

as much or more damage is caused by streams flowing in channels with insufficient transporting capacity. When the transporting capacity is insufficient the stream channels fill up, flooding adjacent land which may include roads and residential sections. Accompanying this flooding will be a deposit of sediment. In their economical importance the direct sediment damages are often surpassed by the indirect damage. If a stream is cutting as shown in Fig. 5, all tributaries and side ditches will cut, too. The whole water table under the remaining areas will be lowered and the soil dried out. Channel filling will bring a raised water table and in humid regions extensive swamp conditions can be expected, with all their consequences.

The analytical method of calculating a bed-load carrying stream is being developed by the Soil Conservation Service for its own needs in finding appropriate means and methods for the stabilization of such streams. The same method can be used to study any bed-load carrying stream from the standpoint of flood control and channel stabilization. It is to be hoped that after this war the scientific treatment of such problems will find a greater development, based on the work that has been done and that is still being done within the research organization of the Soil Conservation Service.

- (1) "A Distinction Between Bed-Load and Suspended Load in Natural Streams," by H. A. Einstein, A. G. Anderson, and J. W. Johnson. Transactions, American Geophysical Union, 1940, paragraph II, p. 628.
- (2) "Distribution Graphs of Suspended Matter Concentration," by Joe W. Johnson. Proceedings, American Soc. Civ. Eng. Vol. 68, No. 10, October, 1942.
- (3) "Anwendung der Aehnlichkeitsmechanik und der Turbulenzforschung auf die Geschiebebewegung," by A. Shields, Mitt. der Preussischen Versuchsanstalt fur Wasserbau und Schiffbau, Berlin, 1936.
- (4) "Formulas for the Transportation of Bed-Load," by H. A. Einstein, Trans. Amer. Soc. Civ. Eng. Vol. 107, 1942, pp. 561-573.
- (5) "Bed-Load Transportation in Mountain Creek," by H. A. Einstein, unpublished report of the Soil Conservation Service, Greenville, S.C. November, 1942.
- (6) "Conformity Between Model and Prototype," A symposium. Discussion by H. A. Einstein, Proc. Am. Soc. Civ. Eng. Vol. 69, No. 4, pp. 531-535, April, 1943.

## ALUMNI NEWS

### ANNUAL JUNE BANQUET

IN normal times, Commencement Day in June is the date set for the annual Alumni Banquet. The Class of 1944 which, in peacetime, would have graduated in June, received their degrees in February and have now scattered to all parts of the world. However, the alumni selected the traditional month for their annual reunion, and on June 22, 170 alumni assembled in Pasadena.

In the absence of the commencement exercises, the alumni were conducted on a tour through the new wind tunnel now under construction in Pasadena. The group then gathered at the Meteorologist Mess Hall on the campus (the Athenaeum facilities were not available due to shortage of help) for the banquet. Late reservations exceeded the capacity of the hall, and 21 alumni found it necessary to hold their banquet at the campus coffee shop.

The election of officers resulted as follows:

President.....	Harry K. Farrar '27
Vice-President.....	Earle Burt '15
Secretary.....	Victor V. Veysey '36
Treasurer.....	Karl Hegardt '32

Members of the Board: Joe Lewis, '41; J. Stanley Johnson, '33; and Frank Weigand, '27. Board Members to continue in office are Grice Axtman and Donald S. Clark. Grice Axtman and Joe Lewis have joined the Mili-

tary Service and Frank Weigand has resigned, making new appointments necessary. Paul Hammond, Wendell Miller and Charles Varney are to fill these offices. Ernst Maag, ex-president, will be retained, according to the revised by-laws, to attend board meetings in an advisory capacity.

Mr. Maag, as retiring president, presided at the dinner, and introduced Mr. Farrar, the new president. Mr. Farrar called on representatives from the reunion classes for short talks. Virgil Morse, '24, told of his search for the Soil Conservation Laboratory, which was mentioned in the directions to the mess hall. Upon inquiring the location of the laboratory from someone on the campus, he was directed to the Mudd Building.

News of members of the reunion classes which was given at the banquet may be found listed among the Personals.

At the close of the banquet, the men adjourned to a lecture room in Arms Building to hear Lawrence G. Fenner, '30, and Mark Serrurier, '26, discuss informally some of the interesting problems of the wind-tunnel project.

### SAN FRANCISCO CHAPTER

**D**UE to wartime conditions and transportation difficulties the usual bi-monthly meetings were temporarily discontinued during the past year. However, a few alumni have been regular attendants at the Monday noon luncheons at the Fraternity Club at the Palace Hotel in San Francisco.

A preliminary poll indicated that a good attendance of Tech men and their wives could be expected for the fifth annual Sports Day and picnic at Howard Vesper's home at "Cactus Rock" in Oakland. In spite of gasoline rationing an attendance of 33 alumni and their wives enjoyed a very pleasant afternoon on Sunday, May 28.

Absence of the younger set was noticeable in that very little enthusiasm could be stirred up for the usual softball game between the "old" grads and the "young" grads. Lack of a suitable playing field was a contributing factor but it was evident that most alumni were more interested in Howard's well-equipped play room where several lively games of ping pong and pin ball were held.

This served to whet the appetites of those present and everyone enjoyed the picnic supper served in the patio. News of other alumni was passed along and a community "sing" was held in front of the outdoor fireplace. The following alumni were present:

Kenneth B. Anderson	'24	Hilmer E. Larson	'27
Lawrence W. Baldwin	'35	Donald F. Morrell	'24
Marshall A. Baldwin	'27	D. S. Nichols	'28
Robert B. Bowman	'26	D. J. Pompeo	'26
Edward Dorresten	'24	Lee W. Ralston	'27
Howard Fisher	'27	Ted Vermeulen	'36
Dave G. Harries, Jr.	'23	Howard G. Vesper	'22
Alex J. Hazzard	'30	Gordon K. Woods	'42
Maurice T. Jones	'26		

A short business meeting was held, during which Howard Fisher, the outgoing president, gave the report of the nominating committee. The following officers were elected for the coming year:

Alex J. Hazzard, '30.....	President
Marshall A. Baldwin, '27.....	Vice-President
Maurice T. Jones, '26.....	Secretary-Treasurer

Some colored slides of last year's swimming party at Bob Bowman's pool were shown. Bob announced that the next swimming party would be held on September 3, and invited all alumni and their ladies to be his guests on that day. Bob has constructed a lovely swimming

pool on his ranch near Concord, California, and everyone who can possibly go will surely have a very enjoyable time.

The meeting was concluded by a showing of motion pictures.

Any Tech man who may be in the Bay region is invited to join the alumni group which meets at 12 o'clock each Monday at the Fraternity Club Dining Room, second floor, Palace Hotel in San Francisco.

Maurice T. Jones, '26, Secretary,  
908 Curtis Street,  
Berkeley 6, California.

## ATHLETICS

By H. Z. MUSSELMAN  
Director of Physical Education

**I**n the Spring sports, Caltech teams showed up well against the toughest competition, though only one squad produced a team to equal the championship records of the cross country and basketball squads earlier in the year.

The golf team swept through an undefeated season with two wins over both U.S.C. and U.C.L.A., and climaxed the season by winning top honors in the Intercollegiate Tournament. The four-man team of Bob Rosecrance, Larry Hudson, Joe Phelps and George Osgood easily outdistanced all opponents in the Tournament with a team score of 618, while Bob Rosecrance won low medal honors with a 76-73-149.

With only Caltech and Occidental of the original Conference schools sponsoring track teams this year, Dr. Floyd Hanes' track squad won the mythical Conference Championship by subduing the Tigers in a dual meet 67 1/3 to 62 2/3. Every event was packed with thrills and it took the Beaver's winning relay team to cinch the meet. Don Tillman, with a mark of 47 feet 3 inches, broke the Caltech shot record of 47 feet 3/8 inch made by Bill Shuler in 1932. Bernie Wagner cracked another Tech record with the fine time of 1:58.4 in the 880, breaking Folke Skoog's 1932 mark of 1:58.7.

The Engineers clearly demonstrated their superiority by winning the Conference meet with 75 1/4 points. Oxy finished second with 57 and Redlands trailed with 31 3/4. Tom Carter, Student Body president, won the 100 and 220. Other double winners were George Gill in the mile and two mile, and Don Tillman in the shot and discus. The Beavers scored in every event, and placed two men in eight of them.

In other dual meets, Tech bowed to U.S.C., 74-57 and U.C.L.A. 72-59. In these meets Caltech placed in all events, but lacked first place strength.

Winning three relays and four open events, Tech found little difficulty in rolling up 57 points to take top honors in the College Relays. Occidental finished second with 26 1/4 and Redlands third with 18 points. Only a sprinkling of Junior College men competed. Tech teams were clocked in 1:31.5 in the 4-man 880, 3:29.7 in the mile and 11:05.7 in the distance medley.

Entering 10 men in three open events and four relays in the West Coast Relays at Fresno, Caltech finished fifth in the University division, behind U.S.C., Olympic Club, California and U.C.L.A. Tom Carter was nosed out by Duffy of Cal in the 100, and Don Tillman placed third in the shot and discus. The distance medley and two mile relay finished second behind U.S.C., while the half mile and mile teams finished fourth.

Two weeks later, this group of 10 men finished fourth in a meet at Modesto. Curry of U.S.C. was given the decision over Carter in a photo finish in the 100, with

Duffy of Cal a poor third. Harold Yates, who has been throwing the weights on even terms with Tillman all year, took third in the shot. U.S.C. won both medley and mile relays with Caltech finishing second, while the Engineer two-mile team placed fourth.

Entering a complete team in the Pasadena games on the local oval, the Beavers placed third with 21 points. U.S.C. continued to demonstrate its local supremacy in winning the meet with 61 points, while the San Diego Marines placed second with 33. Highlights of this meet were Carter's victory over Curry of U.S.C. in the 100 at 10 flat, and the 220 in 22.3s. Don Tillman cracked another Caltech record when he sailed the discus 142 feet 3 inches to erase the mark of 140 feet 1 1/4 inches established by Bill Shuler in 1931.

In the newly-aligned baseball league, U.C.L.A. grabbed the championship, dropping only one game in a 10-game schedule. U.S.C. finished in second spot with eight wins, Redlands third with six victories, followed by Caltech, Oxy and Pepperdine with four, three and none respectively in the victory column.

With an entire new team and no men of experience, the Tech team found tough competition in this new league, and not until late season could a satisfactory lineup be found. Of the four Tech victories, two were over Pepperdine, one from Redlands, and one by forfeit from Oxy, when an epidemic on the Tiger Campus caused the Bengals to cancel and forfeit the last two games on their schedule. Wayne Timm, pitcher, who was the only Tech man selected on the All-Conference team, was one of the leading hurlers in effectiveness, but weak hitting and loose fielding dropped many ball games.

The tennis squad lost twice to U.S.C., split matches with U.C.L.A. and won the only match played with Pepperdine. Stan Clark, number one man on the squad, proved to be one of the finest singles players among the southern California colleges. He represented the Institute in the National Collegiate Tennis Tournament at Northwestern University the last week in June. Clark, after winning his early matches, ran into Francisco "Pancho" Segura, 1943 N.C.A.A. Champion from Miami University, in the quarter finals and lost in straight sets.

## FOOTBALL ON LIMITED SCHEDULE

**S**EVERAL weeks ago the Institute made the following announcement:

"At a recent meeting of the Board of Trustees of the California Institute of Technology, it was decided that Intercollegiate Football should be abolished as a part of the Institute's athletic and physical education program. Special permission was given, however, for an Institute team to play a schedule of four to six games of football with other college teams between now and October 7 of this year. This permission is given in order to accommodate circumstances associated with enrollment of Navy V-12 students at the Institute. The proposed schedule is in process of being arranged."

A squad of over 100 men greeted the coaches, Chief Specialist Mason Anderson and Paul Ackerman, at the opening practice. While there are only a few college lettermen in the squad, probably more than 40 per cent of the men have played high school football.

By necessity, the season must be short as final exams, commencement, and a two week vacation period in October make it impractical to play games later than October 7. A schedule of four games has been arranged with the only college teams in this area which are playing.

Friday, September 15, 8:00 P.M.—Redlands—at Rose Bowl.  
Friday, September 22, 8:00 P.M.—Redlands—at Redlands.  
Saturday, September 30, 12:15 P.M.—U.S.C. Reserves—at Coliseum.  
Friday, October 6, 8:00 P.M.—U.C.L.A. Reserves—at Rose Bowl.