

## ME engine lab gets publicity on nation wide TV production

Television came to Caltech on Sunday, May 20. General Motors took the air time usually devoted to NBC's Wide World television show from 1 to 2:30 p.m., to present a full network show illustrating the impact of industry on American living, and high-lighting the work of the technicians, engineers and scientists who keep the system going.

The show picked up activities all across the country, and included a sequence at Caltech showing Professor Peter Kyropoulos and his students at work in the engine lab. Dr. Kyropoulos was interviewed about the research in his lab and about today's opportunities for young men in science and engineering.

About 18 senior and junior mechanical engineers participated in the program, for which they rehearsed eleven hours during Saturday and Sunday mornings.

The only Techman fortunate enough to have a speaking part was junior ME Hal Dale. His line was, "Professor, I think I've proved Murphy's principle." The so-called principle asserts that if there is any possibility of a machine fouling up during operation, it will. Ironically enough, the validity of Murphy's principle was demonstrated when the battery used to start the high compression test engine had to be constantly hooked up to the battery charger during the actual show.

## Huge bell jar is main feature of research project attempted by ME graduate student

One of the recent additions to Caltech's research program is a project to investigate properties of metals at high temperatures. This project, subsidized by the Air Force and US Steel Corp., is being conducted by Ron Willens, a grad student in the mechanical engineering division.

Specifically, the object of the project is to determine variations of crystal structures in metals at high temperatures; the apparatus to be used is a high temperature X-ray spectrometer.

The unique feature of the project is a large vacuum chamber that has been constructed to contain the apparatus. This steel bell jar, six feet in diameter, is The World's Largest Bell Jar, and the second largest vacuum system on campus, exceeded only by that in the synchrotron. It is hoped that this vacuum system will overcome the major obstacle that has plagued previous research of this sort, oxidation of the target material. Certain active metals, such as titanium, zirconium, and hafnium, which are becoming of increasing interest to metallurgists, have eluded good X-ray analysis because their surfaces become oxidized at high temperatures even in the presence of very small amounts of oxygen. Even ordinary high vacuum systems often leak too much oxygen for good results. To prevent this contamination, each flange on Willens' vacuum

## Essay Contest prize winners are announced

Dan McMorris and Doug Carmichael won \$75 and \$50 respectively in the 1956 McKinney Essay Contest it was announced this week. Tetsue Yamane and Dave Yount captured third and fourth places with prizes of \$25 and \$15.

The essay topic was "The Scientist and Society," and ideas were drawn from the following assigned material: "The Gadget Maker" by Maxwell Griffith, "The Value of Science" by Richard Feynman, the autobiography of Robert A. Millikan, and "The Big Secret" by Merle Colby.

Judges included scientists Robert King and Thomas Harvey of the physics department, Kent Clark and Peter Fay from the humanities, and John Carter of Chicago Teacher's College.

The McKinney Essay Contest was established in 1946 by Dr. Samuel P. McKinney.

## Athletic trophy winners to be revealed at this year's Spring Award Assembly

### Pi Kap admits six members

Initiation of new members and nomination of officers were the orders of business following the Annual Initiation Luncheon Banquet of the Pi Kappa Delta last Monday noon. The Pi Kappa Delta is a national debate society.

A test, noted for its difficulty was administered to the following individuals who were then initiated into the organization: John Lango, Tom Morton, Ken Scholtz, Wayne Scott, John Velman, and Reed Warner. The test consisted of 21 questions about material contained in the PKD constitution. The 8 point national average was bettered by every Tech candidate.

Nominations for officers for the coming term were held. Mike Bleicher and Andy Perga were nominated for vice-president. Tom Gunkel and Maury Kallaerud were nominated for vice president. Ken Schultz and Wayne Scott were nominated for secretary-treasurer.

Results of the election, which was conducted by written ballot, will be announced today.

### Converse plans games, speeches and steaks as afternoon's featured events

Varsity and intramural athletic awards will be presented at the annual Spring Awards Assembly Sunday afternoon.

Informal games in Tournament Park will precede the assembly, according to plans released by Glenn Converse, ASCIT athletic manager.

### Announcements

#### Big T's for sale

Surplus Big T's will be on sale for five dollars each after their release next week. Undergraduates who left Caltech after one term will be able to purchase T's for three and one-half dollars, while those who left after two terms will be offered T's at a cost of one

dollar seventy-five each.

#### Take me out . . .

Sports fans are urged to attend the annual senior-faculty softball game to be held at 2 p.m. today in Tournament Park.

The assembly will start at 4 p.m. with talks by some of Caltech's coaches. Awards will be given to lettermen in baseball, swimming, track, golf, and tennis. Outstanding performers will receive the Carl Shy freshman basketball trophy, the Vesper award for varsity basketball, the Goldsworth Trophy in varsity track, and the Alumni Baseball Award.

In addition to the individual awards, the following trophies will be presented to the house: the Interhouse Sports Trophy to the house having amassed the most points during the year's competition, the Discobolus Trophy, the Varsity Rating Trophy for the house with the biggest turnout in varsity sports, and the Spake Trophy, emblematic of scholastic excellence. Honor keys, honor certificates, and debate awards will also be distributed.

A steak dinner will follow at 5 p.m. for those who are willing to pay \$1.50. Converse promises succulent New York cuts.

## Orations fill morning air!

The Conger Peace Prize assembly was held today at 11 a.m. in Culbertson hall. The competitors were Howard Berg, Rube Moulton, Myron Black, John Velman, Keith Brown, and Robert Bradford. Each speech covered some phase of international or industrial peace, with a \$50 prize for the winner and \$25 for second place.

The judges for the orations were C.M. Nelson, president of the Pasadena Chapter of the American Association for the United Nations; Hallett Smith head of the humanities department and Dr. Daugherty, chairman of the mechanical engineering division. The judges chose the winner on the basis of content and organization of his speech, as well as his sincerity and manner of presentation. First place winners are not eligible for future competition.

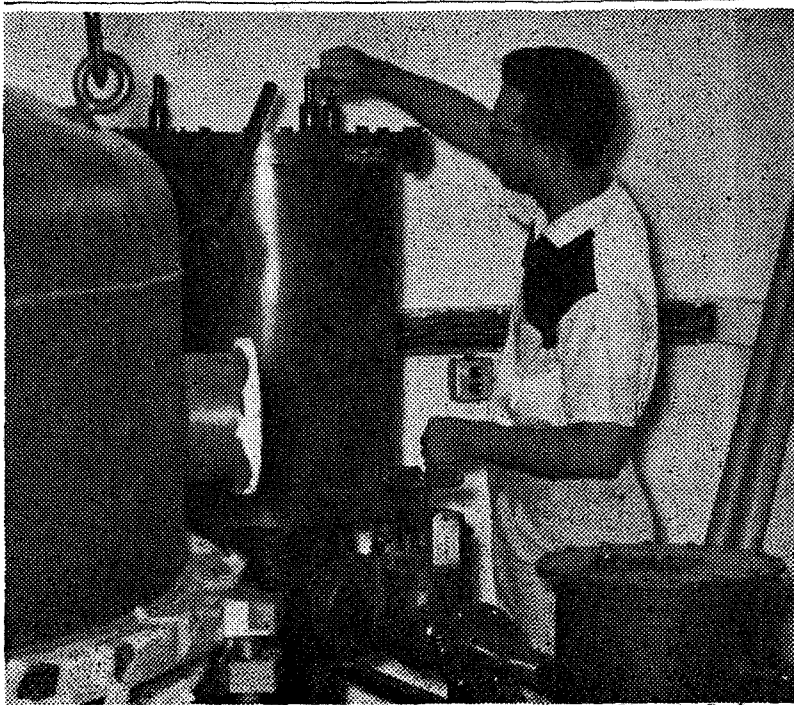
## Party, formal on social slate

The doings this weekend will include everything from a formal to a Bridey Murphy party, yes, complete with hypnotist. Blacker House is having the Bridey Murphy party on Friday. It will be followed up on Saturday by a beach party at John Conover's house in Laguna with swimming, chow, and dancing.

Ricketts and Fleming are having their annual formal Saturday night. They will eat on tables set up under the arcade between the two houses. The dance floor will be placed in the adjacent patio.

Throop is having a hay ride to an unknown destination.

On Friday night Dabney will have another of its famous party-partys, to be followed by a beach party on Saturday.



Ron Willens and world's largest bell jar.

chamber is equipped with double seals, between which is pumped helium. Thus all leakage into the system is inert helium, rather than chemically objectionable air.

Other features of the apparatus are a rotating target, which exposes a much larger surface to the X-ray beam than conventional fixed target spectrometers, thus minimizing effects of grain growth, and a device for producing a beam of nearly monochromatic X-rays, thus reducing the broadening of lines in the diffraction pattern.

Work on the project was begun last December. The assembling of the apparatus is still in progress and completion is expected by fall. The cost of the project to date has been \$75,000; the estimated completion cost is \$100,000.

Ron Willens received his Bachelors degree in physics from Caltech in 1953, got his Master's in Mechanical Engineering, and is now working for his PhD in Engineering Science. His high temperature research is to be the subject for his doctorate thesis.

## ASME names Irwin coming year's prexy

Kirk Irwin and Ted Oakberg were elected Student Chairman and Secretary Treasurer, respectively, of Caltech Student Chapter, American Society of Mechanical Engineers, this week.

Outgoing officers are Jerry Crocker, student chairman; Kirk Irwin secretary-treasurer; and Joe Gibbs, Curt Schulze, Steve Mager, Doug Ritchie and Jim Lloyd, house chairmen. House chairman for next year will be selected in the fall.

Dr. Robert T. Knapp, Professor of Hydraulic Engineering, was elected faculty adviser for the chapter. Professor Knapp, head of the Hydrodynamics laboratory, recently talked to student members about cavitation at an evening meeting.

## West Coast Fund grants to Techmen

Six Caltech Students have recently received assistance grants from the West Coast Fund, a newly formed non-profit corporation with headquarters in Los Angeles.

The principal activity of the West Coast Fund is assisting students of high scholastic standing and limited financial resources. Particular emphasis is placed on helping students preparing for careers in engineering, the sciences and the teaching profession. Grants are made to individual students rather than to institutions.

California Tech

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LETTERS

As ASCIT treasurer, I deem it necessary to correct any erroneous notions which may have arisen due to an article which appeared in the California Tech last week. The main reason for the misconceptions stems, I believe, from an insufficient knowledge of ASCIT and Institute policies regarding the budgeting of Student Body Funds.

First consider the athletic budget. The Caltech student pays \$5.50 to the general athletic fund in return for which his student body card becomes a ticket of admission to all the sports events. This fee is not a part of the regular budget but instead is a charge set up in the corporation by-laws and goes to support the intercollegiate sports program. The Institute is not obliged to provide for intercollegiate sports competition, and indeed many small schools have been forced to abandon their sports programs. And if one considers how much such a program must cost, he will realize that the students' contribution is only a token amount.

Next, athletic awards. The ASCIT has budgeted \$1,850 for athletic awards such as letters, sweaters, jackets and blankets. The athletic department is responsible for determining who is eligible to receive an award, and in general, the BOD regards these judgments as sound. There may be a possibility that too many awards are given to qualified men. At Tech, a man may qualify for three awards (sweater, jacket, or blanket) during his years of varsity competition. This extra award creates, in the judgment of the BOD, a real (and necessary) incentive towards participation in intercollegiate sports.

Debate. The ASCIT has budgeted \$475 or about \$25 per team member to the debate squad. This is a \$125 cut below the \$600 which debate requested or a \$25 cut below what was budgeted last year. The debate squad is certainly an organization worthy of student body support, especially in that it brings a great deal of prestige to the students—last year we produced the top debate team in the nation. The cut was an action necessitated by the Board's acceptance of new budget responsibilities (the Glee Club) and a necessary increase in appropriations to the ASCIT publications.

The Big T. Over the last four years the layout of the Big T has become more and more conservative and a great deal of thought has been given to effective use of space (a very good example is seen in the difference in the layout of the senior sections of the '55 Big T as compared to the annuals of previous years). But in spite of this, the book has become slightly longer because of the increased enrollment and number of student activities.

As editor of the 1956 Big T, I know that every money-saving effort was made so that Tech could get an annual at least consistent with its tradition, in spite of the rise in publishing costs. It is not true that the printer did the yearbook layout; this has always been the responsibility of editors. In fact, through the use of a more conservative layout and by getting 50% of the copy completed before the early copy deadlines the 1956 staff cut the costs of the Big T by about \$200.

I think this answers the most important questions that have arisen concerning the budget. It is unfortunate that these questions could not have been put before the Board directly so that they could have been considered during the budget discussions.

Don Nierlich  
ASCIT Treasurer-elect

Secretary's Report

**GIRLS** Jim Cribbs has tentatively arranged for five male cheer leaders next year with four (count 'em four) pom pom girls.

**ATHLETIC ASSESSMENT** Concerning the \$5.50 which the athletic department collects from students on the bill as ASCIT dues, the board decided not to change the method of collection because it might jeopardize the position of ASCIT members of the Athletic Commission.

**LOST WEEKEND** Leeson was overjoyed to discover he saved about \$40 on the \$750 budgeted for our big blast. ASCIT members who will be in the LA area over the summer are invited to join Throop Club for a nominal fee to participate in their summer social events. **ICC** The Inter-College Council of eight small schools in this area held their monthly meeting at Tech last Thursday. The ICC Dance held in February lost about \$200, and our share will be \$50. In talking over athletic budgets, we discovered that with most of the other schools in our conference the cost of athletic awards and the athletic banquets are borne by the school and not by the students. However, these same schools give only first and third year awards—no jacket for two-year lettermen.

At the first meeting of the ICC held next school year the editors of the humor mag of each school will attend to consider the possibility of having one ICC version of Farrago with all schools contributing.

Herb Rauch  
ASCIT Secretary

Modern Jazz:

The Lively Arts

Duane Tatro's Jazz for Moderns, a Contemporary (3514) 12" high fidelity recording featuring: Stu Williamson, trumpet; Bob Enevoldsen, valve trombone; Joe Eger or Vincent de Rosa, French horn; Lennie Niehaus or Joe Maini Jr., alto sax; Bill Holman, tenor sax; Bob Gordon or Jimmy Guiffre, baritone sax; Ralph Pena, bass and Shelly Manne, drums.

Although I usually beware of absolutes like the plague, I am almost forced to say that the most advanced jazz album yet from the standpoint of composition and arrangement to be released, is this one presenting the compositions of Duane Tatro.

In all probability, his work will be widely accepted by the many, perhaps rejected by a few, all for the same reason: it is modern. Depending upon

whether or not you feel it fashionable to be modern, you will either rave over this record or airily dismiss it as being nothing but noise.

Unfortunate as that fact is, it is nonetheless true. Few jazz enthusiasts will take the trouble to examine analytically Tatro's compositions to decide upon their merit, and of those who do attempt such an analysis, fewer yet will have the background to complete it. The plain fact of the matter is that Jazz for Moderns is to jazz as Joyce's Ulysses was to literature.

However, Tatro, by the very

audience

music

**MOZART'S "A FREEMASON CANTATA."** First Unitarian Church, 2936 W. 8th St. L.A. This is the first American performance in English of Mozart's "Freemason Cantata," scheduled for 8 p.m. Friday, May 25. The Cantata was recently re-discovered during research on the Mozart bi-centennial celebrations and will be sung by a chorus and guest soloists.

Cellist George Neikrug, two concertos and "I Hear America Singing," performed by soloist Aruthur Atkins and a chorus, will appear on the same program.

**FOLK MUSIC AND DANCES.** First Unitarian Church, 2936 W. 8th St., L.A. A program of dances featuring Eva Dresca and Sue Remos and folk music via song and guitar, provided by Marcia Berman will be presented this Sunday at 2 p.m. as part of the Unitarian Church's "Festival of the Arts."

theater

**THE ECHOING HILLS.** First Unitarian Church, 2936 W. 8th St. L.A. This Saturday's performance will be the final presentation of Lester Cole's explosive play about Abolitionists in the South immediately preceding the Civil War. Very

thought provoking, with situations which parallel the present struggles in the South. 8:30 p.m. Saturday, May 26. Tickets, \$1.50.

—John Lango

Sec's at Tech

by Trebor

Once again we have the pleasure of introducing to our readers a newcomer to the local scene.

We refer to Kay Halverson, now in her third week with the industrial relations department.

Kay is a 5' 3" tall lass with brown hair and blue eyes. As is evidently the case with most of the female employees of the Institute, Kay attended college.

She studied journalism at Woodbury College after graduating from Mark Keppel High School.

Unfortunately Kay has not had much of a chance to meet many of you sterling gentlemen, in as much as her work keeps her in the industrial relations offices in the basement of Culbertson, one of the more remote spots on campus. However at noon and coffee breaks she can be found in the friendly confines of the Greasy Spoon.

Two of Kay's more intense interests are food and music. She loves to cook and is "addicted to food, especially steaks." Her musical interest centers around progressive jazz: "It swings, man!" She also spent six years of concentrated study on the piano.

A good deal of her time these days is devoted to philanthropic work. Kay is the director of music of Job's Daughters of El Monte and a past honor queen of that organization. She was once a cover girl for Navy Guide, a USN publication.

Kay has done quite a bit of traveling. She lived in Washington, D.C., for two years and in Norfolk, Virginia, for one year. Sometime in the future she hopes to visit England.

Once in a while Kay manages to find a little spare time. When she does, she likes to spend it watching TV. Her favorite program is Steve Allen's "Tonight." She also likes to go to the beach, and enjoys dancing and other social activities a great deal.

That's the lowdown on Kay Halverson. Drop into the Greasy soon and meet her. You'll be sooooo glad you did.

Weekend blind dates. Confidential informers report that all previous claims of this column were substantiated.

**A matter of interpretation**

Phil Harriman's dominating doll from Southern California told him to have some fun with his Northern California girl, but not too much fun. Phil secretly admits that he might have stretched a point. Does this mean that he didn't have fun . . . . ?



Photo by D. Groce

Miss Kay Halverson

Campus Brewins

"San Gabriel man killed by husband."

Headline in Pasadena Star News

Chuck Malone, Throop's Social Chairman, has solved the problem of too many girls at exchanges. At his latest gathering, attended by many who had been subtly misled by his sensuous announcements, one lonely, luscious doll showed up. Unfortunately, the other five showed up about midnight and put a crimp in his brilliant plans. Nevertheless the competition was terrific.

Kidnapped

The hero of Dabney frosh, exp-pledgemaster Richard N. Kirk, was abducted just as he was entering the ASCIT Board meeting and amid valiant but ineffectual struggling was whisked off for the traditional "ride." In true Hollywood style he was transferred to three different cars but evidently someone "goofed" as he turned up later, hale and hearty.

Perhaps this was due to a sudden change of "official frosh tough" necessitated when Bill McClure slobbered on his shirt. Over anxiety no doubt!

Big bad troll

Stu "Paragon (or is it paragon, the Beak's not too good at spelling) of Virtue" Goff snuck off to Laguna with a girl he hasn't seen in four years. Not that this is unusual but the gal is going steady with another man. Stu modestly refers to himself as a "home-breaker;" watch out now for troll Stu!

Boy in distress

Eric Rix, Throop terror, is looking for a advice to the love-lorn. Last fall, on his first try, she stopped him with "but I'm engaged;" whereupon he polished up his "approach" only to find the victim saying good-night with puckered lips. Unable to interpret this strange development he devoted himself to studying for a few months. When this proved unrewarding he again ventured out, fresh and anticipating. To quote the girl; "Sorry, but I don't have a telephone."

The truth is affirmed

In recent columns, Ken Dinwiddie's cradle adventures attracted much skepticism. However the publicity caused a procession to his door for Lost

# Tech nine tops Bulldogs to tie Oxy for League championship

Coach Ed Preisler's varsity baseballers grabbed first place honors in the SCC along with Occidental by beating Redlands, 6-4. The win left Caltech and Oxy tied with 6-2 records in conference play.

Ray Weymann went all the way on the mound for the Beavers to gain his fifth conference victory against two losses. Weymann held the Bulldogs to four hits, striking out eleven.

The tie for first gave Tech its first baseball championship in thirty-four years. The Beavers posted a 16-12 record in overall play.

Caltech's seven hits were scattered evenly throughout the lineup, with Gene Nelson's triple the "Biggest Blow" of the game. Neil Herman contributed a double to the Beaver attack.

Box score:

Caltech	AB	H	O	A
Stocking, 2b	5	1	4	0
Koontz, 1b	4	1	2	1
E. Nelson, cf	4	0	2	0
Norman, ss	4	1	1	1
G. Nelson, 3b	4	1	0	3
Weymann, p	3	1	1	0
Herman, c	3	1	11	0
Malone, rf	4	0	2	0
Stone, lf	4	1	2	0
Totals	45	7	27	5
Caltech	.021	.003	.000	—6
Redlands	.100	.000	.012	—4

## Darbs win trophy in interhouse play

With the close of the interhouse volleyball season, Dabney emerged on top of the Interhouse Trophy standings with 129 points, edging out Fleming's 126. Blacker came out with 82, good for third, with Ricketts' 79 close behind. Throop has 61 points.

## Three Caltech Stars honored

Three Caltech players were named to the first team in the all-conference selections announced Tuesday. In addition one Beaver player was a second team choice.

Infielder Chuck Norman made the first team for the fourth time, being selected in 1947-48-49. Ray Weyman, ace hurler, was a first team selection for the third time in a row, and junior outfielder Ed Nelson was picked for a first team berth in his first appearance on the all-star squad. Don Stocking was placed on the second team at an infield berth.

Occidental and Caltech dominated the first team berths, with seven of the ten choices.

# The Sports Corner

by Dick Van Kirk

Congratulations to the varsity baseball team for bringing Caltech its second league championship of the spring term. Of course it would have been nice to win an undisputed title, but co-champions are a heck of a lot better than also-rans.

Hats off to the varsity golfers also, for the second-place showing they made in the SCC tournament last Friday at Brookside Park. Ed Shuster came through for second place honors with rounds of 79 and 85. Shuster and Pete Abbey were picked as co-captains of the 1956 squad.

\* \* \* \*

In and around the SCC . . . The Redlands Invitational track meet, held last Friday, saw some pretty good performances by SCC athletes. Pomona's Bill Schultz had a fine 1:54.2 clocking in the 880 and Dean Smothers of Redlands leaped 45' 8½" in the hop-step-and-jump to take the award for outstanding individual performer. Whittier's Nick Street ran the 120 highs in 14.9 for another good clocking. Outstanding Caltech performances in the meet were Phil Conley's throw of 221'8" for first in the javelin, Ted Lang's third in the half-mile. Arne Kalm and Gordon Barienbrock took fourth in the broad jump and hop-step-and-jump, respectively.

## Frosh Sports Roundup

By Brent Banta  
BASEBALL

Highlight of the week for the froshiders was a narrow 15 to 12 win over a tough Pomona-Claremont team. The two teams divided 25 hits.

Tech grabbed an early 3-0 lead on a hit and five walks, but Pomona came right back to go ahead, 4-3 in their half of the first inning. Next inning saw Caltech tie the score.

Two innings later, score went to 7-6 for Tech, then nine all, 14-10, and 15-12. A big seventh inning helped out as the junior Beavers got five runs on four hits, one of them a triple by Bob Huebotter. John Everett was the winning pitcher.

The next two games went harder with Tech as Muir dropped the locals 16-3, and Redlands followed suit, didn't trump, 12-3. Loser in both games was Kelley.

Hitting during the final week of the season was pretty fair for some of the Tech men.

# What's doing at Pratt & Whitney Aircraft

Today's leadership . . . a reflection of policies established in aviation's infancy

Back in The Roaring Twenties, the magic dream pictured American families someday using the light personal airplane as freely as the family car. Among the realists, however, was a handful of men who were unshakable in their conviction that the real future of aviation lay with bigger aircraft, higher speeds, greater ranges—all possible only through engines of higher power and more reliability than those of that era.

In the spring of 1925, six of these men of vision founded a company in Hartford to undertake the development of a new aircraft engine—an air-cooled type. The year's end heralded their first success—Pratt & Whitney Aircraft's "Wasp".

This talented group of men continued to improve their powerplant designs, developing engines of steadily mounting power that operated efficiently and dependably. They contributed much to aviation's progress—so much so that currently three-quarters of the world's commercial airliners and many of our nation's first line military aircraft are P & W A-powered.

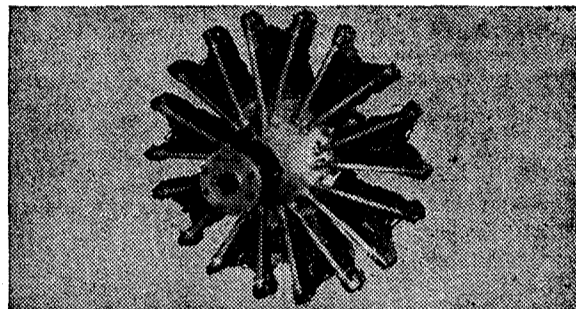
Today's P & W A powerplant designs are supported by the very finest research facilities and equipment, and a technical staff that is continually being strengthened. That nucleus of six men has grown into one of the world's leading engineering organizations. Yet to this very day, engineering achievement at Pratt & Whitney Aircraft is guided by its founders' simple policy . . . the best airplanes can be designed only around the best engines.



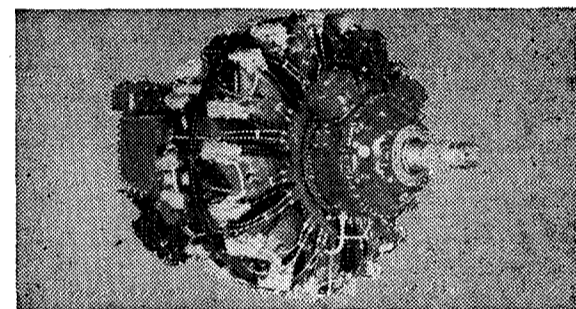
World's foremost designer and builder of aircraft engines

# PRATT & WHITNEY AIRCRAFT

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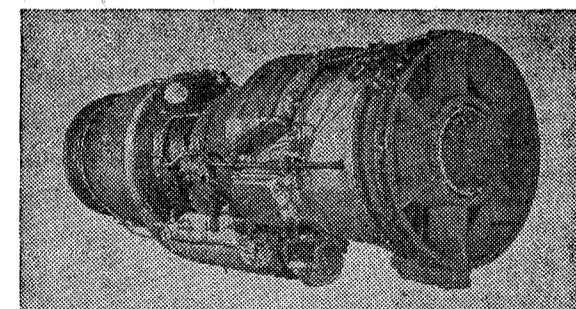
The Original Wasp, the first P & W A engine—designed, fabricated and assembled in less than seven months. Weighing under 650 pounds and officially rated at 410 horsepower, this lightweight, air-cooled radial engine was a milestone in aviation history and set the pattern for almost three decades of record-breaking advances.



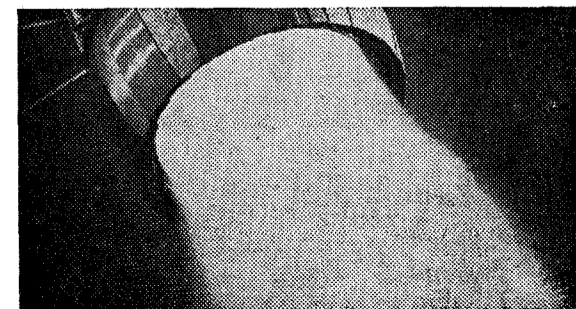
The Double Wasp, an 18-cylinder, two-row piston engine rated at 2400 horsepower for basic use. Its rating increased by water injection to 3400 horsepower, the Double Wasp was instrumental in turning many a military crisis into an aerial victory in the decisive battles of World War II.



The Wasp Major, a 28-cylinder engine with pistons arranged in four rows of seven each and a 3800-horsepower rating. Its power and performance having never been equalled, the Wasp Major represents the apex of the art of building reciprocating engines.



The J-57 Turbojet, first jet engine in history to be officially rated in the 10,000-pound-thrust class. In quantity production since early 1953, the J-57 has continuously undergone progressive development. It gives every indication of having almost unlimited growth possibilities.



The Engines of Tomorrow, advanced jet, turboprop, and nuclear. Already in various stages of development, these aircraft engines of the future will further contribute to the long history of leadership that Pratt & Whitney Aircraft has established in the field of aviation.

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## College seniors—our most wanted men

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