

## ENGINEERING

## 3-Dimensional Pictures

Polarized light control may make them possible for motion-picture theaters and home television screens. Will find increased use in photography.

► **THREE-DIMENSIONAL** pictures in motion-picture theaters and on home television screens are possibilities of the future through polarized light control.

Light control through polarization will find increasing use in photography, and uses not dreamed of today will enable photographers to devise new forms of pictorial expression.

These are predictions of J. A. Norling of Loucks and Norling Studios made at the meeting of the Society of Motion Picture Engineers in New York. He told how, by the use of a polarizer, reflected glare-light in photography may be eliminated or cut down, and discussed also how modern polarizing screens are made.

Light waves are transverse rather than longitudinal vibrations, and when directed against certain crystals and synthetic screens only the vibrations in one plane may pass through. The light emitted is said to be polarized. Light may be polarized also by reflection.

"Polarized light is found in nature on

every hand," Mr. Norling stated. "The sheen on water, pavement reflections, window reflections, some of the light from the sky—these all have polarized light in some degree, and the widest present-day application of polarizers in photography is in the control of light reflected from various surfaces."

Glare-light, he said, "has large components of light polarized along an axis parallel to the surface, and small components at right angles to this. To cut out the glare-light components all that is required is a polarizer whose polarizing axis is turned at right angles to the axis of the glare-light components."

Polarizers can be used to great advantage over the photolamps, as well as in front of the camera lens, he said, particularly in the photography of such things as silverware, glassware and shiny fabrics. Polarizers, in the photography of colored objects, eliminate parasite reflections from surrounding objects or surfaces. Objects photographed this way, he added, usually have richer, truer colors.

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**RADIO "HAMS"**—The first invasion by amateur radio operators of a broadcast band used exclusively during the war by the Army and Navy for radar work was accomplished by W. C. White, right, electronics engineer of the General Electric Research Laboratory, and George H. Floyd, Electronics Department engineer. With the use of homemade equipment, they completed the first two-way radio telephone conversation on the 2300-3450 megacycle band between two buildings seven-tenths of a mile apart.

short range may emanate from these nonvisible discharges."

"The pulses produced by lightning may properly be considered as emanating from natural loran or radar transmitters," they continued, "and their qualities may readily be compared to those of man-made systems, except that they do not resemble R. F. pulses but rather are similar to the output pulses of a keyer or modulator."

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More than half the carbon bisulfide produced in the United States is used in the manufacture of rayon, cellophane and other viscose products; the next greatest use is in making carbon tetrachloride.

Zirconium metal, obtained from zircon sand, is easily drawn into wires or rolled into thin sheets; it is widely used in electronic tubes, electric condensers, X-ray filters, lamp filaments, spot-welding electrode and photo-flash bulbs.

## METEOROLOGY

## Ocean Weather Studied

Distant thunderstorm areas are being studied by means of pulse characteristics of electromagnetic disturbances from lightning discharges.

► **A SYSTEM** of determining weather conditions over ocean stretches, particularly of distant thunderstorm areas, is under study. It involves a study of the electrical static in such regions.

Thunderstorms constitute one of the most serious hazards faced by aircraft, the International Scientific Radio Union and Institute of Radio Engineers meeting were told by three scientists who described studies being made of "Sferics", the pulse characteristics of electromagnetic disturbances resulting from lightning discharges.

They are Sholom Kass, Lawrence A. Pick and Albert C. Trakowski, Jr., of the Army Signal Corps Engineering lab-

oratories. Specially designed sferics direction finding networks of three or more widely separated stations have yielded very favorable results, they said.

Static direction finders are used in the stations. The apparatus consists of a cathode-ray indicating tube similar to those used in radar and television, and two mutually perpendicular receiving loops and amplifiers.

"It is now generally accepted that nearly all atmospheric radio signals, or sferics, emanate from lightning discharges," they stated. "It is possible that there are electrical discharges in thunderstorms which are not connected with visible flashes, and that weak sferics of