

# C. I. T. NEWS

## AMOUNT OF C.I.T. WAR WORK TOLD

**A**LMOST 25 per cent of the 335 million dollars of war contracts placed with colleges during the war by the Office of Scientific Research and Development was given to the California Institute. The only school to top this figure was the Massachusetts Institute of Technology which grossed approximately 117 million to Caltech's 83. These contracts were given on a straight cost basis, no school making a profit on the research and development undertaken.

## TAU BETA PI ELECTION WAS IMPORTANT MARCH EVENT

**H**OWARD Vesper '22, spoke at the initiation of 28 into Tau Beta Pi this month. One of the highest honors a Caltech student can attain, only those in top eighth of the junior class and top fifth of the senior class are eligible. Membership is not based solely on grades, however, but takes into consideration the character, personality and general campus activities of the candidates. President Lee A. DuBridge and associate Professor of Electrical Engineering Gilbert D. McCann '34 were initiated into the fraternity. It is the policy of Tau Beta Pi to elect not only students but also men who have demonstrated great service and ability in the field of engineering.

Speaker Howard Vesper was a charter member of the Institute's Tau Beta Pi chapter, having been inducted in 1922, the year he graduated. He is now president of the California Research Corporation, research affiliate of Standard Oil Company of California. Mr. Vesper's record as an undergraduate is impressive. He was on the staff of the *California Tech*, student newspaper, for four years, and assistant editor for two. He was on the *Big T* staff for four years, editing this yearbook as a senior. He won his basketball letter three years in a row, was in the Glee Club and Orchestra for four years, publicity manager and on the Board of Control in his junior year. Mr. Vesper also served as football manager and as an officer of the Varsity Club. He was also highest ranking man in his junior class.

Graduating in chemical engineering, Mr. Vesper started working for Standard of California immediately and has progressed to the research corporation's presidency.

Students elected to membership who were inducted after going through a probationary pledge period which included obtaining the autographs of all Tau Betes on campus and writing a technical essay and polishing replicas of the "Bent," fraternity insignia, are Earl Beder, Los Angeles; William Dixon, Milwaukee; Byrne Eggenberger, Temple City; Richard Ferrell, San Francisco; Taylor Fletcher, Temple City; Bruce Gavril, Sand Springs, Georgia; Joseph Green, Los Angeles; William Hammerle, Hamilton, Ohio; Delbert Hausmann; Harvey Holm, Sacramento; Wil-

bur Jarmie, Los Angeles; Warren Marshall, Atlanta, Georgia; Albert McEuen, Los Angeles; Walter Ogier, South Pasadena; John Rasmussen, Pasadena; Carl Rasmussen, Los Angeles; Harvey Roberson, Rocky, Oklahoma; George Scott, Sacramento; Lyle Six, Pasadena; John Swain, Pasadena; Robert Urschig, La Jolla; Robert Walker, San Pedro; John Whittlesey, Los Angeles; Don Wilkinson, Los Angeles; Bill Woodson, Berkeley; and Byron Youtz, Santa Maria.

## CHEMISTRY STAFF DEVELOPS OXYGEN MEASURING DEVICE

**D**EVELOPMENT by the California Institute before Pearl Harbor of a small and relatively simple meter used extensively throughout the war by the Army and Navy for determining the amount of oxygen in gas, was announced recently by Caltech.

The meter was invented by Dr. Linus Pauling, head of the Caltech Division of Chemistry and Chemical Engineering. Collaborating with him were Dr. Reuben D. Wood, now in the chemistry department of George Washington University, Washington, D. C. and Dr. James H. Sturdivant, associate professor of chemistry at Caltech.

Used during the war in planes and submarines, industrial plants, and in the relatively new field of aviation medicine for determining the ability of pilots to stand high altitudes, the meter is now being used for peacetime purposes and is responsible for development of a small, highly technical industry in Pasadena.

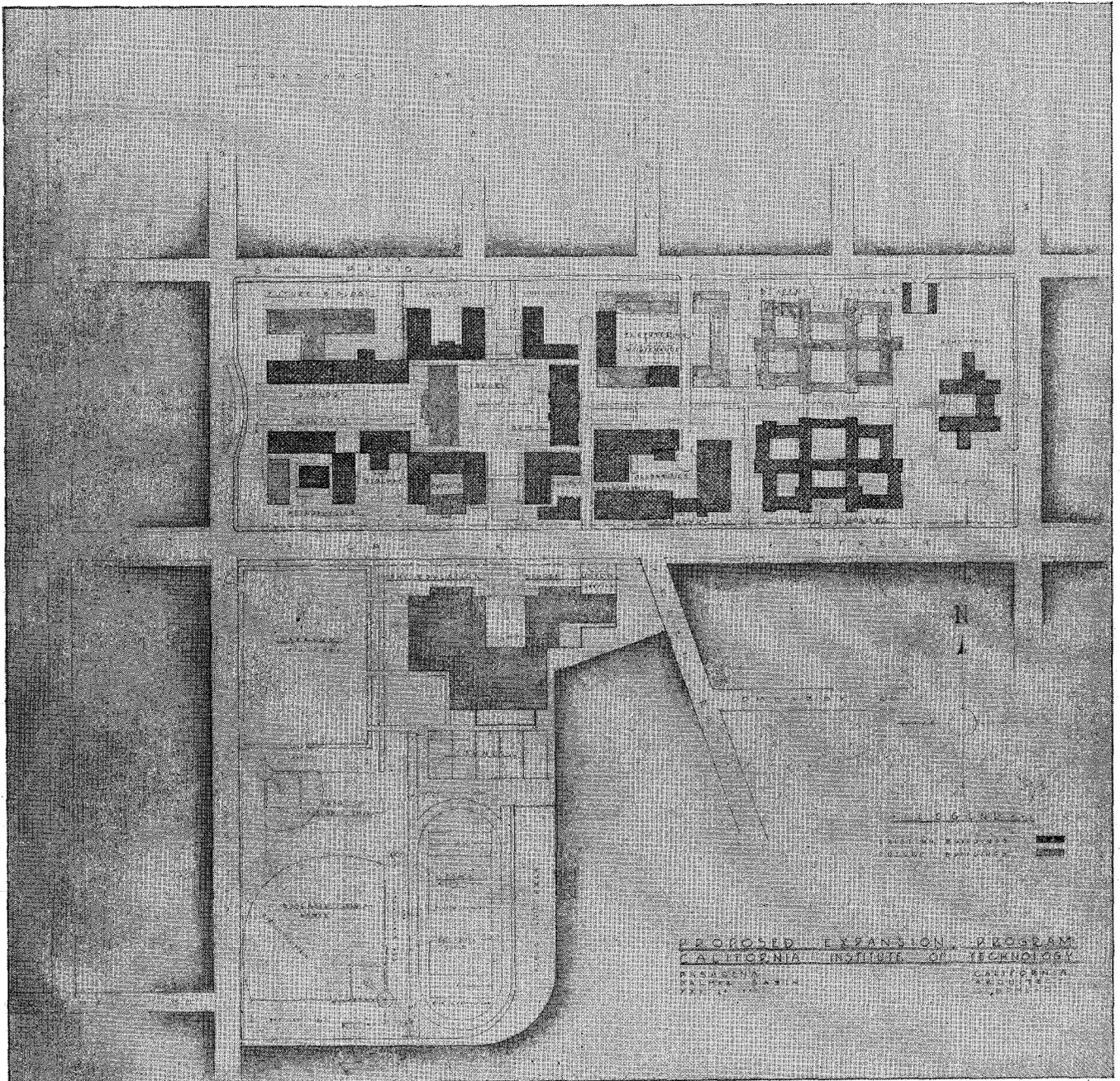
The meter depends on the known fact that oxygen is slightly attracted to a magnet, while most common gases are repelled. The device consists of a pair of very small spheres connected by a slender rod, suspended between the poles of a strong magnet by a filament attached to the middle of the rod. Responses of the spheres to the magnetic pull is conditioned by the oxygen concentration, with the amount and rate of their swing registered by means of a light beam reflected from a small mirror attached to the filament. So small and sensitive is this piece of mechanism that its assembly must be accomplished with the aid of a microscope.

Developed for war-time needs at Caltech under an Office of Scientific Research and Development contract at the request of the National Defense Research Committee, the meter was kept under wraps until the end of the war and has since been further developed. The first few dozen of the instruments were manufactured at Caltech after which the contract for their production was turned over to the A. O. Beckman Company which established a plant in Pasadena for their production.

Meters of this type are now being used throughout the country by hospitals in administering anaesthetics in which oxygen is given with the anaesthetic to the patient. By use of the Pauling Oxygen Analyser, its trade name, those administering the anaesthetic can determine at all times the amount of oxygen the patient is getting and thus be assured that it is sufficient.

Industrial plants are using the meter in manufacturing processes where oxygen and other gases are used.

## CITY OF PASADENA VOTES TO SELL TOURNAMENT PARK TO CALTECH



**T**HE first step in an expansion program that has been projected in order to meet Caltech's anticipated needs for the next 25 years was taken in March when, by a majority of better than three and one-half to one, the voters of Pasadena approved abandonment of Tournament Park and its sale to the Institute.

Plans for the use of the park call for making it the center of all student activities. Buildings to be placed on the property will be a gymnasium and swimming pool and student union building. Present athletic facilities will be retained but tentative plans call for their relocation so as to best use all the space available and also to provide parking facilities for at least 400 automobiles.

At the present time the park, which has been used by Caltech Student since 1910 as an athletic field, has a baseball diamond, tennis courts, dirt volleyball and basketball courts, and a football field and track, the latter known as Paddock Field. Named in honor of Charlie Paddock, Pasadena's greatest athlete, that facility will continue to carry his name. The baseball field, once used by the Chicago Cubs for spring training, is now located in the northwest corner of the park.

Tentative plans for relocation of athletic facilities envision two baseball diamonds in the southwest section of the park, with Paddock Field moved to the southeast section and running north and south instead of east and west as it now does. Just north of Paddock Field will be the tennis courts and north of them,

facing California Street and the present campus, will be the new buildings.

A student committee to assist the Institute in determining desirable facilities for the Student Union building is to be appointed. Members of this committee will be asked to visit similar buildings on other campuses during the summer months and bring back recommendations for the Caltech facility.

Parking space for automobiles is now planned for the northwest section of the park with entrances and exits off Wilson avenue.

Plans will remain tentative until such a time as the City government advises the Institute as to what portion of the park it wishes to retain for development of a small neighborhood park. Tentative plans were drawn upon the assumption that the small picnic grounds in the southeast section of the property would most likely be retained for this park.

Institute plans also call for use of property which it has owned for several years adjoining the park property on the north along California Street and running from the park boundary line to Arden Road. This property would be used for the Student Union building.

In addition to the Tournament Park development, plans have also been made for utilizing all space now available on the campus. These call for additional student housing on the San Pasqual side of the campus and directly across from the present dormitories, additional mechanical engineering facilities, another wing to the biology building, an auditorium capable of accomodating the entire student body, a central library and a small addition to the Bridge physics laboratory.

The proposed library building will be parallel to Throop Hall on the west portion of the campus and between physics and chemistry laboratories.

The auditorium, as now projected, will be located on the northwest corner of the campus just west of Culbertson Hall.

This building program will necessitate razing of several old buildings, including the old dormitory, campus cafeteria, soil conservation laboratory, internal combustion laboratory, Throop club and a number of other existing temporary structures.

It is anticipated that completion of the Tournament Park and campus building program will require several years, depending of course, on funds available for construction. Priority will be given the facilities planned for Tournament Park and the addition to Engineering.

#### **PROFESSOR VOTED CRYSTALLOGRAPHIC COUNCILLOR**

**D**R. GEORGE Tunell, acting associate professor of minerology and metalliferous geology was elected to the office of Councillor of the Crystallographic Society at its March meeting in Annapolis, Maryland.

Crystallography is the science of the interatomic arrangement of matter, its causes, its nature and its consequences. The Society provides a meeting ground for the discussion of mutual problems and fosters development of the science.

Dr. Tunell, who is on a year's leave of absence from the Geophysical Laboratory of the Carnegie Institute of Technology, has been serving in his present post at C.I.T. since October, 1946.

#### **DUBRIDGE ELECTED PHYSICAL SOCIETY PRESIDENT**

**P**RESIDENT Lee A. DuBridge was elected president of the American Physical Society at the Council Meeting of that organization. Dr. Robert Oppenheimer, professor of theoretical physics at both the Institute and the University of California, was elected vice-president.

#### **TECH JUNIOR WILL REPRESENT THIS AREA IN A.S.C.E. JR. MEETING**

**I**RVING Sulmeyer, California Institute junior in civil engineering, will represent Southern California in the Southwestern Conference meeting of the Junior Forum of the American Society of Civil Engineering at Phoenix, Arizona, 25 April, as the winner of an elimination contest held recently in this area.

Sulmeyer earned the right to represent the Junior Forum at Phoenix when his paper on "Pride and Unity in the Engineering Profession" was adjudged best in a contest between Caltech and U.S.C. representatives.

As winner of the contest he was awarded \$25 in cash and will receive his transportation expenses to the Phoenix meeting.

#### **LACEY WENT EAST TO RECEIVE LUCAS AWARD**

**D**R. WILLIAM N. Lacey, professor of chemical engineering at Caltech, received the Anthony F. Lucas Gold Medal for 1947 at presentation ceremonies Wednesday, 19 March, in New York City where he attended the 75th anniversary banquet of the American Institute of Mining and Metallurgical Engineers.

Dr. Lacey was advised some time ago that he had been named for the Anthony F. Lucas medal. The citation stated that the award was made for "his distinguished achievement in directing research work in the fundamentals of hydrocarbon behavior and particularly his application of these fundamentals to oil and gas reservoirs which have led to greater efficiency in oil and gas production from our oil fields; his published data have been of immense value to the petroleum industry in determining improved producing procedures for the various types of oil and gas reservoirs."

Dr. Lacey presented a paper at the AIMME meeting on "Phase Behavior in the Methane-Ethane-n-Pentane System" prepared by him, Dr. Bruce H. Sage, professor of chemical engineering, and G. W. Billman, graduate student in chemical engineering.

The paper concerns a study of mixtures of interest to natural gas and gasoline industries and petroleum refining.

#### **ENGINEERING RESEARCH LABORATORY BOUGHT**

**S**ALE of the Cutter Research Laboratory to the California Institute of Technology for a nominal consideration was approved by the Los Angeles office of the War Assets Administration in February. Constructed on land on South Raymond Avenue in Pasadena, owned by the Institute, the laboratory is a stucco building 60 by 60 feet, containing various scientific items and testing devices. The installation was used during the war for research connected with designing and operative techniques of milling machines and was reported to have cost the government \$100,158 to construct.

## DEAN JONES WILL CONTACT ALUMNI AND PROSPECTIVE STUDENTS ON APRIL TRIP



**A**SSOCIATE Dean for Upperclassmen and Registrar, L. Winchester Jones, will extend a pre-war function by traveling East in April to interview applicants for admission to the freshman class, and to speak to Alumni groups in several cities. Before the war, members of the admissions committee interviewed prospective freshmen outside California, but this practice was discontinued when wartime travel difficulties interfered. In

addition to the resumption of eastern interviews this spring, Alumni contacts are planned as a part of the Registrar's extended trip.

The problem of admissions liaison for students outside the Southern California region has long been a difficult one, and as more and more students from all over the United States apply for admission to the California Institute, the problems of giving information to prospective students, administering entrance examinations, and subsequently interviewing prospective candidates have increased. Alumni can help solve these difficulties in two ways:

Administration of examinations in eastern cities is always a problem. There are usually 10 or 12 candidates, and obtaining a central point for administration as well as an administrator who will give two three-hour examinations on each of two Saturdays is a task. What the Institute proposes to do is to secure help from Alumni groups in several cities who can find a room in which to give the test, and who will arrange for the actual administration of the examination. All expense would be borne by the California Institute, while the Alumni will be asked to take the responsibility of giving the examinations.

Besides helping give Institute entrance examinations to high school seniors, Alumni outside the Southern California area will be requested to arrange contacts with high school instructors in mathematics, physics and chemistry, and to be ready to aid with any contacts student or school would like to make with the Institute.

It is emphasized that these prospective relationships are not being developed as a drive for more students at the Institute. The size of the entering classes is fixed, and usually of applying high school students, only those with excellent academic records are permitted to take the entrance examinations. This year there were 800. Of this group 180 will be chosen for the freshman class. Normally the class size is limited to 160. The Institute is striving for students of still higher all-around quality and general personality. Scientists and engineers, it has been found, must be able to do more than operate slide rules after graduation.

Dean Jones plans to meet with five Alumni groups on his trip. Starting on 15 April, his plans for meetings are as follows:

Chicago, Illinois: 17 April  
Schenectady, New York: 19 April  
Boston, Massachusetts: 21 April

New York City, New York: 24 April  
Pittsburgh, Pennsylvania: 1 May

An attempt will be made to interview all students in the vicinity of his scheduled stops. The Dean will go as far south as Washington, D. C., and hopes to talk to a few applicants in Virginia.

By the time he has returned on 4 May, other members of the admissions committee will have covered Northern California, the San Joaquin Valley, San Diego and the Imperial Valley, and the local Southern California area. On the basis of examinations and interviews, 180 students will be informed early in June that they are to be admitted to the Institute with the class of 1951. Students who have shown by their examination records that they would meet with more success in a different type of school will be so informed at the time of the interview by a member of the admissions committee.

## PAULING TO RECEIVE DEGREE FROM CAMBRIDGE

**D**R. LINUS Carl Pauling, professor of chemistry for 25 years has been selected with eight other candidates for degrees by the senate of Cambridge University, Cambridge, England. The degrees to be conferred upon Dr. Pauling by the University is the Doctorate of Science. Dr. and Mrs. Pauling will leave late in May for Cambridge.

## DEAN THOMAS APPOINTED TO RIVER BOARD

**P**ROFESSOR Franklin Thomas, recently resigned as vice-chairman of the Metropolitan Water District in which he had for many years played one of the key parts in bringing Colorado River water to Southern California, found himself early in November back on another river water commission.

Professor Thomas was appointed to the Colorado River Board of California, replacing W. P. Whitsett of Los Angeles. He will represent the Metropolitan Water District.

## FACULTY MEMBERS HELP WITH ENCYCLOPEDIA

**T**HREE members of the Institute faculty have made their first contributions to the Encyclopedia Britannica, writing for the 1947 revised printing of the reference work.

New contributors from Caltech and their topics are: Eric Temple Bell, professor of mathematics, who wrote and revised 23 articles in his field of interest; Jesse William Monroe DuMond, associate professor of physics, "Nature of X-Rays," and Aristotle Demetrius Michal, professor of mathematics, "Differential Forms" and "Tensor Analysis".

A revised printing of the reference work has been published each year since 1932 when the policy of continuous revision replaced the old "edition" system.

## JAHNS OF GEOLOGY ELECTED TO SOCIETY POST

**D**R. RICHARD H. Jahns '35, associate professor of geology at Caltech, was elected vice-president of the Branner Geological Society of Southern California at its annual meeting held recently on the Caltech campus.

## BASKETBALL REVIEW

THE end of the basketball season saw Coach Carl Shy's Engineers in the middle of the scoreboard with seven wins and seven losses. In the five-school Conference, Caltech tied for third with Redlands.

Guard Harry Moore was picked for the all-conference second team, and Center Paul Saltman holds an alternate berth on that group.

## TRACK SEASON HAS UPS AND DOWNS

THE track season started well with the Beavers winning the conference relays at Occidental College. The meet was close the entire way, and with only the mile relay to be run, Tech led Oxy by a scant 2/5 point. The meet hinged on which of the two schools placed higher, as the next team in the running trailed by six points, too great a margin to make up by winning the race. Occidental built up a 20 yard lead on the first lap, which was cut to seven by Stan Barnes with a 51.8 second round of the track. On the last lap Ken Shauer caught his Oxy opponent on the back stretch, passed him on the turn, and finished five yards ahead. The fact that Pomona won the race was incidental.

Three of the five first places gained by Coach Doc Hanes' Beavers were taken by the Junior Varsity relay teams, which won every event for their class; the four man 880, the sprint medley and the mile.

The Beavers have been doing less well in dual meets, however, with losses to Occidental, Redlands and Pomona. The Tigers strong, well-balanced team took all places in the high hurdles, high jump, and two mile events. Ken Shauer, running on a bad leg which kept him out of later events, won the 440 in 50.3 seconds. Don Tillman was high scorer with a win in the discus and second in the shot put. Stan Barnes and Herb Sims took the first two places in the 880.

Bad luck continued the next weekend as Redlands nosed Tech out 66 1/2 to 64 1/2. The Engineers won eight first places to the Bulldog's five, with ties in two events. Shauer won the 440 again in 50.3 seconds. Stan Barnes took the 880 in 2:03.6. Distance events continued to give the Beavers trouble as Redlands swept the mile and two mile events. Don Tillman took a double win in the discus and shot put.

Pomona College also bested the men from the Institute 86-45. Highlight of the afternoon was Shauer's 48.8 440 which set new school and Conference records. Tillman came through in the shot put with a heave of 46 feet, 7 inches.

The same afternoon Pomona engaged in a second dual meet with Redlands, the Sagehens being victors to the tune of 69 1/2 to 62 1/2.

Doc Hanes' team will take a rest until the first Saturday of the Spring Term, when they meet Santa Barbara and U.C.L.A. in a three-way non-league contest at Westwood.

### TRACK SCHEDULE

Saturday	5 April	Caltech & Santa Barbara	at U.C.L.A.
Saturday	12 April	Whittier	at Caltech
Saturday	19 April	Conference Meet	at Redlands

## BASEBALL TEAM IS NOW PLAYING PRACTICE GAMES

WITH seven practice games scheduled before conference play starts, the baseball team is getting regular practices. Losing the first practice game to Pasadena Junior College, the Beavers, under the tutelage of Coach Harold Z. Musselman beat Muir Junior College 10-3, and then were downed by Compton.

Three more practice games will be played during the week-long vacation with the seventh game on Spring Term registration day, Monday, 31 March.

### BASEBALL SCHEDULE

Monday	31 March	3:00 p.m.	Cal Poly	at Caltech
Saturday	5 April	2:15 p.m.	*Caltech	at Whittier
Saturday	12 April	2:15 p.m.	*Occidental	at Caltech
Tuesday	15 April	4:15 p.m.	Chapman	at Caltech
Saturday	19 April	2:15 p.m.	*Redlands	at Caltech
Tuesday	22 April	4:15 p.m.	La Verne	at Caltech
Saturday	26 April	2:15 p.m.	*Caltech	at Pomona
Saturday	3 May	2:15 p.m.	*Caltech	at Redlands
Tuesday	6 May	4:15 p.m.	Pepperdine	at Caltech
Saturday	10 May	2:15 p.m.	*Pomona	at Caltech
Tuesday	13 May	4:15 p.m.	Cal Poly	at Caltech
Saturday	17 May	2:15 p.m.	*Whittier	at Caltech
Saturday	24 May	2:15 p.m.	*Caltech	at Occidental

\* Conference Games

## OTHER SPRING SPORTS WARMING UP

THE first week of April will see most spring sports under way in conference competition. Johnny Lamb's tennis team, which went down 8-1 before powerful U.C.L.A.'s second string, has its first league contest on Saturday 5 April against Redlands.

### Varsity Tennis Matches

Saturday	5 April	Redlands	at Caltech
Wednesday	9 April	Caltech	at Occidental
Saturday	12 April	Caltech	at Whittier
Saturday	19 April	Pepperdine	at Caltech
Saturday	3 May	Pomona	at Caltech
Wednesday	7 May	Occidental	at Caltech
Saturday	10 May	Caltech	at Redlands
Tuesday	13 May	Whittier	at Caltech
Saturday	17 May	Caltech	at Pomona
Friday	23 May	Conference Meet	at Caltech
&	&		
Saturday	24 May		

Bob Merrick's swimmers will open their League season on Friday, 4 April as hosts to Redlands in the Pasadena Junior College pool. The swimming team has also seen action this season in a practice tilt with Los Angeles City College, which it lost, 45-21.

### Varsity Swimming Schedule

Friday	4 April	4:30 p.m.	Redlands	at Caltech
Friday	11 April	4:30 p.m.	Occidental	at Caltech
Wednesday	16 April	4:30 p.m.	Pomona	at Caltech
Thursday	24 April	4:30 p.m.	Compton JC	at Caltech
Friday	2 May	4:00 p.m.	Caltech	at Pomona
Wednesday	7 May	4:00 p.m.	Caltech	at Occidental
Friday	10 May	4:00 p.m.	Caltech	at Redlands
Saturday	17 May	1:30 p.m.	Conference Meet	at Occidental

Golf is also due to start at the end of the first week of the Spring Term, when the Beaver team will be guests of the Whittier College Poets in the Season's opener.

### Varsity Golf Schedule

Friday	4 April	1:30 p.m.	Caltech	at Whittier
Friday	11 April	1:30 p.m.	Redlands	at Caltech
Friday	18 April	1:30 p.m.	Pomona	at Caltech
Friday	25 April	1:30 p.m.	Whittier	at Caltech
Friday	2 May	1:30 p.m.	Caltech	at Redlands
Friday	9 May	1:30 p.m.	Caltech	at Pomona
Saturday	17 May	9:00 a.m.	Caltech	at U.C.L.A.
Saturday	24 May	9:00 a.m.	Conference Tournament	at Pomona