY, SERENO, VREELAND, LIBBEY
 KNEELING: BAKER, MONTGOMERY, STERN, DAILY, GREUTERT





AL SERENO, BILL COX, JAY MONTGOMERY

Whittier demonstrated its championship form in romping to a 58-38 win over the Caltech five at PCC. The Poets cracked the Engineer's zone defense wide open in this second encounter.

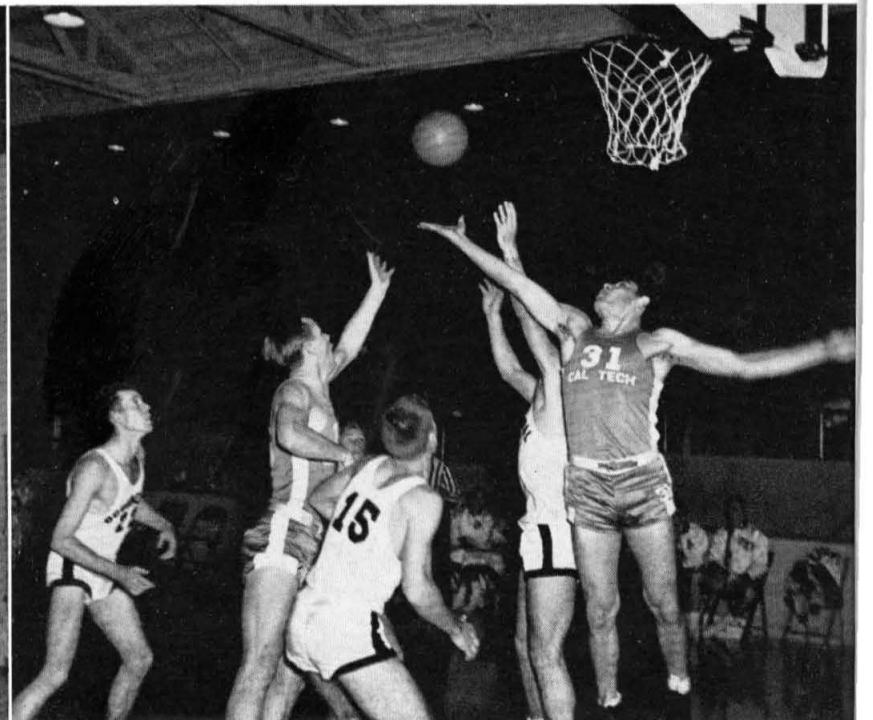
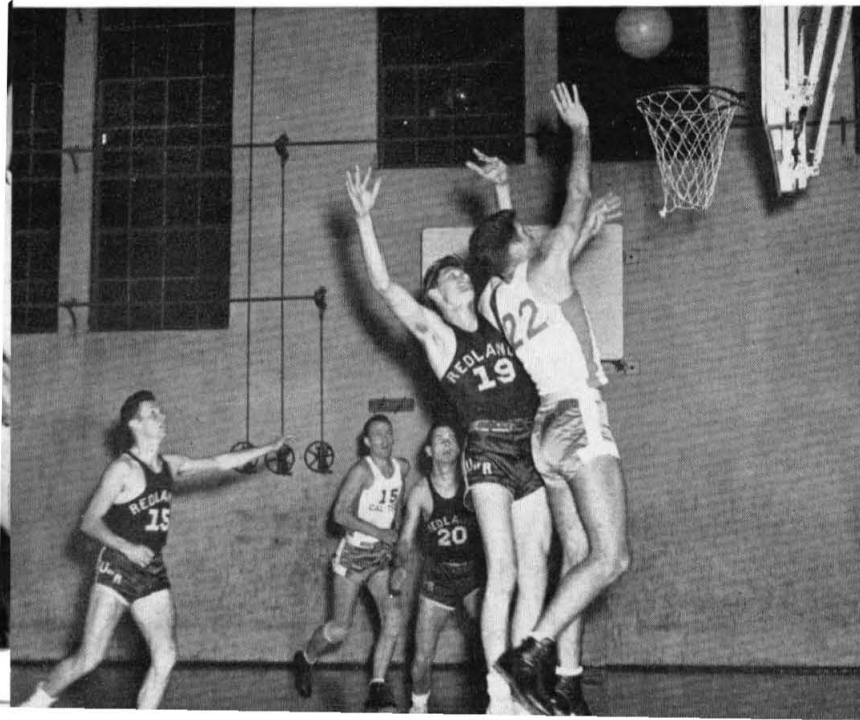
Trailing by four points with four minutes to go, the Beavers were forced to abandon the zone defense to counter the stalling tactics of the Pomona quintet. The Tech team fell apart at the seams in the unfamiliar man-to-man defense and lost this final game of the season 63-47.

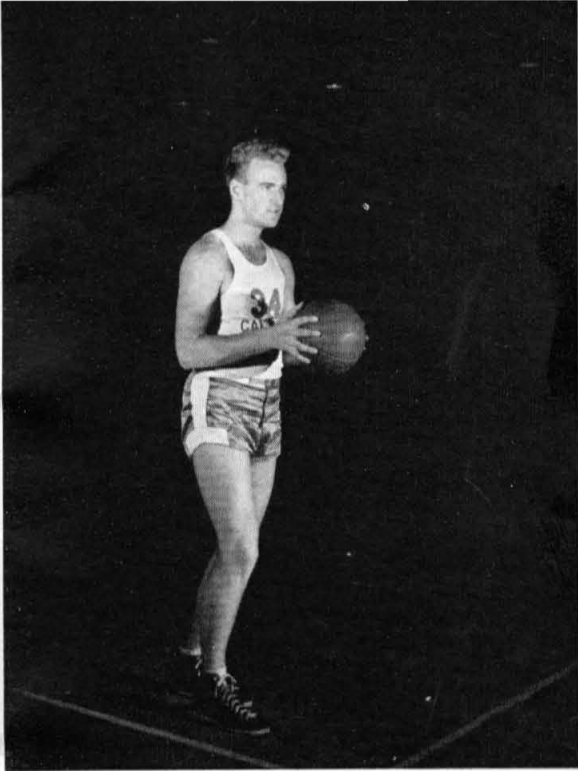
The final record showed two wins and four losses which meant a tie with Oxy for fourth place in league standings. All in all it was another year of character building for Coach Shy.

Among the characters built none loomed larger than Captain Paul Saltman. "The Goon" was third highest scorer in the conference with an average of 15.8 points a game and was an unanimous choice for the all-conference team.

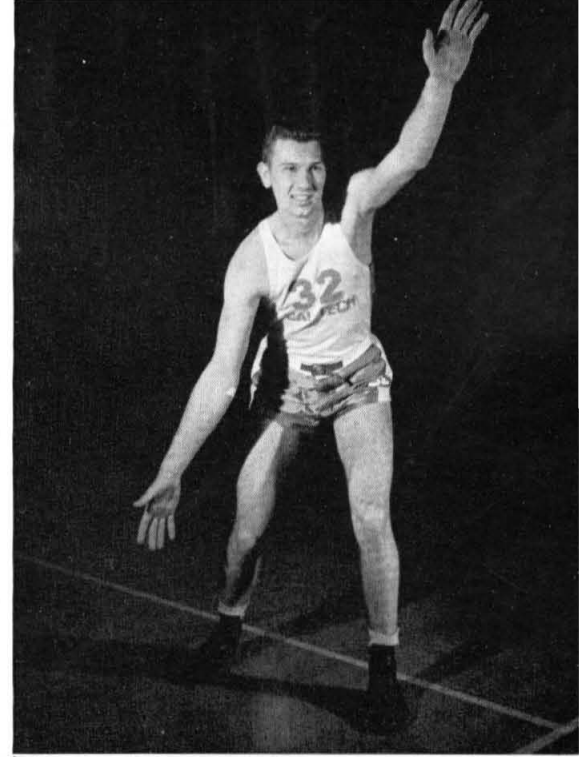
Rounding out the front line were Ted Bowen, Thorne Butler, Art Bruington, and Manuel Bass. All brought invaluable height into the line-up and Ted was the team's second highest scorer.

Al Sereno, Jay Montgomery, and Bill Cox handled most of the chores at the guard spots. Al was the speediest and most aggressive man on the squad while Jay and Bill were a steadying influence on both offense and defense.

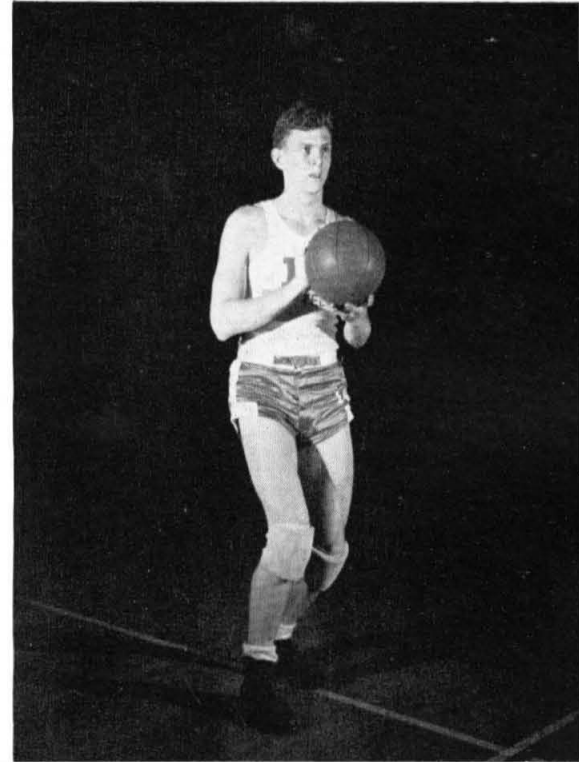




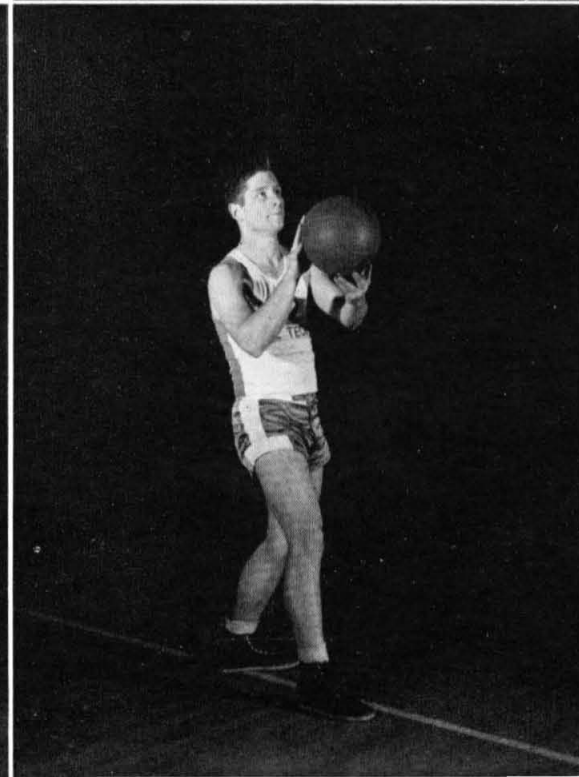
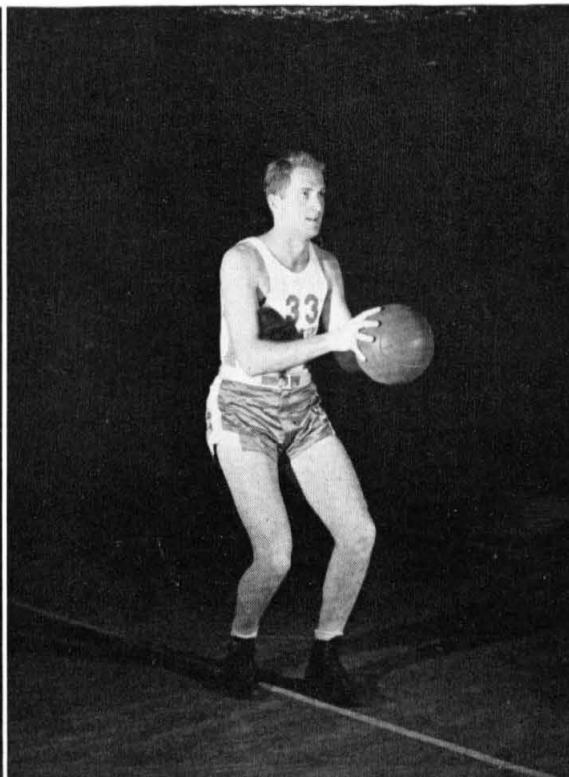
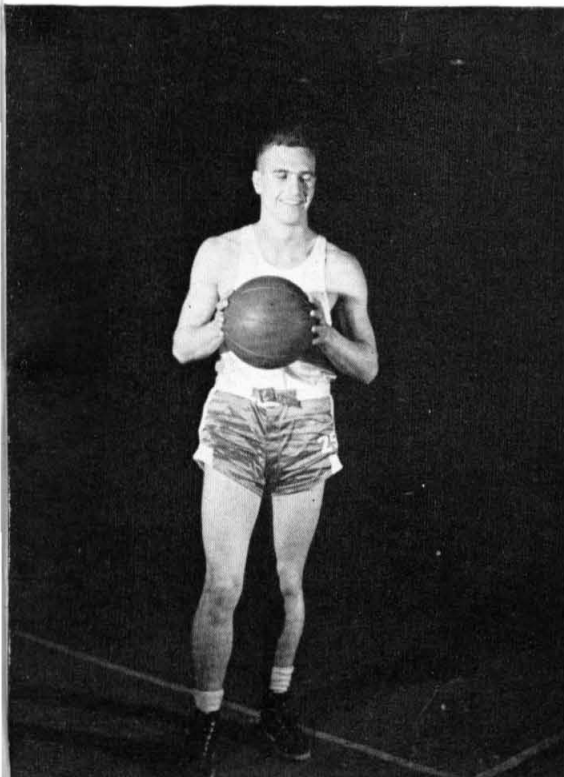
SANFORD SWEET



BASKETBALL



ART BRUINGTON, DICK LIBBEY
DON BAKER, THORNE BUTLER, DEAN DAILY

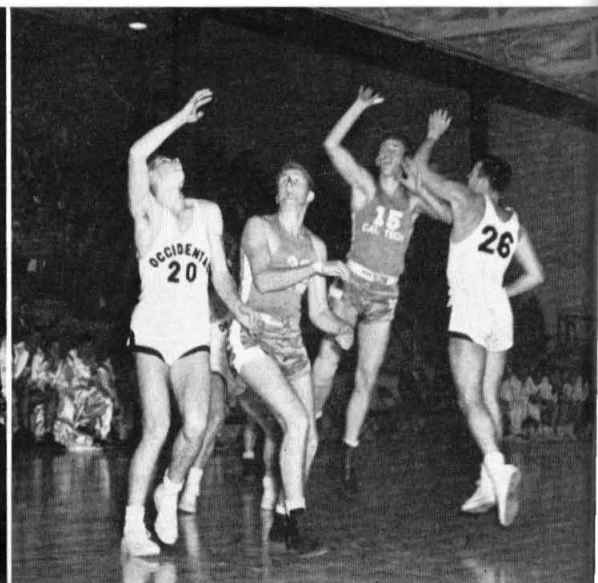
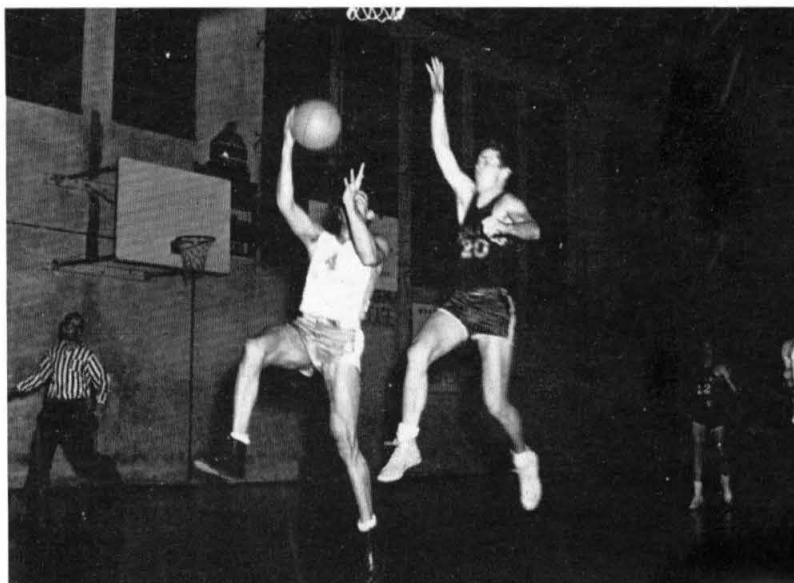




TOP ROW: ED PREISLER, McCOURT, PATAPOFF, GRAY, DIBBLE GRANGER, PETERS, MICHELSON, TAUTZ, KRAUSE, EARNEST
 SECOND OW: LEE, BROWN, KARASAWA, TRACY, SNIDER, MILLER, STUART, PALAKOFF, BOYER

FROSH BASKETBALL

Once the Frosh basketballers got to rolling, there was no stopping them and after some shuffling they emerged in a three-way tie for a Conference first. Norm Gray, Henry Patapoff, and Leon Michaelsen shone particularly as they mixed what experience they had with the guiding of Ed Preisler. In every game the Beababes were battling to the final honk and more than once that drive brought them the pork in the last minutes of play. These boys will make the varsity snap in the race for berths next year, just watch.



EDWARD REVAY

ALICK BENNET

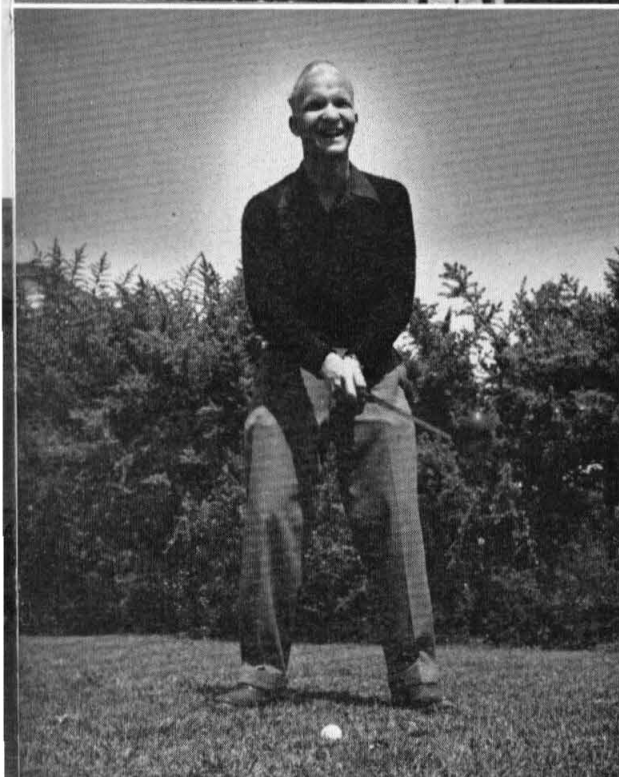
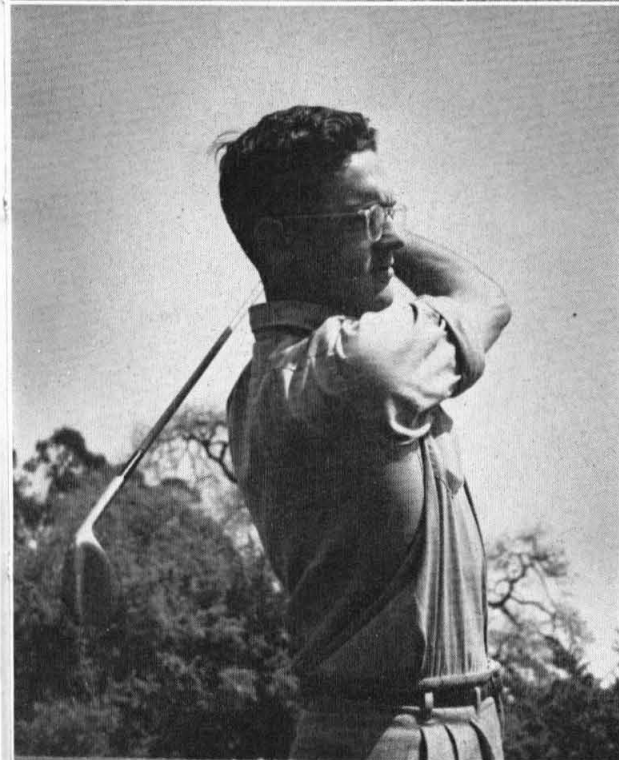
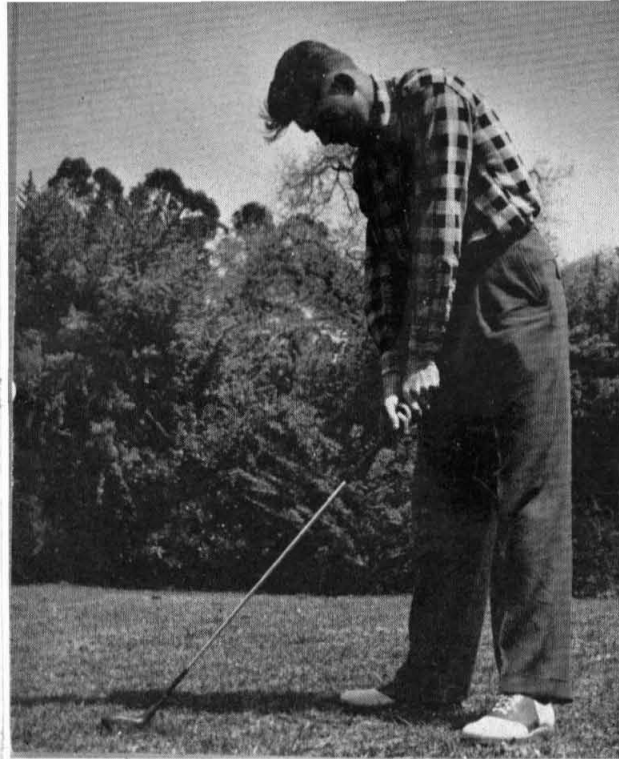
VERGIL SIMS

GOLF

The golfers ground their gears getting started and lost their first two matches in a grand freeze. They dropped one to Pomona and one to Whittier; then came roaring back to blast Redlands, 16 to 2. Revenge came on Whittier next, 10-8, Ed Revay coming through with a 73 in this meet to win a sneeze of approval. Ed has performed in number one spot, captained and coached the team, and has been a general shining example to all. Dick Bennet, nursing a gimp, has turned in some fine work in number two spot with Jocko Moffat coming up well in No. 3. Steve "Big Holler" Pardee is swinging some mean sticks in his first year with the team.

If the team takes Pomona next round, which they figure to do, odds are that they will bring home the Conference soup bucket; and with the team to remain virtually intact next year a repeat might well follow.

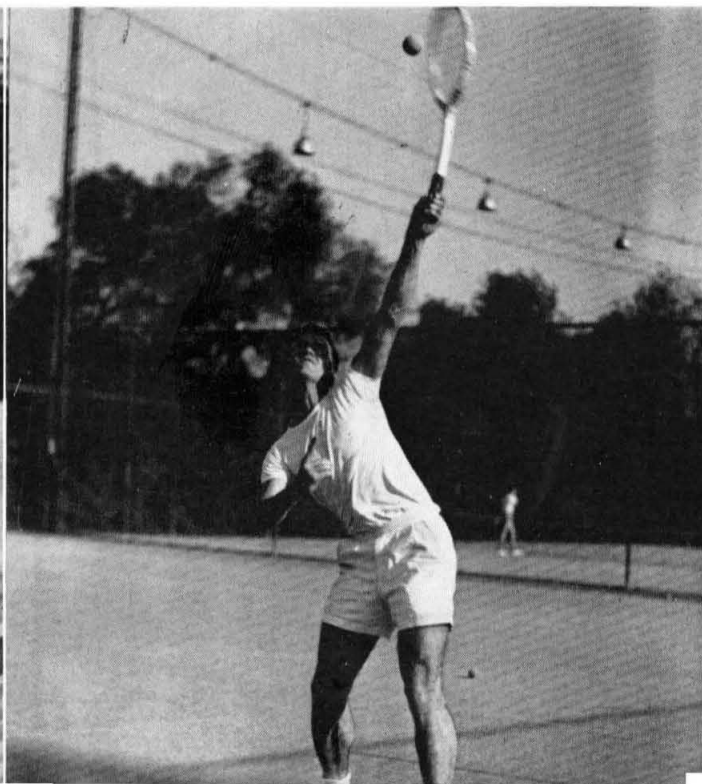
TOP ROW: BOB BENTON, STEVE PARDEE, JACK MOFFAT, VERGIL SIMS, JOHN KASTELAC
KNEELING: DICK BENNET, ED REVAY, BOB PARKER



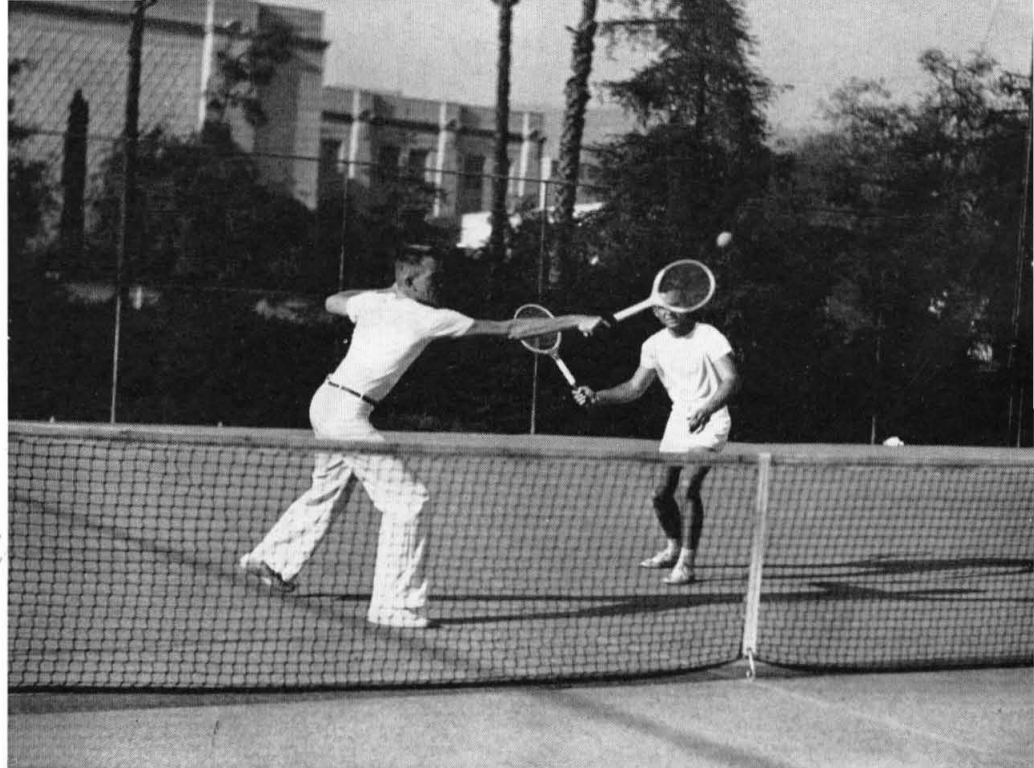


TOP ROW: BERK WELCH, THORNE BUTLER, ED ALEXANDER, DEAN BLANCHARD, DON SCHMID, JOHN LAMB
SECOND ROW: HUGH MARTIN, SID STONE, JACK POINDEXTER

ED ALEXANDER, HUGH MARTIN



This year it looks as if Tech is going to have a conference Championship brought home by the redhot Tennis squad which has remained undefeated in six straight starts. Led by such back-court experts as Sid Stone, Ed Alexander, and Larry Nobles, the Tech Racketeers have turned back all opposition with imposing scores. Under the learned tutelage of mentor, Johnny Lamb, men like Thorne Butler, Hugh Martin, and Jack Poindexter are gaining valuable experience and are giving good accounts of themselves in conference competition. However, it will be a real job to replace the top singles men when they graduate this June. At present, however, with the best tennis squad at Tech since the war, no one is worrying about next year but are keeping fingers crossed, and hoping that the old Tennis Trophy will be sitting in Lower Throop at the completion of this season.



JACK POINDEXTER, DEAN BLANCHARD

TENNIS



SID STONE



JOHN LAMB

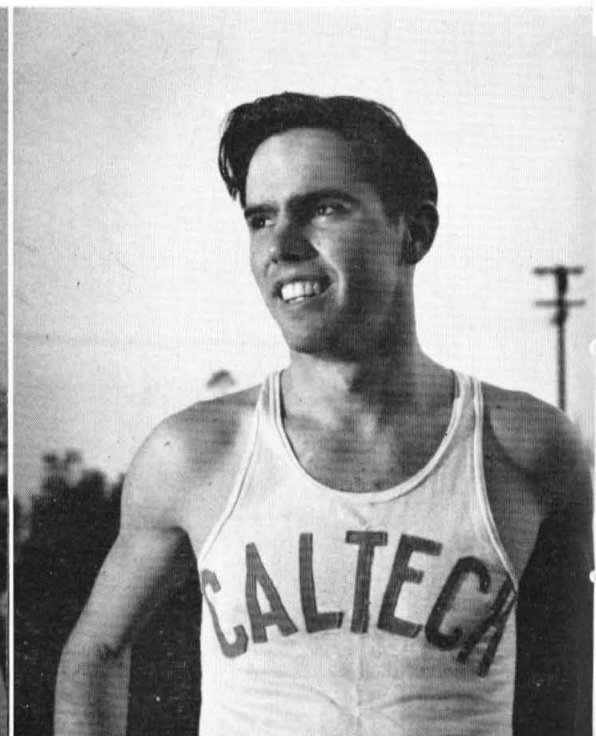
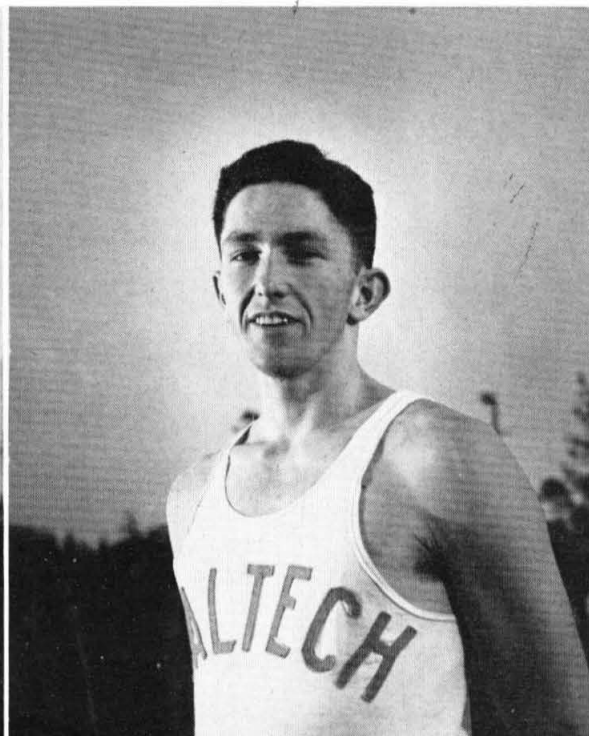


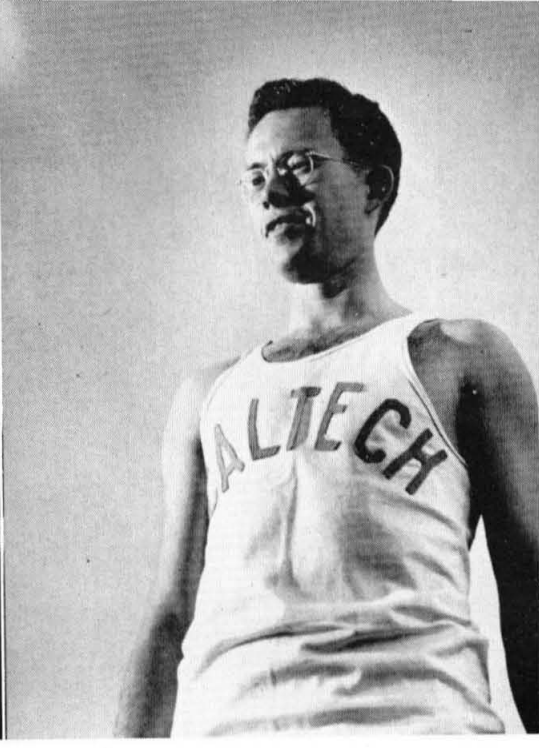
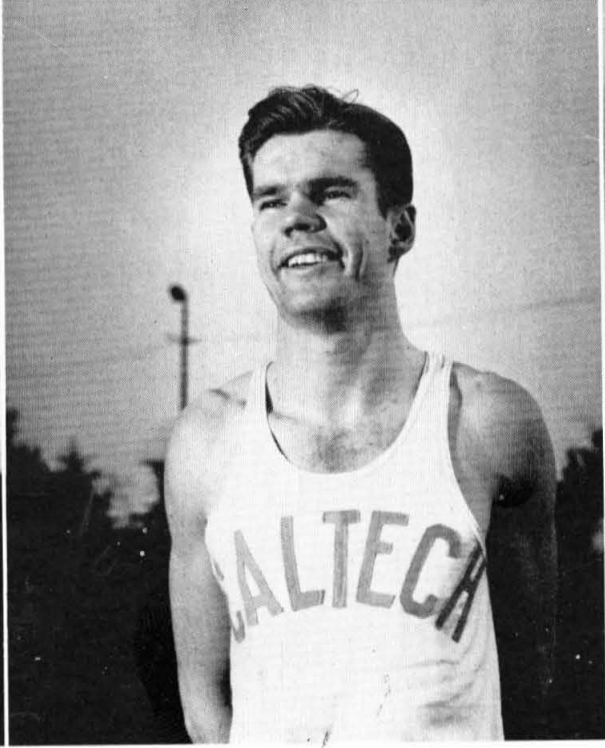
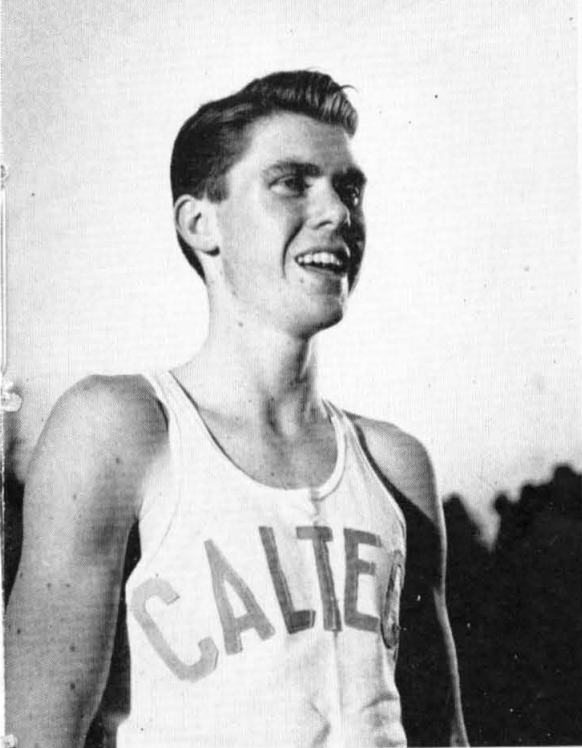
TOP ROW: COACH ANDERSON, MASON, CORBATO, BEGG, E. J. BROWN, BASHAM, SCHROEDER, HEGGLAND, WALT, ALDER, DOUG BROWN, BARNES, BASS, CORNELIUS, MARSHALL, LEWIS, SIMONS, TYSON, SYLVIES, MADDEN

SECOND ROW: SCANTLIN, PAULSON, SHALLER, COBB, PETERSEN, WILCOX, EDWARDS, LANSDOWN, KARZAS

THIRD ROW: SELLEN, KAMEI, BOWERMAN, SHAKESPEARE

STAN BARNES, JACK MARSHALL, HERB SIMONS





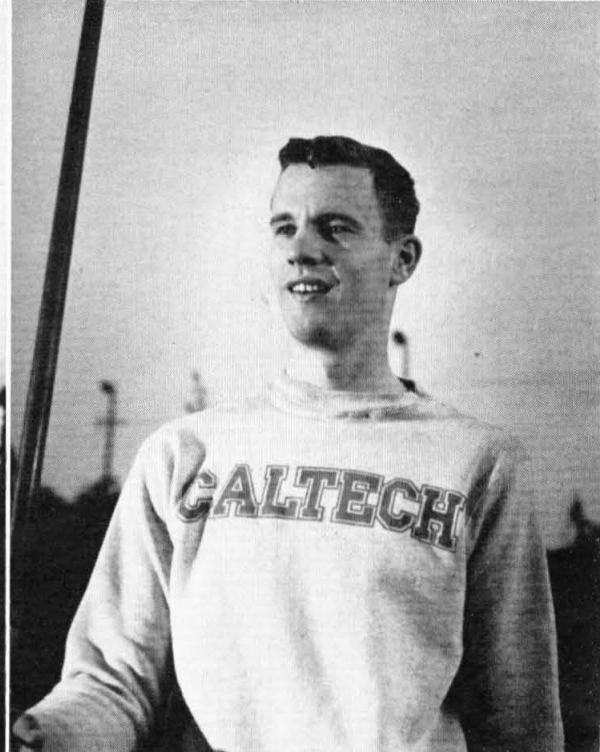
RAY HEGGLAND, BILL SYLVISS, DON PETERSEN

TRACK

The Oxy relays revealed surprising strength in the track squad this though it may not result in great triumphs; the whole conference was power laden.

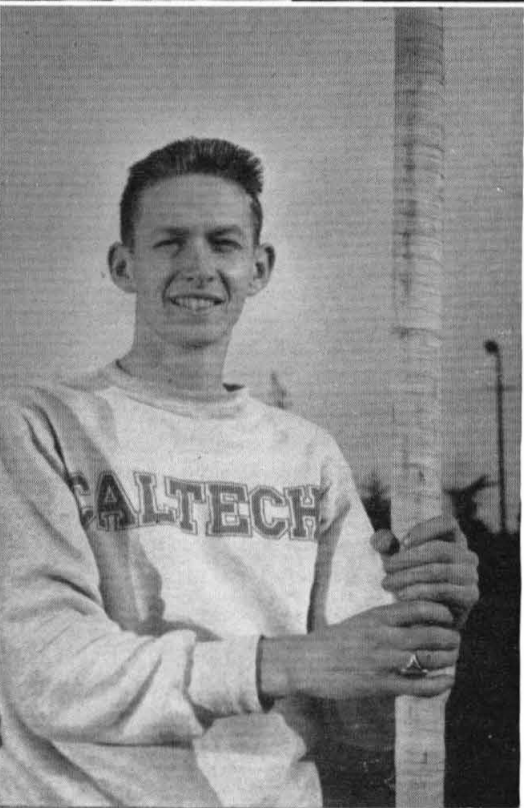
Martin Walt and Hal Tyson are breaking records already in the pole vault and the shot. Dwight Schroeder is looking plenty good in his long list of events, including the sprints, the hurdles, and the broad jump. Herb Simons and Stan Barnes are nip and tuck in both the 440 and 880 and both are improving all the time; add these Browns (E. J. and Doug) and you have a red hot relay team. Jack Marshall, the machine man, is probably the only man alive to alternate between the mile and the hurdles. Dave Madden and Chaz Shaller are coming right along in the sprints. Prospects now are pretty bright and there are lots of newcomers looking up; we may well see a winning season; our brand new track coach Mason Anderson is whipping up that old fire and expects to see the cinders burn.



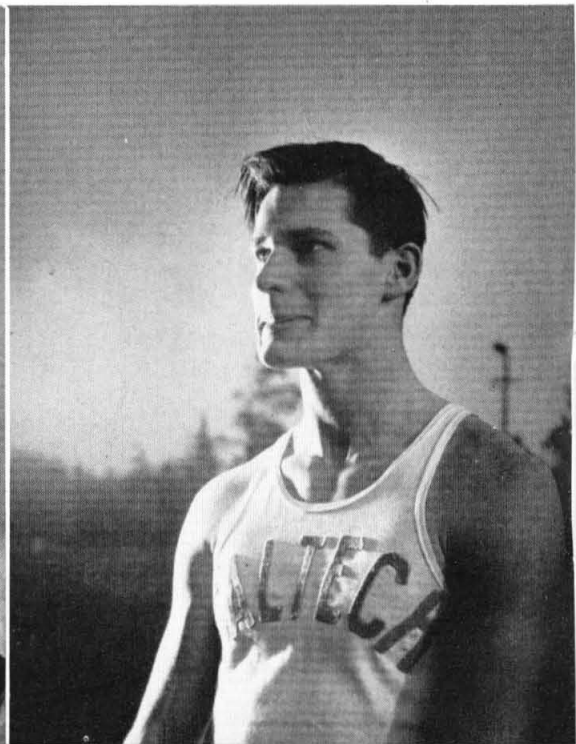
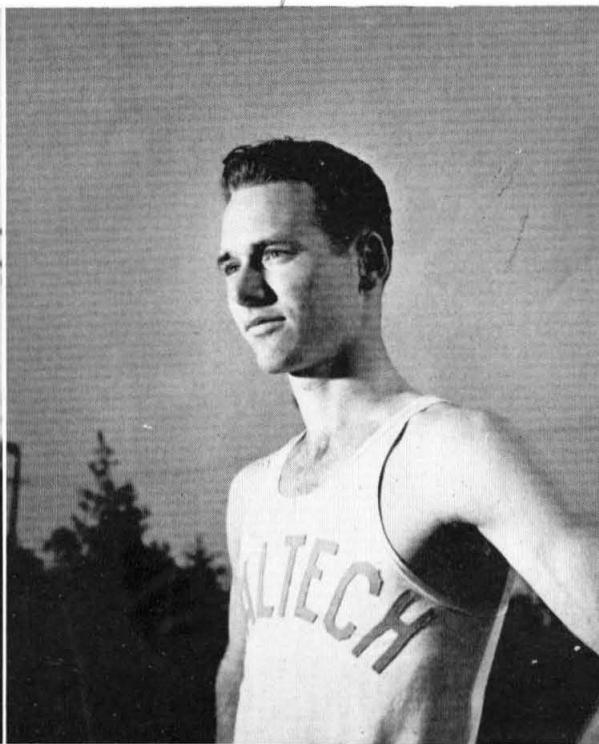


E. J. BROWN, DWIGHT SCHROEDER, HAL TYSON

TRACK



MARTIN WALT, DAVE MADDEN, DOUG BROWN, CHAS. SHALLER



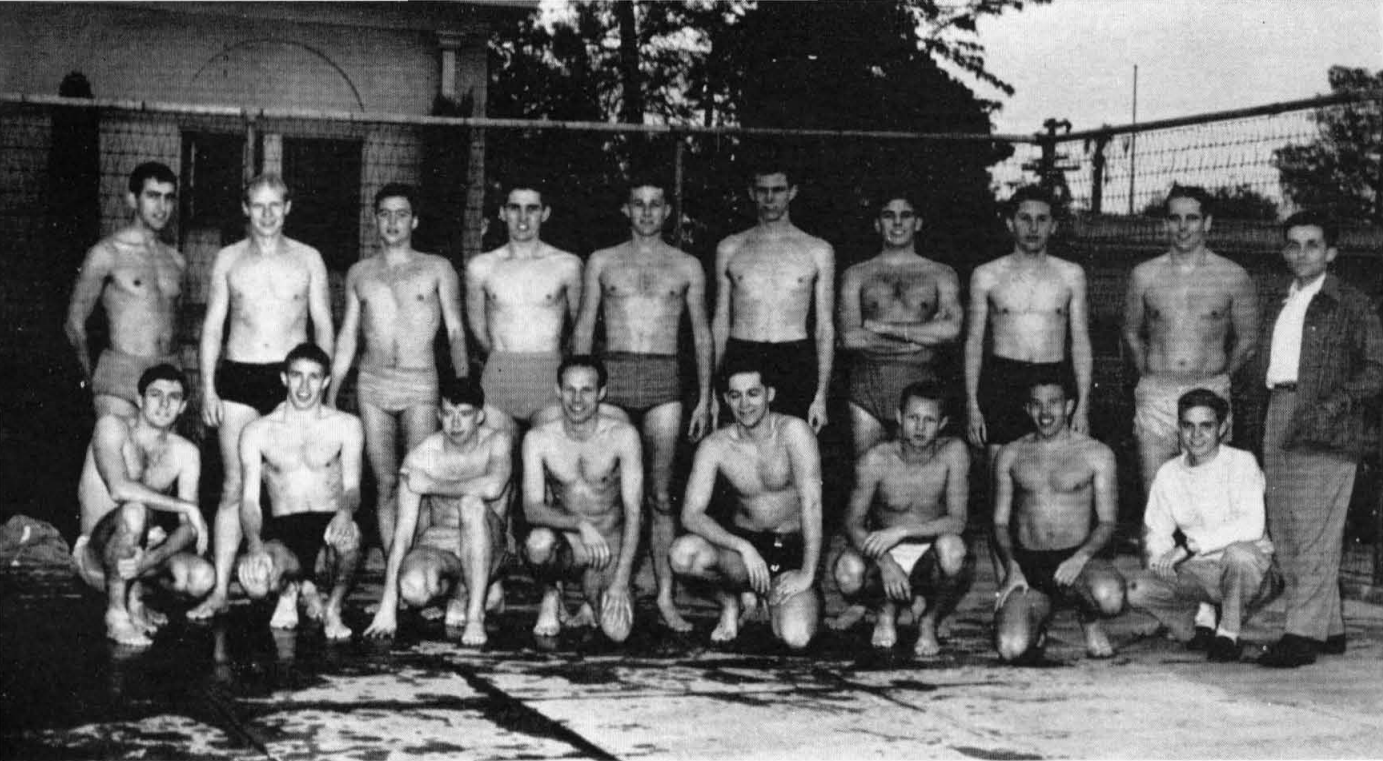
The Frosh track squad showed up pretty well in the first couple of meets, taking their first dual with Pomona by a considerable margin. Paulson ran away from the pack in the 100 and Woody really hefted the shot. All the boys showed that they could put out; only time and experience can bring out the true picture.



FROSH

TOP ROW: EISEN, KEIR, PAULSON, McEWING, PECK, SUTTON, CONNOR, IRWIN, EILENBERG, FISCHER, DOBLE, WOODY, PILKINGTON, PARPALL, BUD CARROLL
 SECOND ROW: DAVIS, CARNES, KATTERLIN, MARSHALL, JONES, LAMAR, KICHING, DICKINSON, COOK, MIDDLEBROOK



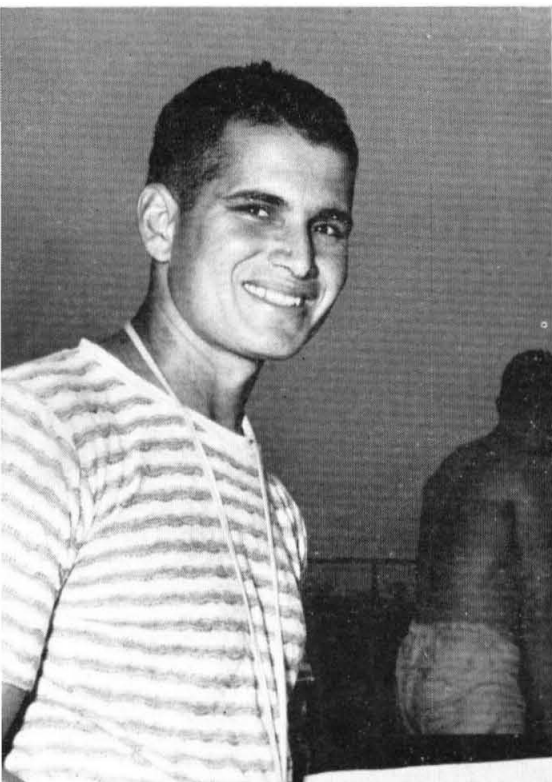


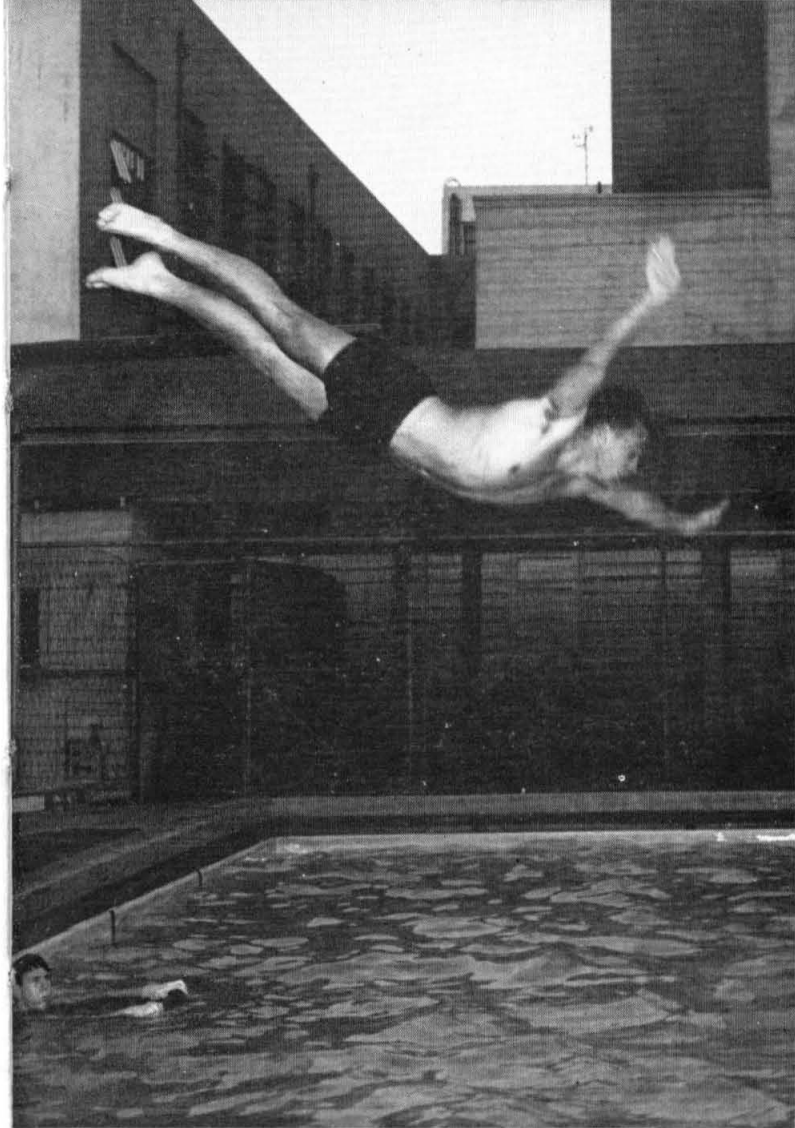
TOP ROW: STAN BOICOURT, NOEL REED, BOB WATERS, MIKE HALL, DICK FAIRALL, DICK LIBBEY, AL ESCHNER, ULRICH MERTEN, ED REINEKE, RONNIE QUANDT

SECOND ROW: BILL PALMER, JOE CURRAY, PETE HOWELL, JAY MONTGOMERY, BILL HARRIS, BRAD HOUSER, NEAL HURLEY, DON SIX

SWIMMING

COACH JIM MARCUS, BILL HARRIS





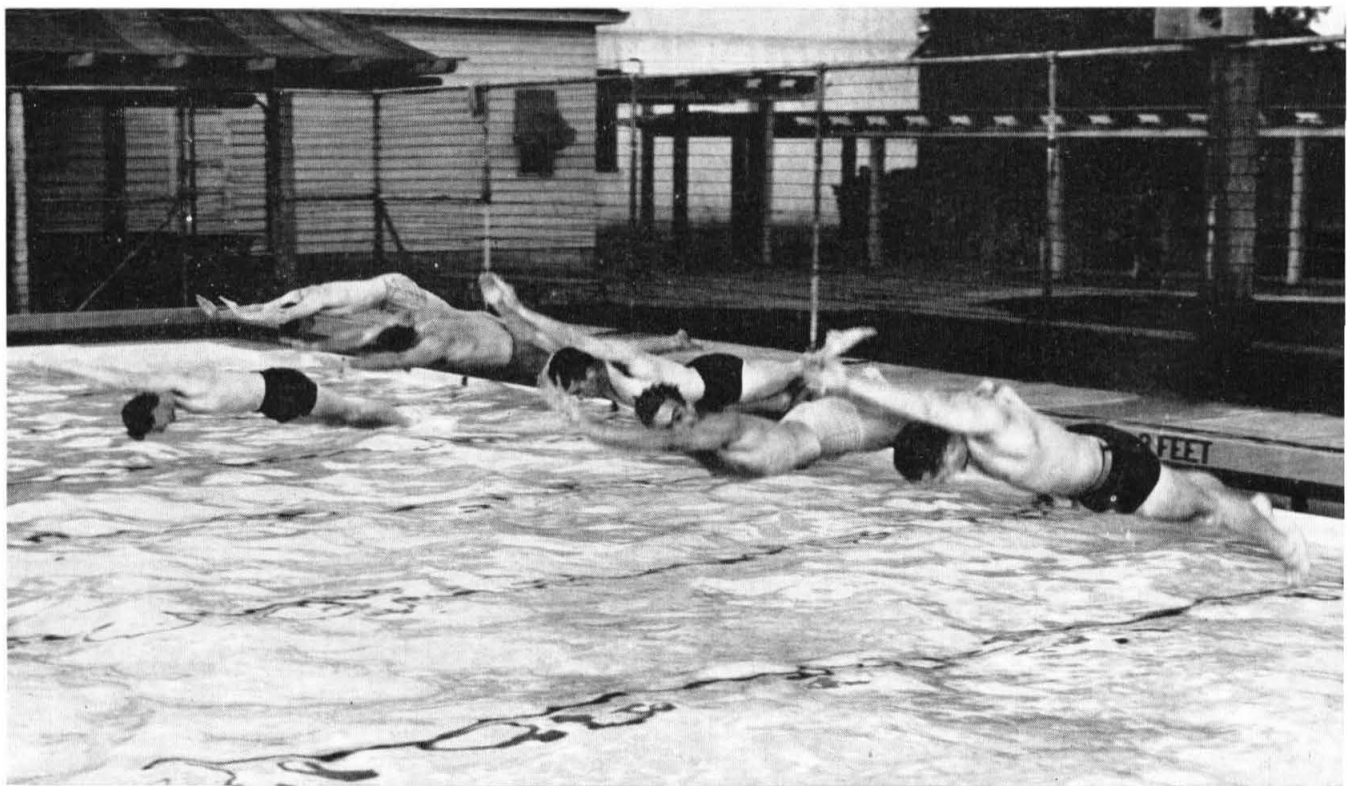
With a strong, well balanced squad of Beavers being swiftly whipped into shape under the learned tutelage of their new coach, Jim Marcus, the bath tub boys from Tech should give an excellent account of themselves this season. All sights are leveled on the Conference Meet, since from early reports the race for the championship is to be between Oxy and Tech.

Three good breast stokers, with "Winning William" Palmer showing the way to victory, will make more than their quota of points.

In the potent back stroke department no less than four men will be pushing one another to faster times, while the experienced "Monk" Montgomery and Mike Hall will be its nucleus.

Having less men fighting it out in each of their events, the freestyle lacks somewhat the depth of the breast and back stroke events, though they are by no standards weak with letter men Eschner and Harris in the sprints, Curray and Houser in the distances, and versatile Dick Libby swimming wherever he is most needed.

Trying to make up for a deficiency in past experience, four rapidly improving divers are receiving the clue from ex-conference diving champ Wheeler North.





WIN SOULE, DICK SCHUSTER, BLOUKE CARUS, PETE MASON, PETE PRICE, OLLIE GARDNER, BOB STANAWAY.

The ski team as usual held its own against all competition in Southern California with the exception of UCLA and USC. However, it should be noted that although USC edged out Cal Tech in the final ski union standing, the Cal Tech racers triumphed over USC, Pasadena City College and Occidental College in a contest at Big Pines on February 12.

Not only for the financial remuneration for the ski team, but also for changing the eligibility rules of our conference in order to allow freshman to race, should the Athletic Department be thanked.

This year the team was reinforced by the two returning lettermen of the 1948 season, Jim Blom and Blouke Carus. Olly Gardner and Pete Price (inc.) made a substantial contribution toward team successes. Never-miss-a-weekend Dick Schuster improved tremendously, and made a strong team member. Then there's Dick Jones, who, although only a freshman, nevertheless turned in the best times for the team for the races in which he participated. The managerial end was ably handled by Win Soule, who sacrificed many an hour at the beach to fulfill his obligations.

SKI TEAM





SKI CLUB

The Tech ski club enjoyed its most prosperous season in history over the 48-49 wintertime. During this period all debts relating to the Club's hut in the San Bernardino mountains were written off, and a sizable surplus was acquired.

The new electrical system for the hut didn't perform too well, seeing as how the generator conked out early in the year. However, the various other items of construction that were completed before the snow set in helped considerably towards the comfort of the capacity crowds that invaded the hut each weekend thru the winter.

The 6 to 8 feet of excellent snow this winter not only brought the best skiing in years, but also the club enjoyed a membership of over 110, the largest to date. The Ski Club had at its helm this year Dick Schuster, Shoose, as President, and Blouke Carus as Secretary-Treasurer.



STANDING: MERTEN, BROWN, McQUISTON, Lefleur, BLOM, SCHLINGER, SOULE, MASON, HOUGHTON, HAYWARD, DRURY, JONES, CORBATO, WESTERVELT, SMITH, SMITH, HIBBARD, DARROW, RICHARTZ, GEHRELS

SECOND ROW: HEDRICK, SCHUSTER, KARIOTIS, WILCOX, BLANCHARD, STOWE, TAUTZ, WHITTELEY, HOWARD

THIRD ROW: FEE, PRICE, STANAWAY, WILLIS, HOWELL, CARUS, GARDNER

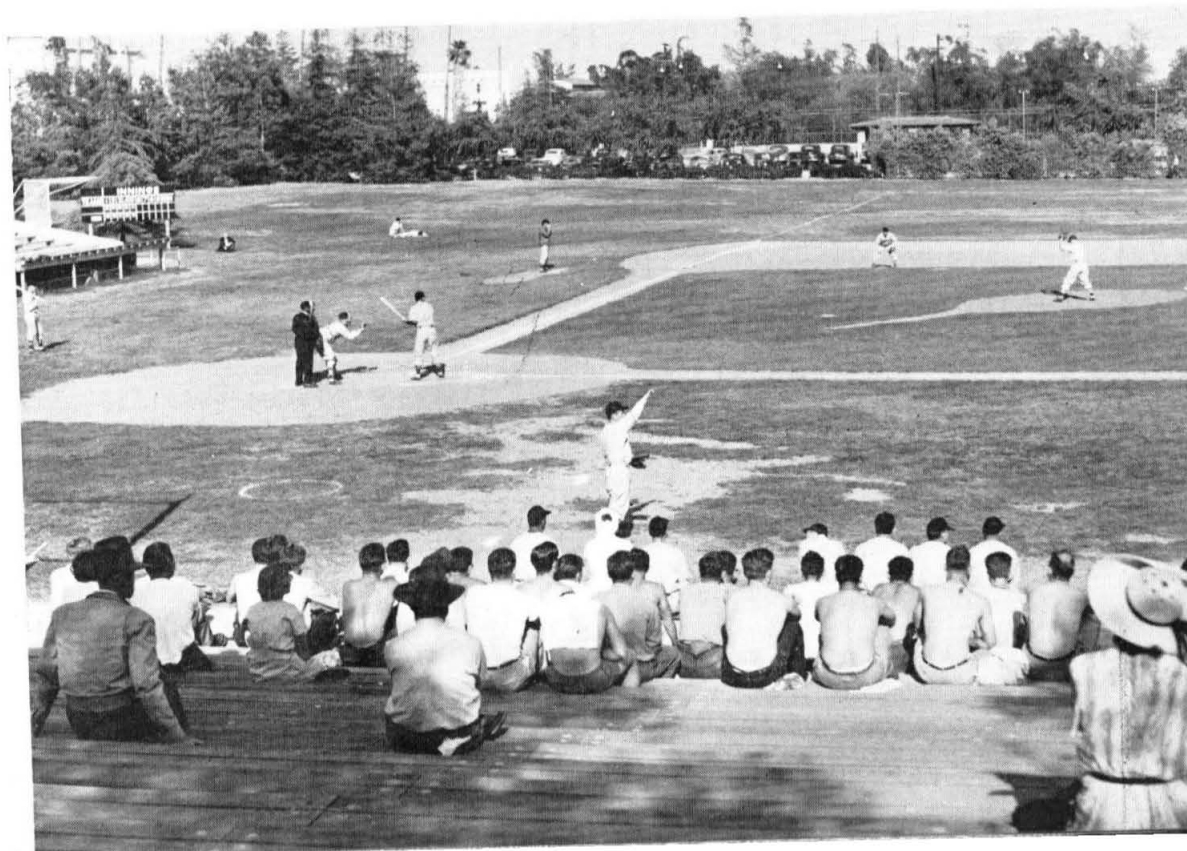




TOP ROW: JOHN MORRISON, BRUCE HEDRICK, DUANE NEVERMAN, JACK WHITE, ROLF SINCLAIR, CHUCK NORMAN, ART SPAULDING, ED PREISLER

SECOND ROW: WALT BIGGARS, WINSTON ROYCE, TOM PETRULAS, CHARLES BATES, LOUIS STALLKAMP, HARRY CLARK

BASEBALL



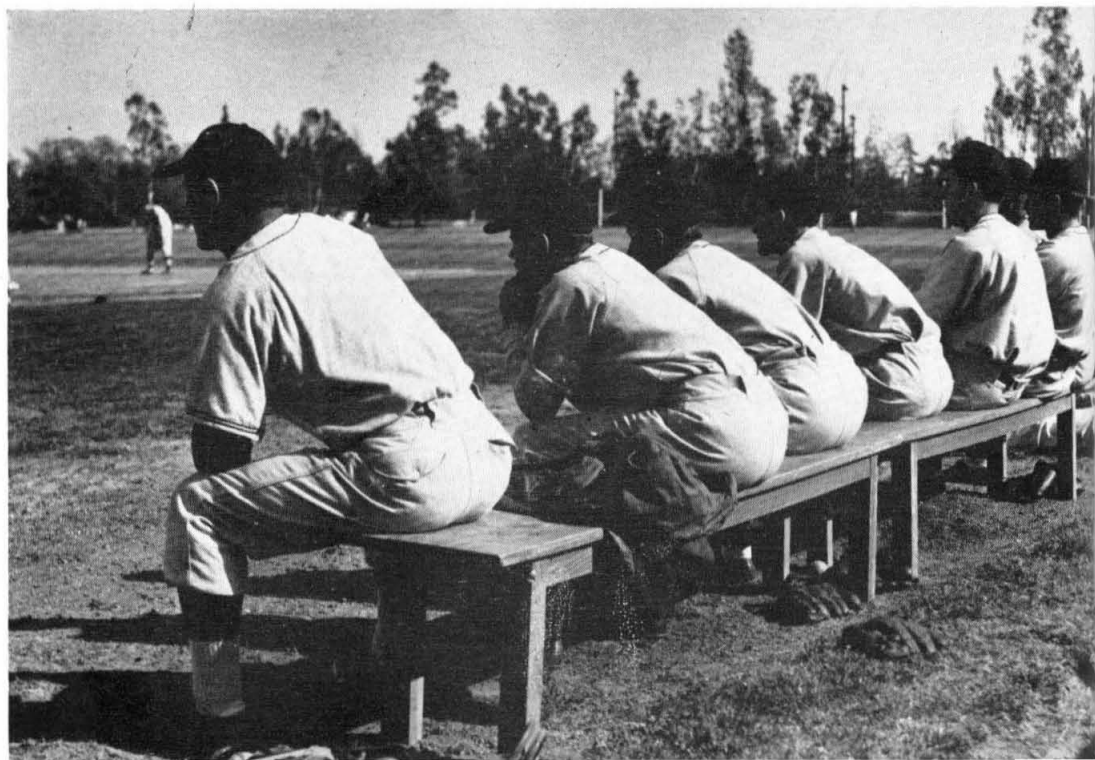
The varsity spheroid crew has had a varied but interesting season with the team having spells of both brilliant ball-playing and violent constriction. Starting the season off with a bang, the mighty batting power of Patterson, Norman, and Stallkamp, brought the PCC Nine to their knees. Then followed a period of tough luck and bad chokes, with the team playing a magnificent five or six inning game only to blow it in the last innings. Alternating the pitching chores between "Bam" Spaulding, Norman, and Hedrick, Coach Preisler kept the opposing teams guessing and with Tom Petrulas behind the plate, an almost unbeatable combination was sometimes formed. Turning in a performance destined to be long-remembered, behind the batting of Morrison, Patterson, and Kam, aided and abetted by magnificent infield play from Norman, Pfeiffer, and Stallkamp the Tech men with the big sticks turned back the league-leading Whittier troops for the first time in 18 years. In following games, Tech has shown that this was no accident.





Somewhat shaded by the prominence of the Varsity Baseball club, the Frosh are by no means eclipsed. At the moment, they are top contenders for the conference championship and are continuing to improve their status. Starting off in a very inauspicious manner, the Frosh managed to scrape enough men together to form a baseball team. While suffering under many hardships, they moulded themselves into a smoothly-working-team, and with the pitching of Norm Gray and his battery mate, Dean Smith, and the infielding of Karasawa and Haber, the youngsters have given a good account of themselves on the conference diamonds.

FROSH BASEBALL



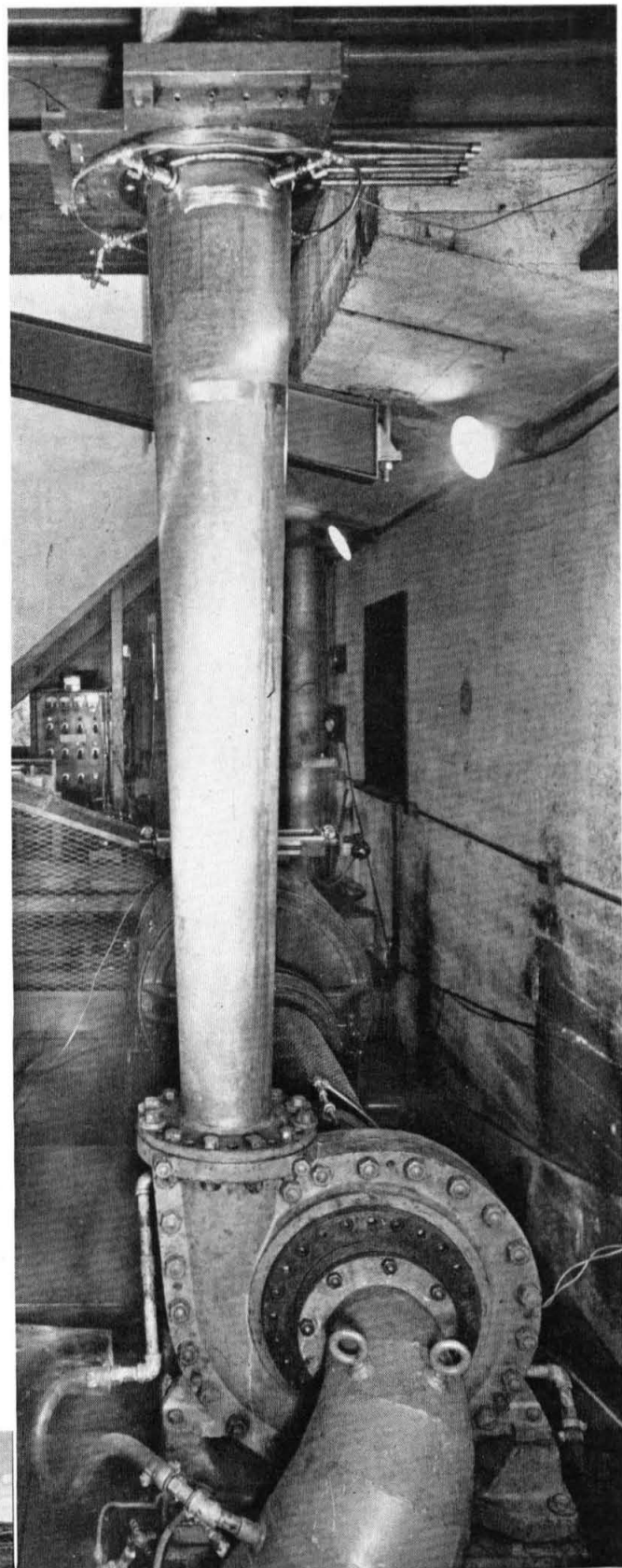
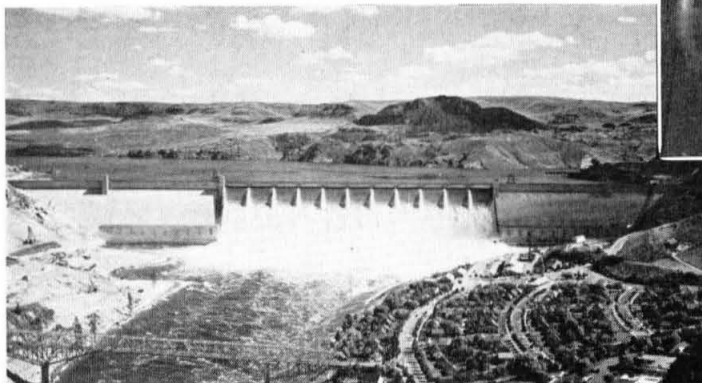
CIT students helped test the model of world's largest pumps

Byron Jackson Co. and Pelton Water Wheel Company of San Francisco are constructing six centrifugal pumps for the Grand Coulee Dam Irrigation System. By far the world's largest, these pumps discharge over one billion gallons per day through a twelve-foot discharge tunnel. Each pump is driven by a 65,000 h.p. electric motor.

The CIT Hydrodynamics Laboratory conducted a research program on the various pump models purchased by the U. S. Bureau of Reclamation. Byron Jackson models were among those tested. When the contract for these six large units was awarded to Byron Jackson Co. and the Pelton Water Wheel Company of San Francisco, the two companies again used the excellent facilities of the CIT Hydro Lab for testing the final model designed for the Bureau. Although BJ had a new testing laboratory under construction . . . and now has the most modern commercial test facilities in the U. S. . . . arrangements were made to have the tests on the actual model pump conducted by the CIT Hydro Lab.

Testing was started in July, 1946. The work continued in cooperation with BJ engineers, until the final report was submitted to the Bureau in August, 1947.

Both BJ and Pelton are justly proud of what will be . . . for some time to come . . . the world's largest pumps.



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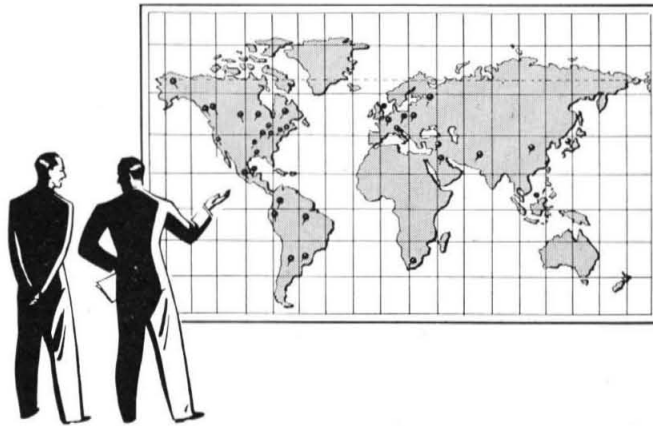
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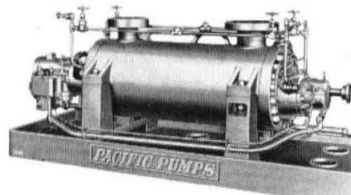
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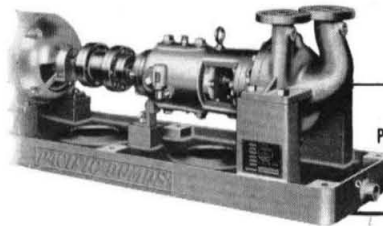


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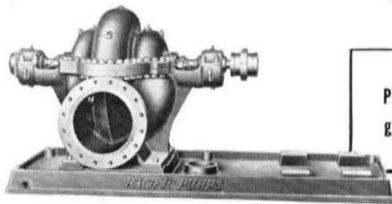
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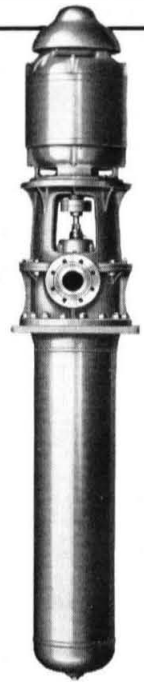


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HYDRODYNAMICS LAB—By Don Moore

Standing idle, the high speed water tunnel in the basement of the hydrodynamics lab appears as just so much boiler plate and glass, but in operation it becomes alive and menacing as the man-made torrent inside it tries to burst its steel bonds. Let's watch a test demonstration and see what happens to a model torpedo traveling at a simulated fifty knots in the glass-enclosed throat of the tunnel.

The foot-long model has a blunt nose, an impractical design to be sure, but one which demonstrates nicely the need for efficient streamlining of subsurface missiles. At a water speed of fifteen knots turbulence around the squared forepiece becomes quite pronounced, but this, we are told, is nothing. The speed is slowly increased to fifty knots with some increase in the turbulence, but then as the pressure on the system is slowly released a new, much more violent effect takes over. The model shudders violently, then is lost to sight behind a swirling wall of water which surrounds it completely. The noise is deafening and it seems that something will surely give way, but the pressure is raised and the hammering stops just in time; the bubble collapses and we see the torpedo still vibrating like a tuning fork, but miraculously intact. Cavitation, the hydrodynamicists call it. It is evidenced by the rapid formation and collapse of bubbles around objects moving through a fluid. As we saw it demonstrated the object was surrounded by a single cavitation bubble, a condition that in actual practice might account for the erratic behavior of aerial torpedoes launched from high speed planes. It was this problem which led to the initiation of a research program encompassing all the strange effects encountered in work with high speed hydraulic machinery. The cavitation phenomenon particularly is one long known to physicists and engineers, but one which still hasn't been thoroughly investigated. It is known, for example, that it has resulted in the damage and destruction of many pieces of underwater equipment, for the rapid formation and collapse of even small cavitation bubbles is accompanied by terrific wear on interfering surfaces. Ship's screws and turbine impellers, if not properly designed, become pitted and grooved after a few days of operation. The proper design is the aim of present research.

Other equipment in the hydro lab includes a low speed, free surface water tunnel in which the behavior of bodies traveling close to the surface can be qualitatively studied; a controlled atmosphere launching tank, with equipment for precise photographic analysis of the same problem; a ripple tank for studying wave phenomena; and a polarized light flume for qualitative study of turbulent flow around various shapes.

The high speed tunnel, which has been in operation for the last year, is the only one of its kind in the country. In it speeds of seventy miles per hour are possible; comparative speeds in air would exceed two thousand miles per hour. Eventually the tunnel will be valuable for investigations into the realm of hypersonic flight in conjunction with the now confidential hypersonic wind tunnel.

The controlled atmosphere tank was designed to permit the launching of test missiles under closely regulated conditions of pressure and temperature and to facilitate accurate mathematical analysis of their behavior. After being placed on the launching device and sealed into the tank the model is released and its path recorded by a battery of eight high speed movie cameras using a synchronized flash system which illuminates the subject up to 20,000 times per second. Subsequent computations from the film record are simplified by an analyzer which is effectively a half-scale model of the actual camera set-up using projectors instead. Each film strip is put in its matching projector and the path of the missile followed frame by frame on a moving screen. The equations of motion are readily produced from the data given by successive screen positions.

Many interesting problems in behavior of surface waves and their analogs, sound waves and shock waves, have been investigated using the shallow ripple tank. In it experimenters have duplicated the conditions that are present when a cone-shaped explosive charge is detonated, the behavior of sea waves around harbor installations, and even the echoing of sound waves in an auditorium.

THE COOPERATIVE WIND TUNNEL

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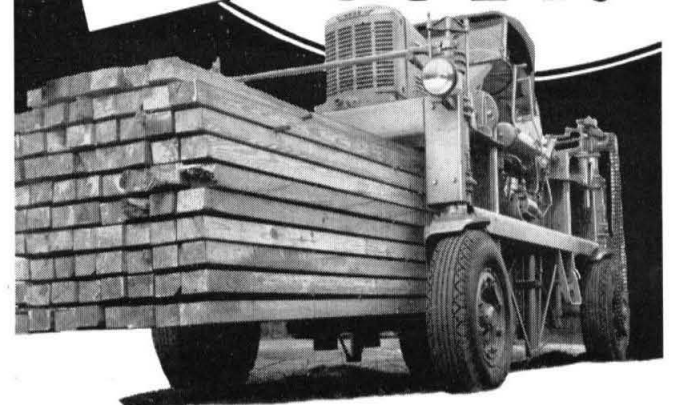
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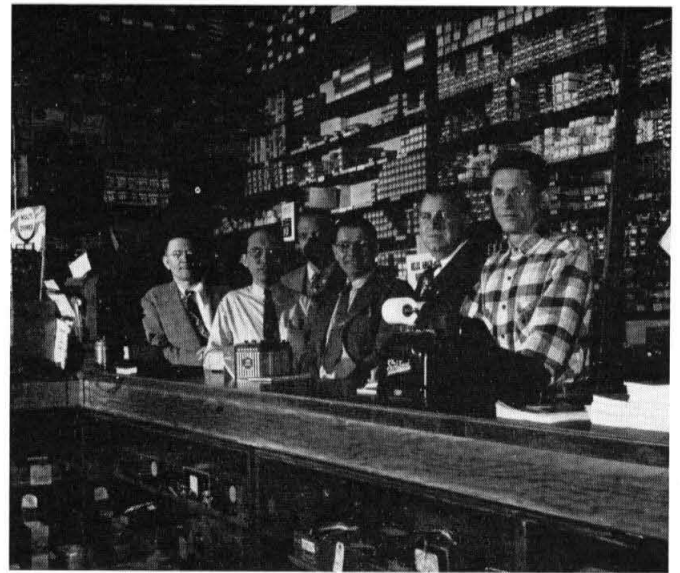
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It is now being operated by the Institute jointly with five major aircraft manufacturers who are producing planes to operate in the sonic region. The tunnel is of the closed circuit type and is capable of airspeeds up to 750 mph at controlled pressures varying from one-tenth to four atmospheres. In its 8½ by 12 foot working section models of complete airframes or components are subjected to accurately known conditions simulating actual flight and their behavior recorded in terms of lift, drag, yaw and pitch recorded through a telemetering system capable of detecting variations of a fraction of a pound. The laboratory also provides equipment for dynamometer testing of small motors, preparation of models to be tested, and has space for computing and plotting rooms where test data are translated into graphic and tabular reports for design engineers.

The engineering problems which confronted the designers of the tunnel have produced several unique innovations which make possible both the required high precision and rapid flexible operations. Scanning the cutaway plan of the laboratory one notices that the working section is surrounded by a thirty foot decompression sphere. By closing two twelve-foot gate valves this sphere can be isolated from the rest of the system which may be operating at several atmospheres pressure or a partial vacuum. This makes possible the exchange of test models while the circuit is maintained at a controlled pressure and provides an appreciable saving of time which would otherwise be lost in restoring it. Also one will notice in Porter's sketch the three testing platforms which can be rolled to or from the testing chamber. The entire set-up procedure is completed outside the tunnel, then the model is rolled into position and connected to the metering system. After the testing is completed it can be quickly removed, a new model put in its place, and the experimental program continued within a few minutes.

The fans which whip up the test-tube tornado are in the south end of the 180 foot east run. Each has sixteen six foot blades mounted on a twelve foot hub. Within the streamlined hub is the hollow steel drive shaft and the mechanism for altering the pitch of the blades. In the case of the downstream fan, there is also

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The fans are mounted on three sets of stationary vanes which not only serve as support members but also are equipped with movable flaps which enable the operator to control the axial rotation of the airstream.

In the master control room located just west of the working section all the functions of the tunnel can be controlled by a single operator. This is also the terminal point for the complex metric system where the experimental data are received and recorded for later analysis by the computing department. This operation is facilitated by the use of a completely automatic recording, calculating and tabulating equipment designed and donated by the International Business Machine Corporation.

Some of the products of earlier research in the tunnel are the Douglas D-558 Skystreak and the North American F-86 Sabre. The former held the speed record for jet-driven aircraft at 650 miles per hour, but recently lost it to the F-86, which now is tops at 670.

GREENHOUSE

For years the field of plant research has suffered from the lack of precise experimental techniques. Now with the completion of the Institute's Earhart Plant Physiology Laboratory that weakness appears to have been conquered. Through the application of combined engineering skill and scientific know-how the designers of this new facility have put plant research on a firmer footing than it has ever known. Over ten years of study in the smaller greenhouse adjacent to the new lab have aided in the solution of problems encountered in the design of the modern, air-conditioned greenhouse. Soon the test of actual operation will show how well those problems have been met.

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number of variables that enter into the study of plant behavior and which must be closely regulated in systematic experimentation. Creation of an artificial climate requires equipment for maintaining accurately known temperature, humidity, precipitation, air circulation and illumination. In order to avoid the stagnation of air around the plants and prevent the formation of significant temperature or humidity gradients, the air is changed and humidified every minute, a task which has necessitated the use of a one-hundred-and-eighty horsepower fan system. In comparison, the air conditioning plant in the Kerckhoff laboratory (which has perhaps tenfold greater floor space) uses a mere ten or twenty horsepower blower system. Another difference is noted in the manner in which the conditioned air is introduced into the growing rooms. Since turbulent flow and channeling are to be avoided the moving air mass rises in a broad sheet through floor louvres and is exhausted through large ducts near the ceiling. This method assures optimum distribution of fresh air around each growing plant.

It is difficult to predict the scope of research projects that will benefit through this new installation, for the field of plant physiology is relatively unexplored. In most general terms it can be said that the first problems under attack will be those associated with the variation of a single growth factor—temperature, humidity, illumination, or nutrition. For example, it is known that certain plants cannot live if denied "rest periods" of total darkness. Some little known process of plant metabolism that supplements the better understood photosynthetic process accounts for this strange phenomenon; its exact nature may be uncovered in the next few years' work. Of course, even photosynthesis isn't too well understood. The basic reactions in which atmospheric carbon dioxide is converted to plant sugars has been investigated, but when plants are grown without illumination it is found that sugar feeding is insufficient to keep them healthy. Extensive research into the side reactions associated with this process will probably occupy much of the laboratory schedule.

The application of many new techniques borrowed from other seemingly unrelated fields of science will contribute greatly to the



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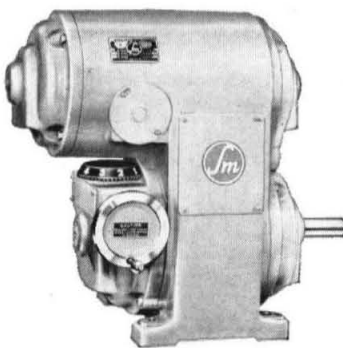
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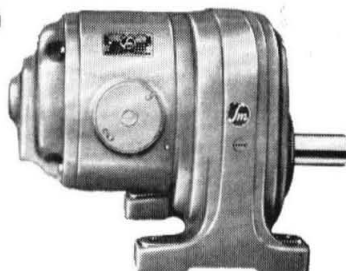
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effectiveness of the new lab facilities. Radioisotope tracer techniques will, of course, continue to gain importance in the study of metabolic processes. Analysis of statistical data will be simplified by the use of punched-card accounting machines which can perform complicated calculations and tabulate or correlate the answers in a fraction of the time a human computing staff would require. An interesting procedure for delicate temperature determinations which was devised by physicist John Strong may find application in close study of growing plants. Since ordinary thermometers are of little use in this case the new technique involves the measurement of radiation in the extreme low frequency region where plants radiate as nearly perfect black bodies. The problem of developing sensitive bolometers selective to this long wave length is the principle hindrance to the development of the process for taking plant temperatures.

The new lab should prove an ideal refuge from the inclemencies of Pasadena weather, for in its many growing rooms will be found climates to suit everyone. Desert heat or arctic cold, tropical humidity or Saharan aridity, total darkness at noonday or blazing artificial sun at midnight—all are possible in the nation's most complete plant research facility.

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The Jet Propulsion Laboratory, which began in 1940 as a single small rocket test stand isolated in the Arroyo Seco, about eight miles from the California Institute of Technology campus proper, has grown until it now includes ten major laboratory buildings and many auxiliary installations worth over \$7,000,000, covering 40 acres, and employing a staff of 500 people. The study of rocket propulsion was begun at CIT in 1936 under the guidance of Dr. Theodore von Karman, who felt that this type of motive power was the next logical step in the achievement of high speed flight. A small informal group, with very limited funds, continued theoretical investigations until 1940. The subsequent expansion of experimental research was largely stimulated by military necessity, with financial support being supplied by the War Department, although the

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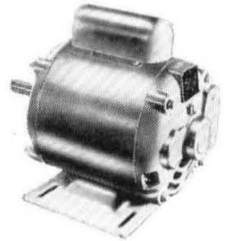


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operation of the laboratory has at all times remained under the control of CIT.

Although efforts during the war years were directed toward immediate practical applications such as assisted take-off rockets for aircraft, since 1946 the emphasis of work at the Jet Propulsion Laboratory has been away from the empirical design of specific military devices and toward the fundamental engineering and physical problems underlying the jet propulsion field. For example, the investigation of all promising propellant combinations is an important activity involving calculation of flame temperatures and jet velocities, and experimental testing of combustion characteristics of various chemical systems. The combination of nitric acid with aniline oil has developed to the degree that it has become a dependable "work-horse" propellant which has been used in a considerable number of test vehicles. More recently studies have been made of such substances as liquid ammonia, oxygen, hydrogen and even fluorine.

Basic heat transfer problems arise in the attempt to protect the walls of rocket motors against high temperature (3000°C) reactions in the combustion chamber. These problems include the study of radiation from hot gases, convective cooling by boiling liquids, and the "sweat" cooling of metal surfaces by transpiration through pores. Higher rates of heat transfer are encountered in rockets than are found in nearly any other thermal device. Since this heat must in many cases be absorbed by a portion of the propellant, many new problems occur as a result of the use of unconventional coolant fluids. The study of the removal of heat accompanied by boiling of the fluid is a typical problem which is at present under active experimental study.

In the case of sweat cooling of rocket walls, a whole new area of metallurgical research has been opened up in the study of the fabrication and properties of porous refractory materials.

The mechanical design of rocket motors involves studies in supersonic nozzle flow, atomization of liquids, and materials for high



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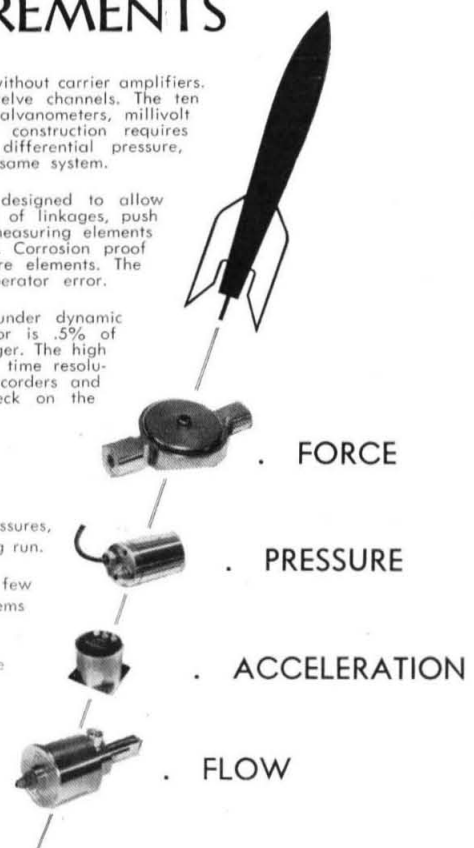
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strength and corrosion resistance under conditions of high heat transfer. The reduction in weight of the rocket motor is an important development goal since the altitude obtainable by a vehicle is very sensitive to its weight. Recent efforts have resulted in the weight reduction of one large liquid propellant motor to 1/5 of the value of the first flight model.

The study of solid propellant rocket motors centers primarily about the control of the physical and mechanical properties of the propellants (e.g., their brittleness at low temperatures), their rate of burning, and the elimination of smoke from the exhaust jet.

Recent improvements in solid propellant properties have made possible the design of high altitude vehicles which are superior in performance to those using liquid propellants, although for a long time it was assumed that liquid propellants were supreme in the long range missile field. The advantages in simplicity and ease of

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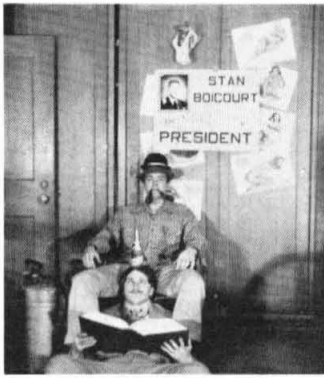
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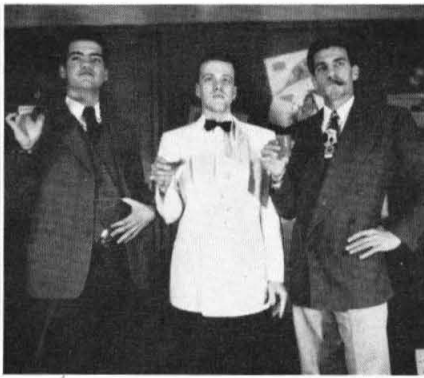
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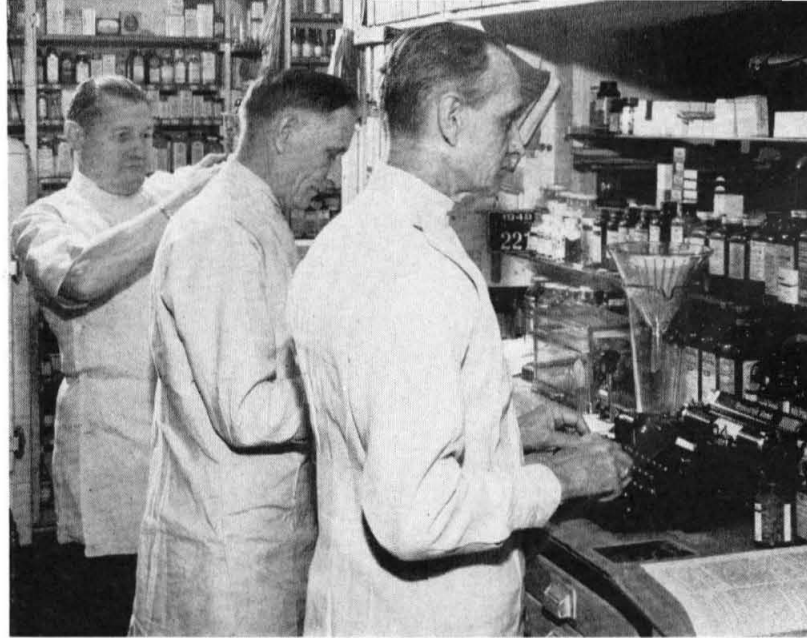
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handling of a solid device over one which must be filled with toxic and easily vaporized fluids is obvious.

Another important type of jet propulsion device under investigation at the laboratory is the air-breathing "ramjet." This is essentially a cylindrical duct in which momentum is added to the air stream by the burning of fuel sprayed into it. Ramjet research is concerned largely with the study of air-fuel combustion. It is the objective of the ramjet designer to provide a combustion chamber in which the injected fuel will burn stably over a wide range of air-fuel ratios and with air velocities up to 500 feet per second at densities down to 1/4 atmosphere or less. This is indeed a complex problem involving the question of flame velocity and flame front stability, which in turn demand a knowledge of both fluid dynamics—velocity patterns and turbulence—and chemical kinetics. Experimental programs are directed along both lines.

Ramjet experimentation at the JPL will be much facilitated by the completion next year of a large new supersonic wind tunnel for testing the aerodynamic properties of jet-propelled vehicles. When completed next year it will achieve an air velocity of four times the speed of sound in a duct 21x24 inches, one of the largest of such facilities in the United States. A smaller open tunnel with a working section 12 inches square is already in operation and will soon be used to test combustion in "hot" model ramjets.

Although testing of completed missiles in the field is not intended as a major part of the JPL activity, such firings are occasionally required to get necessary specifications for the propulsion power plants and to test their proper functioning. These flight tests require development of guidance systems and telemetering links to relay essential data to the ground. Such instrumentation forms a significant portion of the entire effort of the laboratory. The first successful vehicle of this type was the WAC CORPORAL, which attained an altitude in excess of 40 miles in 1944. It is interesting to note that only recently a modified WAC, riding in the nose of a German V-2 rocket, achieved a record altitude of 240 miles.



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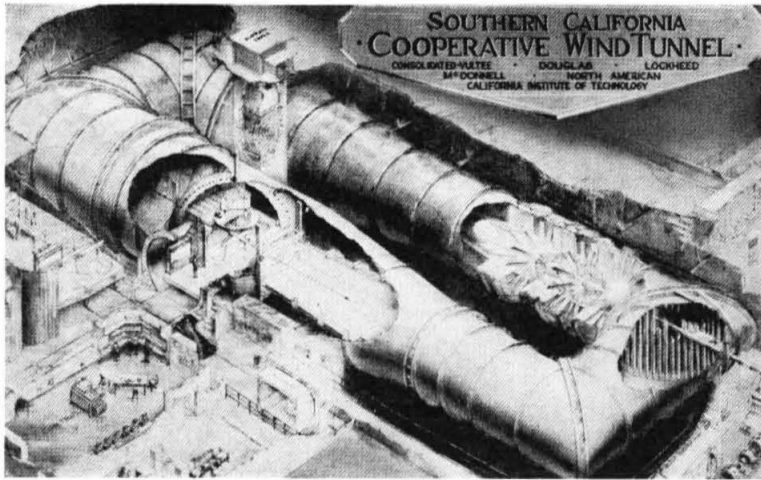
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