greatly increased, thanks to the innovations brought about in the present type of radio range-beacon by F. W. Dunmore, of the Bureau of Standards.

The system makes possible the sending of four different signals in four directions, namely, one dot in a westerly direction, two dots east, three dots north and four dots south. By noting which signal is the loudest the pilot may determine his general direction.

With the radio beacon now in general use the determination of absolute direction or position on airways is difficult because the same signal is sent to four points of the compass. When the aircraft is near the radio beacon a pilot may pass from one course to another without knowing it. If lost it may take him an hour to reorient himself and the danger in case of shortage of fuel or the importance of time lost when on an errand of mercy will be apparent. It is believed by the inventor that the present scheme obviates these difficulties admirably.

The method consists of changing the so-called figure-of-eight transmission for the courses to the unidirectional cardioid transmission by changing the point of coupling into suitable phasing sections in the transmission line feeding the antenna, or, by superimposing on a figure-of-eight radiation through a suitable hybrid coil circular radiation in phase with the figure-of-eight direction.

The method has been tried out extensively at the bureau's experimental field at College Park, Maryland, and has been found altogether satisfactory. No additional equipment is required for receiving the signals on aircraft.

ITEMS

THE uncanny power of ultra-violet rays, to detect what is hidden from ordinary eyes, is now turned on the farmers' seed. Tests at Queens University, Belfast, show that ultra-violet light reveals differences in the grade of seed that are not shown up in ordinary light. The experiments were conducted by P. A. Lineham and S. Mercer. Rye-grass seed used in the tests were found to be fluorescent when inferior in grade. The type which is superior for farming uses was found to be non-fluorescent. The two kinds of seed are usually mixed or hybridized in stocks of rye grass when it is planted for pasture. The same test has also been applied to distinguish varieties of wheat and barley and to find the relative vitality of seed potatoes.

A NEW highway, recently completed, from Tower Falls to Mammoth Hot Springs in Yellowstone National Park brought to light in a rock cut two petrified tree stumps. Both are upright, standing in the position in which they grew millions of years ago. In the process of road building they have been nicely halved and left embedded in the solid rock, rock which was probably volcanic dust at the time petrification was taking place back in the Miocene. Their root systems may even be traced with a little patience and a great deal of care. It is not known what kind of trees these were—they may have been chestnuts, sycamores, sequoias, pines or cypress, for all grew here at one time or another during the centuries fossilization was in progress.