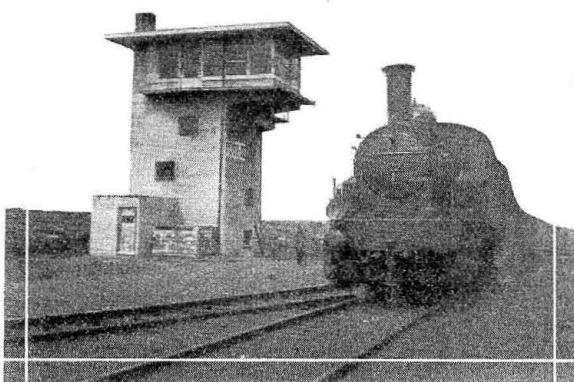


# Institution of Signal Engineers Meets in Holland

*Summer meeting, and description  
of Dutch signaling\**

THE ninth summer convention of the Institution of Railway Signal Engineers was held in Holland recently. The party, numbering 80 members and about 40 ladies, left London on the evening of Friday, June 21, and, travelling by the Hook of Holland, arrived in Amsterdam in time for breakfast. Besides the president, R. G. Berry, there were present W. Wood, the vice-president; Messrs. C. H. Ellison, F. Downes, E. F. Fleet and W. S. Every, past presidents; C. M. Jacobs, a past vice-president; A. B. Wallis, the treasurer; and M. G. Tweedie, the secretary. The members of the convention committee were Messrs. C. Carslake, W. Challis, R. S. Griffiths, T. S. Lascelles, Major R. Falshaw Morkill, and the secretary. At 10 o'clock the members assembled at the central station, Amsterdam, where they were met by Ing. G. J. de Vos van Nederveen Cappel, the chief signal and telegraph engineer of the Netherlands Railways, who was accompanied by Messrs J. H. Verstegen and W. R. Rombach, signal engineers.

Before going further, some information should be given as to the standard signaling methods in Holland. A set of photographs, reproduced herewith, were supplied by Mr. de Vos. In Holland trains run to the right, the arms point to the right and the engines are driven from the right-hand side. The arms of stop signals, except those at junctions, have a round end; those at junctions have a fish-tail. The arms of cautionary, or distant signals, have a square end. Stop



New signal box at IJselmonde, Holland

which will be in the "warning" position and have a green light at night. Fig. 3 and 4, respectively, show the same signals at "clear" and exhibiting, at night, a white light. A junction stop signal is seen in Fig. 5. The higher arm as usual, applies to continuing on the main line, while the lower is for turning off on to the branch. The third arm is the cautionary signal—in the "warning" position—for the next stop signal on the main line. When either of the stop arms is put to "clear" it rises to an angle of 45 deg. above the horizontal.

The cautionary signal, for approaching a junction, is of a novel form. It is seen in its "warning" position in Fig. 6, and on comparing that illustration with those in Fig. 7 and 8 it will be appreciated that it has two arms working on the same centre. There is the usual warning indication, given by an arm 45 deg. below the horizontal, while the vertical position of the second arm signifies that a junction is being approached. The sec-

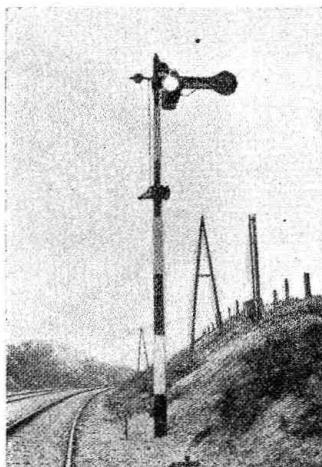


Fig. 1.—Stop signal at danger—Red light

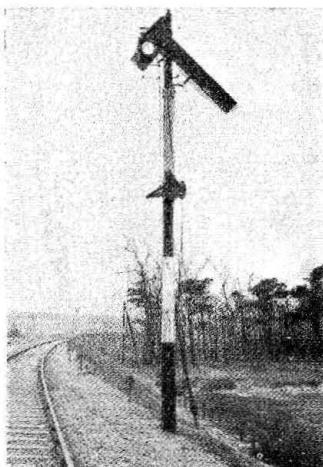


Fig. 2.—Caution signal at warning—Green light

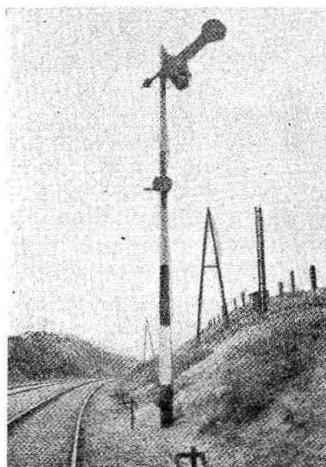


Fig. 3.—Stop signal at clear—White light

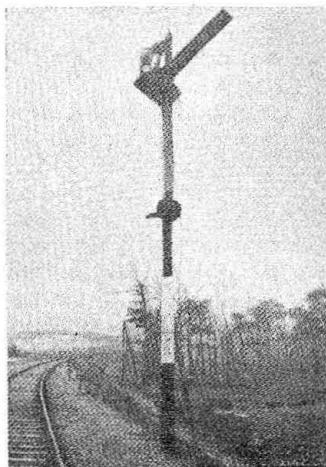


Fig. 4.—Caution signal at clear—White light

signals are fixed at a minimum of 100 m. (109 yards) from the fouling point, and cautionary signals have a minimum distance of 700 m. from the stop signal. The arms work in the upper quadrants.

Fig. 1 is a stop signal in the danger position, which has a cautionary signal, Fig. 2, 700 m. in its rear,

ond light is obtained by mirror reflection, and two green lights are exhibited for this indication. Fig. 7 needs little explanation: the vertical arm intimates that the signal applies to a junction and the other arm that the track is clear for the main line. Two white lights accompany that indication. When the junction ahead is made for the branch and the corresponding stop signal

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put to "clear," the arms assume the position shown in Fig. 8. In effect, the lower arm gives the "warning" that that position signifies, but the upper arm, being lowered from the vertical to the "clear" position, modifies the "warning" indication.

While the junction signals, as seen in Fig. 5, tell by their relative position to each other the direction each leads to, the speed permissible is indicated by the variation between the arms. The maximum speed permissible on the main line is 90 km. (56 miles) per hour;

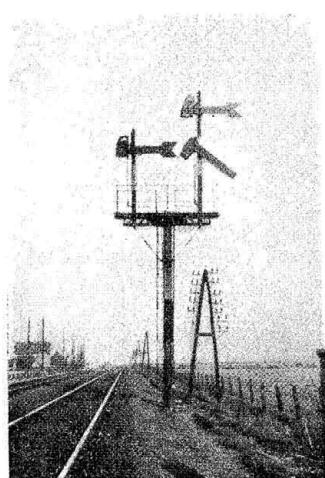


Fig. 5.—Junction signals at danger—Caution signal in next section at warning

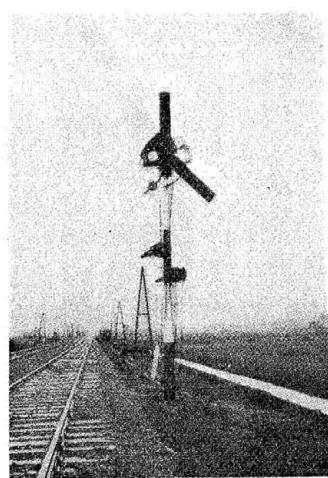


Fig. 6.—Junction caution signal at warning—Two green lights

the Netherlands State Railways, and it eventually will be adopted on the former Dutch Rhenish Railways.

Double-wire transmission is employed for the operation of signals and switches. There are many cases of signals 2,000 yards out being satisfactorily worked by those means. The standard length of loops (passing tracks) is 600 m. (656 yards), and it frequently is the case that the signal-box is at one end of the loop and so the further points will be between 600 and 700 yards.

Between Audewater and Gouda, on the Utrecht-Rot-

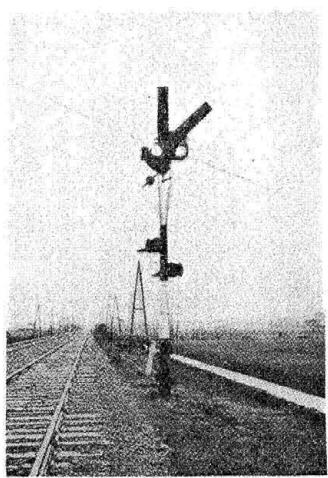


Fig. 7.—Junction caution signal at clear for main line—Two white lights

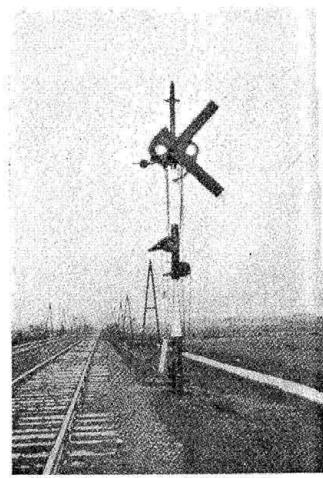


Fig. 8.—Junction caution signal at clear for branch—Green light left, white right

where, because a curve is being approached, a reduction to 75 or 60 km. is necessary, a plate, bearing one or other of those numerals, is placed on the doll carrying the arm. The arm fixed at a lower level, such as the left-hand arm in Fig. 5, at once calls for a speed of 45 km. Where a curve that calls for a reduction in speed is being approached, and no signal station is in the vicinity, a cautionary signal, with its arm fastened in the "warning" position, is provided to ensure the speed limits.

The posts of all running signals have deep bands of black and white. The posts of shunting signals are in red and white. Elevated disc signals were at one time used, but those signals now have a fish-tail arm which is like the British distant signal arm and is in distinct contrast to the fish-tail of the junction signal, Fig. 5. They, too, work in the upper quadrant and have a red light for "stop" and a white light for "clear." Ground disc signals have pointers stencil-cut to show the direction in which the points lie. It is in the shape of the letter V; when the points lie for the straight road, as, for instance, to set back along the main line, the apex of the letter is upwards, when the points are set to the left the V has its apex pointed to the left and, if to the right, it points to the right.

It will have been noticed that the Dutch railways retain a white light for the night "clear" indication and that green calls for caution. In that relation it may be remarked that yellow, as an alternative color, has been considered, but it has been thought that in fog a white light might be mistaken for a yellow, or vice versa, with possibly dangerous results. It has also been represented that in Holland the drivers make a point of seeing the arm by night as by day.

The block system is universal throughout the whole of the 1,693 km. (1,052 miles) of double line and on 337 km. (209 miles) out of the 1,971 km. (1,185 miles) of single track. Lock-and-block is used on what was

terdam line, there are four sections, covering a total length of 11 km., on each road protected by automatic stop and cautionary signals of the semaphore type, controlled by track circuit and actuated by local batteries.

#### Reception at Amsterdam

The members met on Saturday morning in the offices of the Netherlands Railway on the central station at Amsterdam, where they were received by Mr. de Vos, who, on behalf of the Administration, extended to them the sincerest welcome to Holland, as it indicated an honor done by the Institution that it should choose that country for its researches. A lantern lecture followed and a visit was paid to the central station.

The Central Station at Amsterdam was to have five platform roads. It now has 10 platform roads, six platforms and four middle roads with scissor crossings. The west box has 144 levers; Box B in the station on the south side has 96 levers; Box B on the north side has 96 levers also, and the east box, which spans the tracks at that end of the station, has 120 levers. The first three boxes are all electric; the west box was originally—in 1906—electro-pneumatic, but now has many points operated by all-electric machines. Boxes H and B control the movements of the west and east boxes so far as trains, and engines, entering the station.

The convention was resumed on Monday, when the members left for Rotterdam and thence by a special train to the marshalling (classification) yard at Yoelmonde. There are six receiving tracks there for trains from Rotterdam and another two further south, and the cars are hump-shunted at Post III into 18 sidings. North-bound trains run into five receiving tracks, with another three further north, and are hump-shunted into 18 sidings near Post IV. The members inspected two boxes at Yoelmonde of which the more interesting was Post III, with 38 levers, as all the points and signals there are actuated by double wire.