The Chicago & North Western has gone, at one step, to the root of the matter by creating the position of signal instructor, and appointing to that position a signalman—a simple and logical solution of the problem of how to make sure of proper instruction as to signaling problems. Yet this is the first case where a signalman has been put in charge of a situation of this kind. In fact it would seem that it has been regarded as almost as undesirable to have a signalman instruct employees on signaling matters as to have a railway man on a railway commission.

## SETTLED AT LAST.

THE REPORT on signaling practice presented by Committee I at Quebec last fall has been approved by the Railway Signal Association by a vote of 574 to 10. This puts an end to the longest argument known to the signal business, and marks the satisfactory conclusion of a controversy which threatened at one time to disrupt the association, and, after all, turned on a point of difference, which, now that it is disposed of, appears to have been almost ridiculously simple. But this is in retrospect only. In prospect it looked as big as a mountain a few years ago.

Committee I was first instructed to take up the question of uniform signaling practice in 1905. The reports submitted in that and the following years were received without definite action, being often referred back to the committee. In 1910 and 1911 the situation was complicated by minority reports. Meanwhile the controversy waged to all appearances rather fiercely, and the points advanced by both majority and minority were widely discussed. Then the 1912 report was presented by the reunited committee, with the result noted.

The investigation of the subject grew out of the conditions brought to light by the Rudd-Rhea report. This was a confidential report made by A. H. Rudd, then assistant signal engineer of the Pennsylvania, and Frank Rhea, engineer maintenance of way on the Logansport division of the Pennsylvania Lines West, on August 18, 1905, to the general managers of the Pennsylvania lines east and west of Pittsburgh. An unsuccessful attempt had previously been made to unify the practices of these lines, which were then considerably at variance. For example, in automatic signaling the Lines West used three-position signals and the Lines East home-and-distant signals, and the former used two arms on all interlocking signals, while the latter had a variable number. The Rudd-Rhea report set forth in analytical detail the Pennsylvania's practice with respect to interlocking and block signals, and the lights used about the road such as on flag, station and train order signals, and train markers and classification lights, track pan markers, crossing gates and slow signs.

The novel and somewhat revolutionary features of the report were the recommendtions that upper quadrant, three-position signals should be used instead of the home-and-distant signals; that interlocking home signals should be three-position to indicate the position of the advance signal ahead; that the caution signal should be shown by the position rather than by the shape of the arm; that the location of the arms on interlocking signals should show the permissible speed rather than the special route; that staggered lights should be employed for "stop and proceed" signals, with vertical lights for "stop and stay" signals; that there should be at least two lights on every high signal, and that it should be a principle of operation that a red light means stop unless qualified by some other color.

The report was discussed for two years on the Pennsylvania lines, and some of the recommendations were modified and some changed as the result of the discussions in Committees Nos. I and X. Practically all of them which covered fixed signals have now been adopted by the Pennsylvania Lines East except that one advocating the use of green for clear, yellow for caution, and purple for dwarf stop signal lights. The Pennsylvania signal practice now corresponds to Scheme No. 3, which was included in the report of Committee No. 1 last fall, and is a part of this year's report of Committee X of the A. R. E. A., with the additional features, however, of a distinctive permissive signal and a fish-tail distant signal which does not indicate block clear between the home and distant, these being required on account of the permissive block practice on the Pennsylvania.

The Pennsylvania Lines West and the Atchison, Topeka & Santa Fe signal practices support the other schemes, the former using Scheme 2 and the latter Scheme 1.

The minority claims were practically three in number. Its members held in effect that all caution indications were alike; that a one-arm automatic and a two-arm interlocking signal were sufficient to give the three fundamental and the two supplemental indications, and that the distant signal at clear did not indicate that the home signal was clear.

The majority held in effect:

(1) That there were various degrees of caution required—more, for example, when the block was occupied than when the block was clear, and more when the next signal was at "stop" than when the next signal indicated "proceed at medium speed."

(2) That combinations of the caution and medium-speed and of the caution and low-speed indications were necessary, and that more arms, therefore, were needed.

(3) That a distant signal was required for the medium-speed route to give the indication that the next signal was neither at "proceed" nor at "stop," but was at "proceed at medium speed."

This particular aspect was the rock on which the committee split.

The final report is of much less scope than the original one, as may be seen by reference to the R. S. A. and the A. R. E. A. proceedings of earlier days. It indicates that the majority gave up its contention for a distinctive permissive signal, and that the minority withdrew its opposition to a medium-speed distant signal.

The report last fall presented three schemes, one with three fundamental indications, one with five indications, incapable of combination, and the third with the five indications so arranged as to permit of combinations, and with the medium-speed distant signal added. And the wording of the disputed indication was changed to meet the wishes of the minority. Instead of saying, as before, for indication No. 8 in scheme 3, "proceed, prepare to pass next signal at medium speed," the report now says, "reduce to medium speed." The simple change of wording seems to have resulted in bringing the committee together. If it had been thought of two years ago there *might* never have been a minority.

The report as adopted by the Signal Association is generally considered to be satisfactory to everybody. In the words of one signal engineer: "It offers everything anybody wants, and at the same time its use will secure a highly satisfactory degree of uniformity."

And the discussion has undoubtedly done a great deal of good. It has for one thing brought the question of uniformity in signaling practice to the front and secured for it an amount of attention that would never otherwise have been given it, even though the subject is one that has been sadly in need of attention ever since signals were first used.

The American Railway Association is engaged in revising the Standard Code, and it is probable that the report which the Signal Association has adopted will be presented to the A. R. A. just in time to be taken into account in the revision. Thus the long discussion, and perhaps somewhat bitter argument, having served to emphasize the necessity of unifying signaling practice in the Standard Code, has been worth while. And "all's well that ends well."

This same report will be presented by Committee X to the American Railway Engineering Association at its annual meeting beginning the 18th of this month, and it is probable that it will be adopted by the association by fully as large a majority as gave their approval to it in the Railway Signal Association. It was passed to letter ballot at the Quebec convention without discussion.