



# Ericsson News

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Woldemar Brummer

No. 5

**The L. M. Ericsson Automatic Telephone System.** In the next number of The L. M. Ericsson Review will be published an article by A. Lignell, superintendent of telephones in Stockholm, on traffic efficiency and maintenance at the Norra Vasa automatic exchange in Stockholm, from which we beg to cite the following figures.

The efficiency of the traffic is determined by following actual calls from beginning to end, the figures here given having been obtained as the result of three different kinds of tests. The first consisted of the supervisory control of 3046 full automatic calls, i. e. from one automatic subscriber's station to another. The second test covered 28461 calls from automatic subscribers to manual subscribers and directed over B positions with call indicators (carriage call), while the third test consisted of 6817 calls from one automatic subscriber to another, made by the supervisor and evenly distributed among all the groups of subscribers' lines in the exchange. The following results have been obtained.

*First test.* Of 3046 actual calls between two automatic subscribers, 91.01 % were faultless and 8.99 % faulty. The faults were assigned to the following categories:

a. Action on part of subscriber .....	7.68 percent
b. Automatic system .....	1.15 »
c. Line trouble .....	0.16 »
Total 8.99 percent	

*Second test.* Of 28461 actual calls from an automatic subscriber to a manual subscriber and directed over positions with carriage call, 92.70 % were faultless and 7.30 % faulty. The faults were distributed as follows:

a. Action on part of subscriber .....	5.75 percent
b. Automatic system and positions with call indicators .....	0.96 »
c. Line trouble .....	0.16 »
d. Action on part of operator .....	0.39 »
e. Trouble of a temporary nature (installation work, etc.) .....	0.04 »
Total 7.30 percent	

*Third test.* Of 6817 test calls made by the supervisor, 99.13 % were faultless and 0.87 % faulty.

The faults were assigned to the following categories:

a. Automatic system .....	0.78 percent
b. Line trouble .....	0.06 »
c. Trouble of a temporary nature (installation work, etc.) .....	0.03 »
Total 0.87 percent	

Complaints lodged by subscribers on account of unsatisfactory service were as follows:

For Norra Vasa autom. exchange:	
2 complaints per	1000 subscribers and month,
11 »	» 10000 calls.

The corresponding figures for the Stockholm manual exchanges were 5.9 and 0.18 respectively.

With respect to the maintenance of the automatic exchange, it is stated — among other things — that the force employed for this purpose corresponds to 2.4 working hours per subscriber and year.

The above-mentioned article will also be published in the form of a separate pamphlet.

**Railway Signal Plants.** From articles in the daily press concerning the installation of a new type of interlocking machine at the Järna station on the Swedish Gov't Railways, it appears as though L. M. Ericsson had carried on certain experiments leading to its design in collaboration with Siemens Schuckert — according to one version — and with Allgemeine Elektrizitätsgesellschaft — according to another —, on account of which we beg to make the following rectification.

Ever since switch and signal safety devices were introduced in Sweden some forty years ago, the aim has been to effect a reduction of personnel, thus making the installations economical in operation at the same time as the safety of the traffic was increased. As regards mechanical interlocking plants — which were the first type used, electric ones being unknown at the time — the Swedish Gov't Railways constructed a type of interlocking machine for small junction stations so simple in operation as to permit its being handled by the station master alone in addition to his duties as train dispatcher.

When electric interlocking plants came into use, efforts were centered on the construction of an electric interlocking machine, the operation of which would be as economical as that of the mechanical ones.

The solution was found by Mr. T. Hård, railway engineer in the Swedish Gov't Railway Administration, while travelling in the United States, where he was in a position to study at close range the track circuit system so widely used in that country, this system permitting the train dispatcher — by means of track circuits and a repeating illuminated track plan — to control the condition of tracks not within range of sight. The first electric interlocking plant for a medium-sized Swedish station, with the interlocking machine arranged in connection with the above-mentioned track circuits and with modern day light-signals was installed at Flen (see The L. M. E. Review, Vol. III, Nos. 9 to 12). The interlocking machine and track plan for this plant were exhibited by the Swedish Gov't Railways at the Gothenburg Exhibition 1923. The Flen plant was put in service in 1925 and has given full satisfaction in every respect. This type of installation has now been adopted by the Gov't Railway Administration for general use for medium sized stations, the plant at Flen built by Siemens in 1914 now having been altered so as to conform therewith.

Telefonaktiebolaget L. M. Ericsson have received orders for similar plants for Skövde, Herrljunga, Linköping, and Mjölby, of which the two first-mentioned are practically completed.

Installations of this type do not occur outside of Sweden, but are typical for the conditions existing in this country. The successive stages of development were the result of Swedish endeavour in this field, more especially that of the signal department of the Gov't Railways. Consequently, there can be no question of a foreign invention as is made to appear in the above-mentioned newspaper articles.

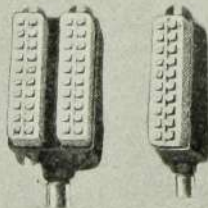
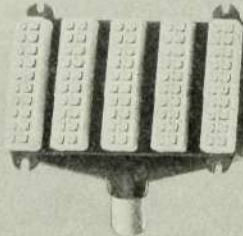
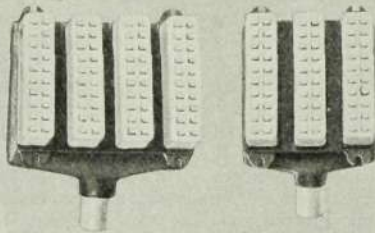
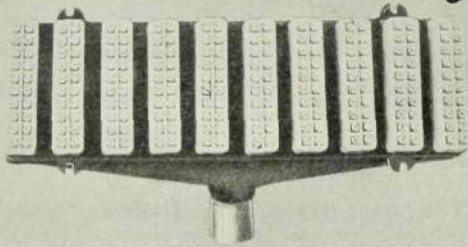
Two electric interlocking plants for the adjacent South and Central stations in Gävle, Sweden — delivered by Signalbolaget, a subsidiary of L. M. Ericsson — were put in service on February 23rd and March 1st 1927 respectively. Each of these plants is furnished with an electric interlocking machine for the manoeuvring or electric locking of the signals, points, skotch blocks and crossing gates. All the signals are light signals except the north home signals at Gävle Central. On the boundary between the two station yards a gantry has been



# Ericsson Line Material

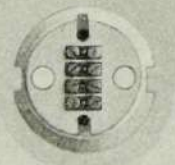
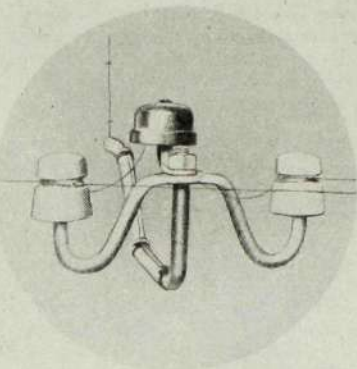
Thanks to more than 40 years experience in the building and operating of telephone nets we are able to offer to our customers first class modern line material which covers all the details and tools necessary for a telephone installation.

Our construction department executes on contract all kinds of work connected with telephone lines as well as complete installations. — Complete plans, estimates and catalogues supplied on request to be addressed direct to us or to our agencies in various parts of the world.



Cable Terminal Boxes of cast iron without protectors.

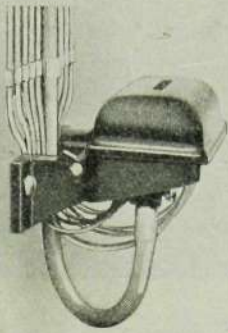
Type NB 15 for 10 to 100 lines.



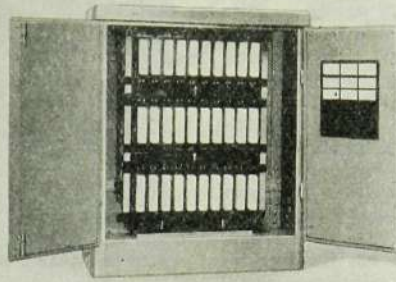
Terminal Block for two metallic circuits.

Type ND 519/2.

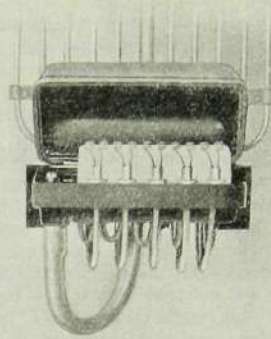
TELEFONAKTIEBOLAGET L. M. ERICSSON  
STOCKHOLM, SWEDEN.



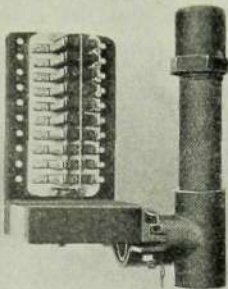
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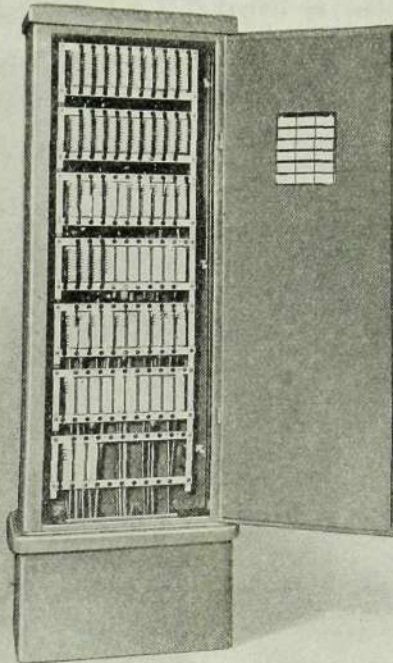
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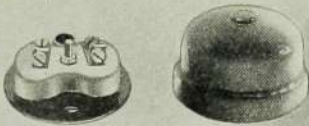
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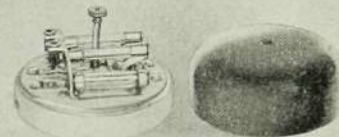
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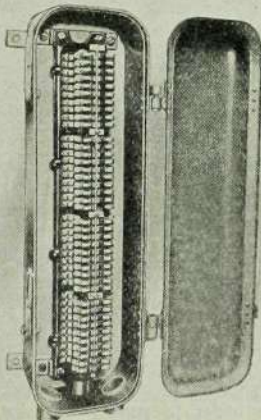
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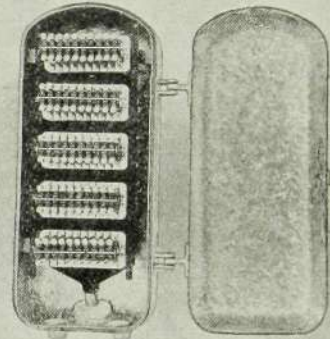
ND 1000/1



ND 370



NA 100



NA 115



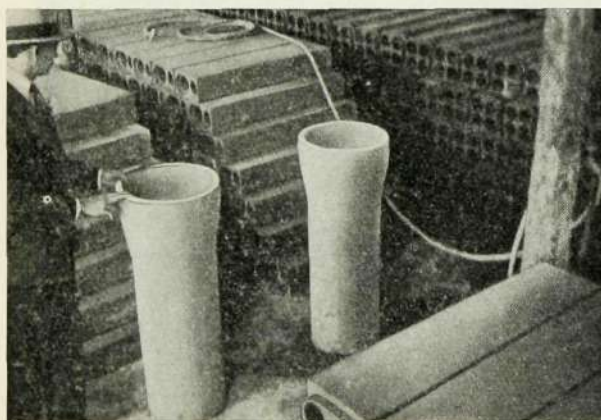
erected for the signals common to both stations, the starting signals for one of the stations serving as home signals for the other.

Sixteen signals — four of which are dwarf signals —, five shunting signals, twenty points and skotch blocks and two pairs of crossing gates are manoeuvred from the interlocking machine at Gävle South, this same machine permitting the electric locking of eight points and skotch blocks which can be set by hand only, while three of the points with central control can also be set by hand according to the patented Ericsson system. A special manoeuvring apparatus mounted in front of the station building provides electric control for four pairs of crossing gates, two of which may also be manoeuvred by hand.

At Gävle Central, the interlocking machine has facilities for the control of nineteen signals — four of which are sema-phores —, thirty-eight points and twelve pairs of crossing gates, one point and one skotch block being electrically locked from the same machine. Eleven of the points with central control may also be set by hand according to the above-mentioned system.

#### The Ericsson Net Construction System in Italy.

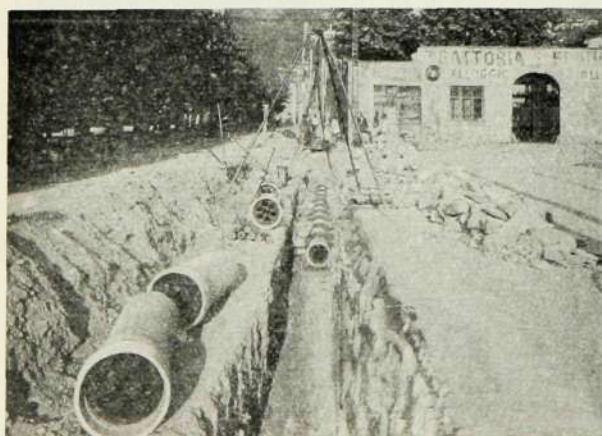
The intense development of telephone communications in Italy has created a demand not only for better and more efficient exchanges, but also for more modern and economical outside plant. Societa Ericsson Italiana — a subsidiary of L. M. Ericsson — has made successful efforts to awaken the interest of the different concessionaires in this country for the net building problem, at the same time recommending the Ericsson system which is based on the valuable experience



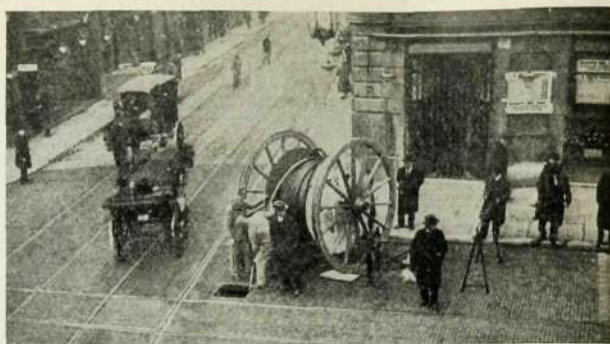
R 739

gained from many years of serious endeavour in this line. As a result, this company soon had the satisfaction of finding itself in possession of an interested clientele.

The principle of this system has been described at length in Nos. 1 & 2, Vol. II, page 2 and Nos. 5 & 6, Vol. II, page 53 of *The L. M. E. Review*. A concrete example



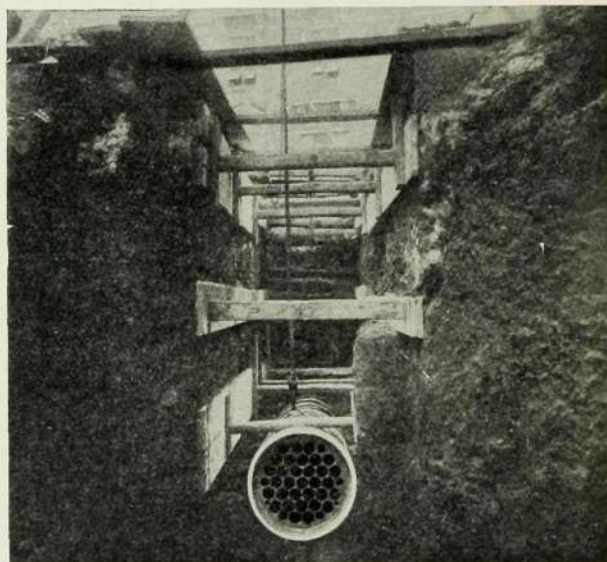
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of the application of this system is given in Nos. 7 & 8, page 74 of the same volume, where a description of the telephone plant in Verona will be found. Statistical information as to the extent to which the system has previously been used will also be found in this last-mentioned number.

It is quite natural, of course, that this system of distri-



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bution should have been applied in the seven zones in which the Ericsson interests are represented, but it is of far more interest to know that it has been adopted by quite a number of other concerns both inside and outside of Europe. Consequently, it would be of no small interest to show — by the aid of figures — the extent to which it has been applied, and it is our intention to publish an article on this subject in the near future.

In addition to the fifth Italian concession zone — in which L. M. Ericsson is directly interested —, the first and third zones are building their distribution nets according to the Ericsson system, besides which the new net in Trieste — within the second zone like Verona — is projected according to this same system. The nets in the following Italian cities are now being built according to the Ericsson system: *Avezzano, Brescia, Campobasso, Catania, Cesena, Como, Cremona, Isernia, Mantua, Naples, Novara, Palermo, Pescara, Pesaro, Rimini, Syracuse, Termoli, Trieste, Vercelli* etc., and in part in *Milan* and *Turin*.

It is to be noted that most of the material together with certain special tools required for net construction according to this system are manufactured at the factories of the Ericsson concern. Thus, in order to supply the material necessary for the above-mentioned Italian plants, the Ericsson works in Rome have taken up the manufacture of these products, and leading Italian experts have pronounced them to be of an unsurpassed quality. We here reproduce some views from the net construction work in Italy.