

Your traffic engineer is called upon to command many specialized forms of knowledge, all of which are now taught in one or more universities. His training requirements are shown in Mr. Halsey's breakdown of what the traffic engineer does with his time:

For 70 per cent. of his time, he tackles problems of mechanical control and parking, involving signs and regulations, marking, signals, islands and intersections, illumination and terminal facilities. For 10 per cent., he works on designing new roads and planning through traffic roads, oneway streets, zones and major street systems. For 5 per cent., he does traffic surveys, accident records, administration and the economics of the automobile. The rest of his time is devoted to problems of legislation, educating the public and enforcement.

Young men entering this new field should have an engineering degree before they take up the specialized traffic control work, Mr. Halsey thinks.

The illustration on the front cover of this week's SCIENCE NEWS LETTER shows an intersection in the city of tomorrow, as worked out in the General Motors' Futurama at the New York World's Fair. Pedestrians are on an entirely different level. Yes, there's a jaywalker in the picture on the auto level. He'll probably be arrested unless one of the autos gets him first.

*Science News Letter, June 17, 1939*

## ● Earth Trembles

Information collected by Science Service from seismological observatories and relayed to the U. S. Coast and Geodetic Survey resulted in the location of the following preliminary epicenter:

Thursday, June 8, 3:47.0 p. m., EST

In Samoan Islands southeast of Apia. Latitude, 15 degrees south. Longitude, 170 degrees west. Moderately strong.

Stations cooperating with Science Service in reporting earthquakes recorded on their seismographs are:

University of Alaska, College, Alaska; Apia Observatory, Apia, Western Samoa; University of California, Berkeley, Calif.; Dominion Observatory, Ottawa; Dominion Meteorological Observatory, Victoria, B. C.; The Franklin Institute, Philadelphia; Harvard University Observatory, Harvard, Mass.; University of Hawaii, Honolulu; Hong Kong Observatory, Hong Kong, China; Magnetic Observatory of the Carnegie Institution of Washington, Huancayo, Peru; Massachusetts Institute of Technology, East Machias, Maine; University of Michigan, Ann Arbor, Mich.; Montana School of Mines, Butte, Mont.; Montana State College, Bozeman, Mont.; Pennsylvania State College, State College, Pa.; Phu Lien Observatory, near Hanoi, French Indo-China; Seismological Observatory, Pasadena, Calif.; University of South Carolina, Columbia, S. C.; U. S. Weather Bureau, University of Chicago; University of Wisconsin, Madison, Wis.; Zikawei Observatory, near Shanghai, China; observatories of the Jesuit Seismological Association at Canisius College, Buffalo, N. Y., Fordham University, New York City; Georgetown University, Washington, D. C.; St. Louis University, St. Louis; St. Xavier College, Cincinnati, and Weston College, Weston, Mass.; observatories of the U. S. Coast and Geodetic Survey at San Juan, P. R., Sitka, Alaska, Tucson, Ariz., and Ukiah, Calif.

### AERONAUTICS

# Airport Lighting System Enables Landings on Bad Days

## "Metered Light" With Powerful Lamp Can Be Seen Through Bad Weather, But Does Not Blind with Glare

A RADICALLY new airport lighting system, using controlled or "metered" light which enables a pilot, with proper radio approach aids, to land by ordinary visual contact almost regardless of the weather's thickness, is successfully passing tests at the Civil Aeronautics Authority's field experiment station at the Indianapolis airport.

Developed by a veteran airman turned lighting expert after years of listening to the complaints of old-time mail pilots sitting down under emergency conditions at his hometown airport, it provides a line of runway-marking and approach lights visible at least 500 feet ahead of the plane under all but the most phenomenal "ceiling zero, visibility zero" conditions. Once radio has taken the plane to the beginning of the guiding row of lamps, they are all the pilot needs.

Its introduction to airports throughout the United States, expected within the next year or two, should be a step whose importance is difficult to exaggerate, in the opinion of government air scientists. It brings nearer aviation's goal—all-weather airline service with railroad regularity. It provides an alternative to, and may be better than, the completely blind landing.

Its principle—controlled or "metered" light—is only beginning to be applied in other lighting fields.

Heart of the new system, John B. Bartow, the barnstormer and airplane sales agent turned inventor, explains, is a complicated lens which so controls the light emitted from a powerful lamp that the lamp looks just as bright to the on-course pilot whether he is 100 feet or 500 feet away. In other words, enough candlepower is provided to make the light visible at 500 feet under the thickest weather conditions, except of the most phenomenal sort. This powerful light is so controlled it does not become blinding as the pilot approaches through the fog. There is nothing unusual or new about the lamps; but without the lens system, they are utterly useless.

The system takes advantage of the changing angle between the moving

plane and the lamps, which are located at each side of the runway and the approach. The lights face the approaching plane. The most light is transmitted through the center section of the lens, to show farthest along the plane's path; the least light is transmitted through the side of the lens which is in the pilot's line of sight as he nears and passes the lamp. The light is transmitted in vertical planes in analogous fashion to the vertical plane of radio range signals.

The lights are spaced about 200 feet apart. For a 4,000-foot runway and 2,000-foot approaches, as nearly typical of America's airline runways as one can guess, 80 lights in all are required. Four different colors are used: green to mark the approach sector, white the proper part of the runway and yellow the end of the runway, while the back sides of all lamps glow red to show the pilot he is heading in the wrong direction.

The lights have been tested quietly and without the benefit of any publicity since last January, when they were first placed in operation. Though they are strictly experimental and are therefore out beyond the end of one of the paved runways, they have been used on more than one occasion by airline pilots landing at Indianapolis under difficult conditions. They have met the pilots' acid test and were in fact the subject of comment by the men in the front seats when they were removed for some experimental changes. The pilots wanted them back immediately.

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## Books

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