

interests. Physicists, chemists, and engineers cooperate at Technicolor to carry on the racial heritage of recording and reproducing the visible world.

Editor's Note: ERIC HOWSE, '30, who writes this interesting article on the production of colored motion pictures, is the Office Engineer for Technicolor in their large Hollywood plant on Cole Avenue. He mentions the following Caltech graduates who are members of the Technicolor organization which, as you may know, are the largest makers of colored motion pictures.

NELSON CORDES, '31, is an assistant in the camera department.

FRED DETMERS, '33, is a member of the camera department who has made a number of jaunts to out-of-the-way places for travelogue material for color shorts.

JOHN HAMILTON, '30, has been with the camera department for several years during which time he has toured Japan, Mexico, and Holland in search of travelogue material.

WINTON HOKE, '31, also associated with the camera department, has made many trips including one around the world.

HENRY IMUS, '30, is with the camera department of the British unit of Technicolor near London.

CARL OVERHAGE, '31, Ph.D. '37, has recently joined the research department of Technicolor.

WADSWORTH POHL, '29, who has been with the organization since graduation is now an assistant to the plant manager.

LEE PRENTICE, '25, who is in the production department is in charge of the Positive Assembly.

MERLIN THAYER, '30, is now a laboratory technician with Technicolor having formerly worked first for General Electric and later as refrigeration engineer with the United Fruit Steamship Line.

SIDNEY ZIPSER, '30, who likewise spent several years with the General Electric Company both at Schenectady and at Fort Wayne, has for some time now been a member of the camera department. In this capacity he has traveled to the Pacific Northwest and even to the South Sea Islands for travelogue material.



## CALTECH TEACHERS WILL SERVE ON FACULTY OF SCHOOL OF DESIGN

Appointment has been made of additional members to the faculty of the new Southern California School of Design, a graduate institution for industrial art to be opened in October at Carmelita Gardens.

The new faculty members will be associated with Dr.

Walter Baermann, noted industrial designer of New York and Massachusetts, whose selection as professor of design and faculty head was announced several weeks ago.

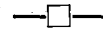
A course titled "Materials and Manufacturing Processes" is to be given by Dr. Donald S. Clark of the California Institute of Technology. This essential part of the modern designer's equipment will enable the student to create in terms of new materials and methods of production through an understanding of their inherent qualities and limitations.

"Economic Background" will be taught by Philip S. Fogg, assistant professor of economics at Caltech. This course will cover problems in marketing, production, credit, etc., with related sociology in studying the consumers for whom modern design creates.

The course in "History of Design" will be given by J. Donald Young, formerly of Columbia University, New York, and now assistant professor of art and archaeology at Occidental College, where he is acting chairman of the department of art.

Differing from the usual vocational training heretofore generally offered in the design field, the purpose of the new Pasadena institution is to train thinkers in terms of design; to base achievement on the creative, scientific and practical analysis of design problems rather than to produce mere technicians or handicraftsmen.

Secretary of the school will be Miss Mildred Varney, formerly executive secretary of the Bureau of Business Research at the Harvard Graduate School of Business Administration.



## ROBLEY D. EVANS WINS \$1000

The American Association for the Advancement of Science announced late in June the award of a \$1000 prize to a youthful scientist for medical discoveries. Dr. Robley D. Evans, '29, Ph.D. '32, won the award for his discovery of a method of detecting radium poisoning before its fatal stage and a treatment for extracting the radium from bones before it is too late. The award is based largely on work done for his thesis while studying for his doctorate at Caltech.

Dr. Evans who is entering his fourth year as assistant professor of Physics at Massachusetts Institute of Technology is the first person to receive this new award of the American Association for the Advancement of Science. The award carries a bronze medal with it.

Dr. and Mrs. Evans and their two youngsters; Richard, age 7 and Nadia Ann, age 4, have just returned to Cambridge after having spent a pleasant summer vacation in California. During his stay in the Southland Robley Evans visited the campus on several occasions.



*L. E. Woods and Anthony Easton  
attach 18 oz. transmitter to balloon.*

## RADIO SOUNDING BALLOONS

A new development from the Guggenheim Aeronautics Laboratory is an efficient, reliable radio-meteorograph. This instrument is designed for reporting weather conditions in the upper atmosphere by means of radio, and consists of a very small radio transmitter combined with instruments for measuring atmospheric temperature, pressure and humidity, the whole being sent aloft by means of a small balloon. The radio transmits signals to a ground station where, by means of a suitable receiving and recording apparatus, the signals are interpreted to give the desired information about the upper atmosphere.

The radio-meteorograph complete, weighs about 18 ounces and is carried to altitudes of 10 and 12 miles by means of a rubber balloon that is about 5 feet in diameter when released. The radio transmitter uses an acorn tube and transmits on a wave-length of 1.67 meters. The tube is operated by two small lead-acid storage batteries which weigh only 8 ounces and furnish 100 volts for the plate supply and 6 volts for the filament. While the instrument is in flight the transmitter is turned on and off intermittently by the meteorograph, which measures the pressure by an aneroid cell, the temperature by a bimetal thermometer and the humidity by specially treated human hair. A special clock movement turns an electric contact which alternately contacts the pressure, temperature and humidity measuring devices, and fixed reference contacts. Each time a contact is made, a signal is sent out by the radio. These signals are received on the ground by a super-regenerative receiver which in turn, through sensitive relays, operates a tape

recorder which thus shows each signal. The signals on the tape are readily interpreted in terms of the pressure, etc., by means of their spacing with reference to each other. A complete set of measurements is made each half minute.

This instrument has many advantages over airplane flights for weather recording. It can travel to at least three times the height the planes can reach, and it can be sent up in all kinds of weather. At present daily flights are being made from the Institute.

The development of the amazingly ingenious little device is due to Captain O. C. Maier, M.S. '36, and L. E. Woods, M. S. '35.



## CALTECH SAILOR WINS PRIZES

Sailing a 47-foot boat he built himself, Edmund G. Grant, a member of the 200-inch telescope engineering staff, has captured the famous Palisades trophy and the Forty-five Foot Sailing Association trophy.

Mr. Grant won the Palisades honor in the race from Catalina's Isthmus to Santa Monica, and the other prize in the race from Santa Monica to San Pedro. The boat, "Flyaway II," flew the Burgee of the Hi-n-Dri Yacht Club of which Mr. Grant is publicity chairman.



## DR. DONALD S. CLARK MAKES EXTENSIVE SUMMER TOUR

Leaving Pasadena on July 15th, Dr. Donald S. Clark of Caltech Mechanical Engineering staff, started on a three months tour to familiarize himself with the latest developments in metallurgical research. On his way to the Atlantic Coast he stopped off at various General Motors plants and research centers and at the Battell Institute, Columbus, Ohio.

After a few days at the Bureau of Standards in Washington, D.C., Dr. Clark viewed the impact testing experiments at the Watertown Arsenal and M.I.T. and while in New Jersey visited the International Nickel Co. and the U.S. Steel plant.

On August 4th Dr. Clark, accompanied by Dr. Gottfried Datwyler, research fellow at Caltech, sailed for Europe where they visited technical institutions in Berlin, Goettingen, Aachen, Dusseldorf and Frankfurt as well as in Zurich and Altorf, Dr. Datwyler's former home.

Dr. Datwyler remained in Altorf while Dr. Clark went on to England to spend some time in the National Physical Laboratories in London as well as in Sheffield and other centers. He expects to be in Pasadena again by September 20th.

chanic—who does not have to be a pilot—but should be an engineer—to operate the mechanical controls—and possibly a copilot-navigator.

Let me appeal to engineers and the men who write specifications to consider the pilot, to consult him on the location of controls, to break down duties. A little less drafting board and a little more flying in dirty weather might convince these scholarly gentlemen of the necessity of simplification in the cockpit . . . if it's possible to get them off the ground.



## MACARTHUR RETIRES FROM DUTIES AS DEAN OF FRESHMEN

After fifteen years of service as Dean of Freshmen, our well loved Dean MacArthur has felt the weight of his advancing years and decided to lessen his troubles. Last June he resigned his position as Dean and this fall will teach classes in Foreign Languages.

Dr. MacArthur had been at Tech only two years, when in 1922, he was made Dean of Freshmen at the same time as Dean Hinrichs became Dean of Upperclassmen. Since then all entering Freshmen have passed through his friendly hands. Who does not remember Freshman history lectures and our surprise at finding that Dean Mac knew all our names after a few weeks of school? And probably many of us recall awakening with a start at hearing our name mentioned in the smooth flow of the lecture. Then there were the consultations in his office about grades and courses and most everything else, even occasionally about discipline. For instance there was the occasion at the end of one year when the old dorm was the Freshman dorm and the residents celebrated with sufficient gusto to arouse the citizens of Pasadena living for blocks around . . .

In addition to his teaching and his work as Dean, another of Dr. MacArthur's real enthusiasms was his interest in Europe and the Travel Prize. From 1926, when Carl Anderson was awarded the prize until it was discontinued in 1933, he conducted a seminar for the benefit of the contestants on what to see and what not to see in Europe.

Dr. Untereiner, who is known to many Caltech graduates, is to succeed Dr. MacArthur as Dean of Freshmen.

## SCALE MODEL OF THE 200" TELESCOPE COMPLETED

In connection with the development of the Palomar observatory and the 200" telescope, it was felt that the best way to ensure success with the mechanical problems to be surmounted in building the vast instrument, was to construct a scale model on which tests could be made. Accordingly the Astrophysics shop has built such a model to a tenth scale. It is accurate in every mechanical detail, and, as a result of the tests carried out on this model, it has been found necessary to make a few changes in the design of the big telescope. The chief problems studied were the design of the actual telescope tube, and the design of the yoke at the north end of the polar axis. In each case the difficulty lay in ensuring smooth and accurate operation of the instrument, no matter in what direction the observer should happen to be looking.

At the completion of these tests, it was thought that it would be highly desirable to get some further use from the model, and hence a 20" mirror has been ground, and the whole mounted in the north dome on the Astrophysics building. Of course a few minor changes were necessary to fit the instrument for actual visual observation. Unfortunately no tenth scale observers are on hand, so that the observer's chamber in the upper end of the tube cannot be used, and so an eyepiece has been fitted to the lower end of the tube. A drive similar to that to be used on the big telescope has been incorporated into the setup. This drive is all electric and has some interesting features. It consists essentially of an electric oscillator whose frequency can be adjusted from the telescope control board. The output of the oscillator is fed to the telescope through a synchronous motor. In addition to the manual control there is an automatic adjustment of the frequency to compensate for the effects of refraction when the telescope is operating near the horizon. A further refinement is the automatic operation of the dome. The position of the telescope is communicated through a selsyn connection to a robot instrument which, through a contact system, always keeps the slot in the dome directly in front of the telescope. Still another convenience for the operator is an indicator on the control board giving him directly the right ascension and declination of the telescope at all times.

All these features will be incorporated into the big telescope at Palomar, and, in the meantime, the model on the roof of the Astrophysics building is going to help get the bugs out of these devices and hence help to make the 200" an immediate success.