



# Ericsson News

1929

English edition

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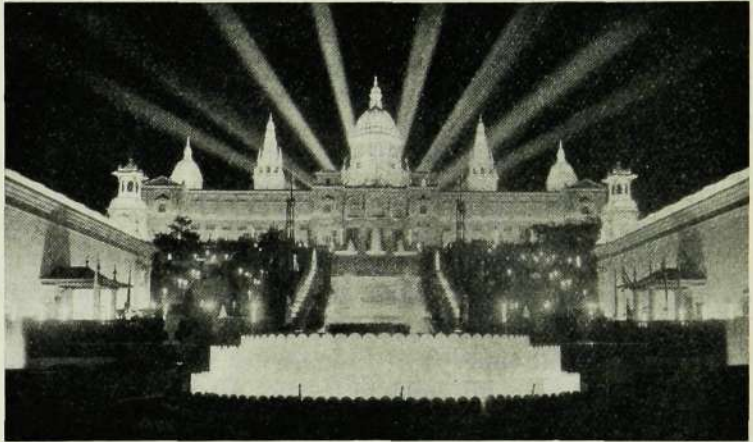
Woldemar Brummer

Nos. 6 & 7.

## The International Exhibition in Barcelona 1929.

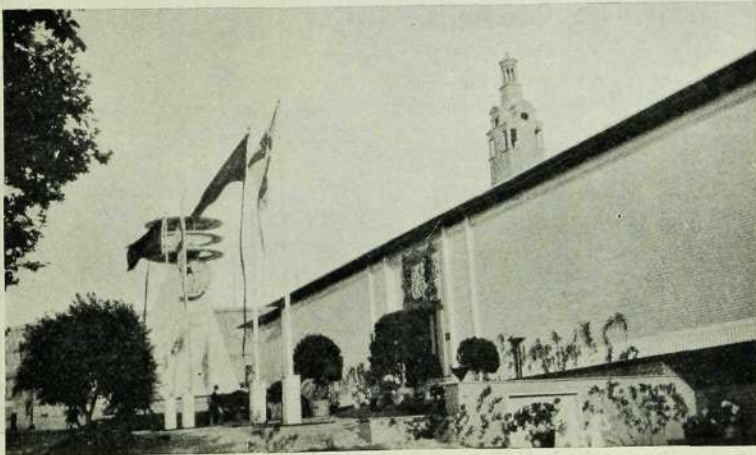
The Swedish department of this exhibition has attracted the lively interest of the public on account of its rational arrangement, its tasteful and harmonious decoration and, in a still higher degree, the excellence of the exhibits. A simple but imposing pavilion erected specially for the purpose contains some of the exhibits, while others have received a place in Palacio Reina Victoria Eugenia.

The exhibit of the L. M. Ericsson Company, most of which is to be found in the above building, is arranged in a manner which gives the visitor a clear and exhaustive idea of products and activities of the Ericsson concern. Thus one sees in function *telephone exchanges* and *apparatus* of different kinds for automatic and

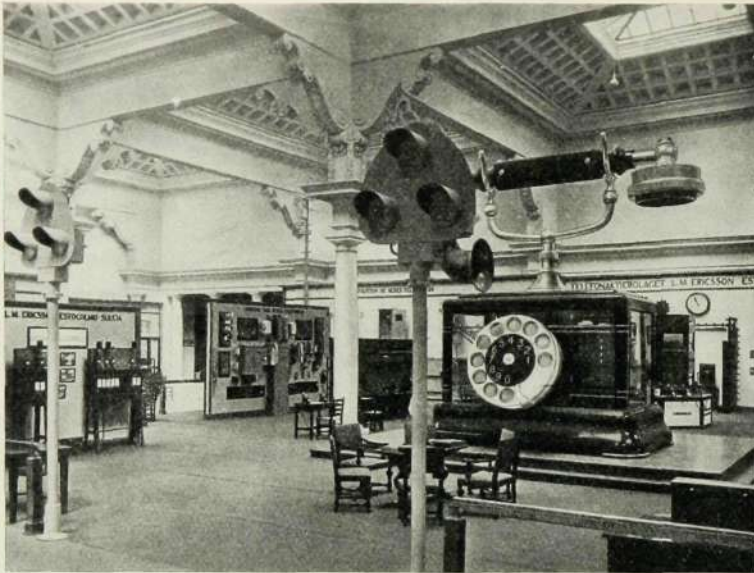


R 1317 View of the International Exhibition in Barcelona 1929. In the background is seen the National Palace. To the right in the foreground the Palacio Victoria Eugenia, containing the L. M. Ericsson exhibition.

manual operation as well as for private, local and toll traffic, *electric interlocking machines* and *signalling installations* for railways, *fire alarm installations* for cities, towns, and smaller communities as well as an *automatic fire alarm system*, *time-recording* and *electric clock installations* and *anunciator systems* for hotels, sanatoriums etc. The Ericsson system for *telephone net construction* and Sievert's *high tension cable installations* are demonstrated in special exhibits giving sections of streets with the underground cables and their outlets. The street sections showing Ericsson net construction includes, besides, *cable distribution* underground as well as in cabinets and boxes and the further dis-



R 1316 The Swedish Pavilion at the Exhibition in Barcelona 1929 with an AGA light to one Side and the Stadium Tower in the Background.



R 1324  
View of Section Occupied by the Ericsson Company in the Palacio Victoria Eugenia at the International Exhibition in Barcelona 1929. Seen from the right.

tribution of the lines to the subscribers' stations by means of cable as well as bare wire.

Complete sets with samples of Ericsson and Sievert cable works products are to be seen on special panels.

The Exhibition includes, further, *statistic material*, showing the *operating activities* of the Ericsson concern and its gradual development up to the present time.

The *expansion of the concern* is demonstrated on a map of the world, on which all the firms connected with the Ericsson concern are denoted by means of different coloured lamps according to the work they carry out — *manufacturing, construction, installation, sale or operation*.

Svenska Radioaktiebolaget (The Swedish Radio Company) contributes exhibits of its products, such as receivers, loud-speakers of the most modern types and an electrodynamic installation.

The Swedish section in Palacio Reina Victoria Eugenia contains also a cinematograph where a number of Swedish industrial films are shown. L. M. Ericsson contributes two films. One of these shows the development of the art of telephony from the time when the telephone came into general

use as a means of communication, down to our own days, with special reference to L. M. Ericsson's share in this development. The film gives views from the Ericsson works in Stockholm, and shows in detail the successive development and function of the Ericsson automatic telephone system. The other film shows the Ericsson automatic fire alarm, its construction, installation and mode of function being shown by means of specially staged incidents. The visitor can obtain at the Exhibition the Company's catalogues and pamphlets, containing descriptions of installations carried out by the company and of some of their products.

The Ericsson representative and the other members of the staff at the Exhibition are willing to give information of all kinds. Any persons intending to visit Spain during the time of the Exhibition, who are interested in our products and our work, and who may wish to obtain information in advance can receive such by post on application to our representative:

El representante de la Casa L. M. Ericsson:  
Exposicion Internacional de Barcelona,  
Palacio Reina Victoria Eugenia,  
Seccion de Suecia,  
Barcelona.



R 1325 Showing the L. M. Ericsson Section in the Palacio Victoria Eugenia at the International Exhibition in Barcelona 1929. Seen from the left.

## The Ericsson Concern's Electrotechnical Propaganda Courses.

In Nos 1 to 3 of the current volume of The L. M. Ericsson Review is to be found an account of the Electrotechnical Propaganda Courses which have been arranged periodically at different places in Sweden since 1925 by the Sievert Cable Works. As the Sievert Cable Works was amalgamated with the Ericsson Concern on the 1st of July 1928 it was quite natural that the L. M. Ericsson Company together with the Swedish Radio Company, which had been fused with the Ericsson Concern at an earlier period should continue these courses, more especially in consideration of the benefit which they were found to confer both on the purchaser and the producer. An attempt was made in this direction already the same year, November 20 to 22 in Malmö, where a course was conducted, L. M. Ericsson being represented on this occasion by its agency for the sale of its time recording apparatus and the Swedish Radio Company by its Malmö agency.

An account of this course is found in No. 2 of Ericsson News for this year, page 3. The evident benefit resulting from these courses indicated definitely the advantage of extended activity in this field — the Ericsson Concern taking the initiative — the course to include lectures and demonstrations of material and to bear on the Company's most important branches of manufacture, with special reference to the sale of such material within the Sweden.

During the first half of 1929 two courses were held, one in Jönköping, one in Hälsingborg.

— **The Course in Jönköping**, which took place April 5, 6 & 7 included the following lectures:

*Friday, April 5th.*

1. Tendencies of development in electrotechnics. T. Holmgren.
2. Time recording with reference to calculation of expenses. G. Törnqvist.
3. Electricity and fire protection. Captain R. Götherström.

*Saturday, April 6th.*

4. Placing and mounting of lead cables. E. Olsson.
5. Modern lead cables. B. Ell.
6. Installations with rubber insulated and lead covered cable. E. Olsson.
7. Electric heating of the ground. E. Olsson.

*Sunday, April 7th.*

8. Wireless. Lecture with film Stockholm—Motala and concert by means of electro-dynamical installation. N. Thörnqvist.

— **The Course in Hälsingborg**, May 31 to June 2, included the following lectures:

*Friday, May 31st.*

1. The rational use of Electricity. R. Holmer.
2. Time recording with reference to calculation of expenses. G. Törnqvist.
3. The telephone in the service of modern business life. G. Grönwall.

*Saturday, June 1st.*

4. Static condensers for improving the effect factor in the alternating current net. A. M. Andersson.
5. Electricity and fire protection. Captain R. Götherström.
6. Installations with rubber insulated and lead covered cable. E. Olsson.
7. Placing and mounting of lead cables. E. Olsson.

*Sunday, June 2nd.*

8. Electric warming of the ground. E. Olsson.

During the course, demonstrations of the material exhibited were given at certain times. The lectures were illustrated by magic lantern slides, and in some cases, accompanied by films. As the programme shows, the idea was, as far as possible, to reserve the first day for theoretical lectures, while the second and third days were devoted to more practical questions. This rendered it possible for such hearers as perhaps had not time to attend all the three days' lectures to concentrate on one day, or one detail, of special importance and interest for them.

In drawing up the programme the principle has been followed of taking up in the introductory lecture some general question of electrotechnics, and in the other lectures treating of subjects connected with the various activities of the telephone works, and cable works as well as the Radio Company. Each of these Courses was attended by from 300 to 400 persons.

The Ericsson Concern offices in Finland, Norway and Denmark had already observed these courses, and, in order to study the possibility of transplanting, in some form or other, this kind of propaganda to their own country a number of engineers from the respective countries, with Directors Bergh, Kvaal and Sommerfelt at their head attended the course in Hälsingborg. It is probable that the Ericsson Concern will, during the coming winter, be in a

position to give in these countries information about its products under corresponding conditions, adopted, however, to local circumstances. As the three courses described above were held in the South of Sweden, it was decided to concentrate the autumn work to other parts of the Country. The first of these courses was held from the 13th to the 15th of September in Sundsvall, where the Town Hall was available for the lectures. The course consisted of the following lectures.

*Friday, Sept. 13th.*

1. The use of electricity in the modern life of the community. Professor *Sten Velander*.
2. Electricity and fire danger, with magic lantern slides. Captain *R. Götherström*,
3. Lead cable fittings, with film and magic lantern. *E. Olsson*.

*Saturday, 14th.*

4. Static condensers for improving the effect factor in the alternating current net, with magic lantern slides. *A. M. Andersson*.
5. Time recording with reference to the calculation of expenses. *G. Törnqvist*.
6. The automatic fire alarm, with magic lantern slides. *H. Ekman*.
7. The telephone in the service of modern business life. *G. Grönwall*.
8. Some new types of Swedish electric meters with magic lantern slides. *O. Jöhnk*.
9. The effect of variations in temperature on installation material, with magic lantern slides. *B. Ell*.
10. Installations with rubber insulated and lead covered cable, with film. *E. Olsson*.

*Sunday, Sept. 15th.*

11. Electric heating of ground in hotbeds and open land, with film and magic lantern. *G. Lind*.
12. Modern Broad casting. *N. Thörnqvist*.

In connection with Captain R. Götherströms lecture (No. 2, Sept. 13th) a fire-alarm film was shown, and in connection with Mr. Törnqvists (No. 12, Sept. 15th) the Radiofilm Stockholm—Motala. As in the preceding courses there was an exhibition of material, which was demonstrated at suitable times during the three days of the course. In order to give our readers an idea of the nature of the lectures delivered in

connection with the **Ericsson Concern's electro-technical theoretic and propaganda courses**, we here append a short summary of two of the lectures.

— **Summary of lecture given by Mr. S. Holmgren at Jönköping** April 5th 1929 on "*Tendencies in the development of power distribution*". The speaker began by showing a map of Sweden with the existing power stations marked, and in this connection pointed out the process of crystallization now going on in the country, as the greater power enterprises gradually coalesce with the smaller ones, and establish common working among themselves. Thus an inter-connected net for the distribution of energy is being formed over the whole of the middle and south of Sweden. It may be safely asserted that, in this way, a real monopoly in the distribution of energy is coming into being in different districts.

The development of power distribution during the past year was also shown by means of diagrams. At the present time the production in this country amounts to about 5 billion kilowatts annually. The total amount received for the sale of energy is about 125 million Swedish Crowns per year. The amount of energy generated by steam is less than 5 % of the total amount, but may be somewhat higher when there is scarcity of water.

The average working time for installed machinery in the country is about 3000 hours per year. For steam power it is considerably less, for water power on the other hand more, which shows that steam power is used only as the "top power" and as a reserve.

As regards the use of water power the speaker pointed out that low falls can now be turned to greater advantage by reducing building expenses and raising the effectivity of the turbines. In water power stations built 20 or 30 years ago it is, at present, an actual question almost everywhere, whether, by co-operation with greater power enterprises it would be possible to increase the utilisation of power and by changing turbines to raise the efficiency. In many cases the yearly mean efficiency has been raised from 60 % or less to 78 %.

Water power stations are constructed to secure the most economically favourable effects and are now, for the greater part, provided with only one turbine, and work automatically.

As regards the development of steam power it was shown how it would be possible to get various types of steam plant by making use of greater units, high boiler pressure, low costs of installation, coal dust fuel, air preheating etc.; such types could work for various purposes with considerably higher economic results than have been obtained hitherto. The type of boiler installed nowadays has usually a capacity of 50,000 kilowatts.

An economic power production had also been obtained in several cases by means of back-pressure power in combination with steam production for other purposes.

With reference to the prices for power the speaker gave an account of an investigation carried out by him for a special purpose as to what ought to be considered a normal power price in this country. He had come to the result that for an effect of 5000 kw. the normal power price can be represented by the formula  $P = 1.65 \sqrt{T}$ , in which  $P$  is the power price per kw. per year and  $T$  is the annual utilisation time in hours. This holds good when coal is at the price of about 20 Swedish Crowns per ton.

Touching the use of power for lighting purposes, for motors and heating purposes the lecturer first gave a short account of the development of the carbon filament lamp up to the present half-watt lamp, and showed that in this development the theoretical possibility for improved economic results as regards lighting are by no means exhausted. It is quite possible that a new lamp type may appear which will considerably reduce the consumption of energy for lighting purposes. The distributors of electricity ought to consider the possible consequences of this so as to avoid the drop in the income curve which was brought about by metal filament lamps in their time.

Attention was drawn to rationalization in the use of motors which would lead to increased driving force per workman, and to higher wages. It had been shown that the wages in America, England and Japan were in the proportions of 4—2—1 and mechanical energy per industrial workman was represented in HP as being 3.2, 1.6 and 0.8 respectively in the corresponding country.

A diagram was also exhibited showing how the purchase price of motors had advanced from before the war to the present time; from which it appeared that, in spite of the reduced purchasing power of money, a motor is now cheaper than it was before the war. The lecturer further showed how important it is that motors, specially intended for individual driving industry, should be selected of the most suitable size, and with the most suitable electric qualities. It is not at all unusual to see factories in which 10 to 20 % of the total consumption of energy is quite unnecessarily wasted on account of the loss from the motors, unnecessarily strong motors having been selected.

As regards the use of electric energy for heating purposes, it was stated that the cooking of food entirely by electricity amounts to from 0.8 to 1.2 Kwh per head and per day, which figure by rationalization of the apparatus and increased knowledge as to most suitable methods of using an apparatus can, in future, probably be reduced to an average of 0.6 Kwh. per head

and per day. The electrification of the households of the whole nation would therefore lead to an increase in the consumption of energy of about 1½ billion Kwh. annually; which, according to a rough calculation, would produce a saving in the use of wood corresponding to 50,000,000 Swedish Crowns a year.

With reference to the use of electricity for heating purposes in industry it was shown that enamelling furnaces, tempering furnaces and large baker's ovens are now very extensively used. Chrome-nickel was used as the resistance material for producing a temperature of 1000° and a little over. For higher temperatures we have at present, practically only the arc lamp furnace which, however, on account of its technical qualities is unsuitable; partly owing to the consequent variations of load etc., and partly in consequence of the difficulty in regulating the temperature.

The demand for the accurate working of distribution plants had increased considerably with the more frequent common coupling of nets, and the difficulties resulting from the bringing together of such great effects in the same net. On the whole, the increased insulation, introduction of Petersen coils, good relays and increased knowledge of atmospheric electricity and other boosting voltage had given electrotechnical workers the means necessary to keep efficient service up to a satisfactory and constantly rising standard.

During recent years one can observe an increased use of earth cables, as well as an evident tendency to substitute alternating for continuous current in cities, especially where the electrification of the households is progressing rapidly.

In conclusion, the lecturer stated that recent statistics regarding indoor installations have revealed the fact that the metal covered lines and conduits in indoor installations are in a high degree responsible for the fire-damage resulting from electric current.

It is to be hoped that some new system of installation, with sufficient mechanical protection for the lines, but without an external metallic covering will be devised.

— **Summary of the lecture given by Mr. G. Grönvall, in Hälsingborg, May 31st 1929, on "The Telephone in the Service of modern Business life".** The lecturer began with the following introduction:

The endeavour to substitute mechanical arrangements for human power holds good even as regards the telephone in the service of modern business life. For the great public telephone nets Ericsson has worked out an automatic telephone system which, thanks to its simplicity, has succeeded in securing a leading position in competition with the great European and American companies. Parallel with this system, which,

on account of its construction is best suited for plants with at least 500 subscribers, the firm has also, out of special consideration for its use in business enterprises and offices, worked out an automatic telephone system which may be said to fulfil all reasonable demands as regards both function and price."

Then followed a comparison between the manual and the full automatic telephone exchange; attention being drawn to the following points showing the advantages of the automatic system:

1. "With a manually operated exchange one is always dependent on the operator —, that is to say, in order to obtain a connection the operator must always be at hand to effect the same. The automatic telephone on the other hand is always ready to give service.

2. In the case of so-called series conversations —, that is to say, when a number of conversations from an apparatus are to follow quickly upon each other, one is often inconvenienced in a manual system by the operator not disconnecting the preceding conversation quickly enough. In an automatic exchange the disconnecting takes place as soon as the micro-telephones are replaced.

3. With a manual telephone exchange there is always the risk of being overheard. This risk is absolutely excluded with an automatic exchange. The conversations are perfectly secret.

4. The automatic exchanges takes up very little room, while a manual telephone exchange must always be placed in a room fit for human occupation."

Assisted by magic lantern slides the speaker gave an account of the principle of the automatic systems OL 20 and OL 500, and showed also some pictures of these types of exchanges.

After describing the automatic exchanges for private installations the speaker passed on to a description of Ericsson's new conference telephone system, this part of the lecture also being accompanied by magic lantern slides. With reference to the conference telephone the speaker said:

"The endeavour in the field of telephony to keep pace with the increased demands which the organisatory development of office work makes on arrangements for saving time and expense has led to the introduction of the conference telephone by L. M. Ericsson.

As the name implies, the idea of this system is to satisfy the manager's requirements for convenience, requirements which can be summed up under the following headings:

a. To be able by simple means to get directly, quickly and conveniently into contact with different departments or persons in the firm, either singly or collectively.

b. To be able to hold conferences without either of the participants having to leave his place, where, as a rule, he has access to his papers.

c. To permit subordinates easily to come into direct contact with the manager.

d. In case of a call from the manager to a subordinate when one of the parties is engaged in another conversation, or is absent, that this circumstance may be indicated by a visible signal, so that the conversation can take place as soon as the person who has been called is disengaged or has returned.

The conference telephone can only in exceptional cases, as for instance, when the staff is very small, entirely take the place of the local telephone systems but can be used with advantage as a valuable adjunct to the above."

— **The L. M. Ericsson Review.** The first two quarterly issues which have appeared during the course of the year, June 22nd and September 27th, contain the following articles:

— **Nos 1 to 3 (1st quarterly issue)** 32 pages: *The Activities of Max Sieverts Fabriks Aktiebolag.* — *Developments in the Manufacture of Lead Sheathed Cable by Max Sieverts Fabriks Aktiebolag (The Max Sievert Cable Works) at Sundbyberg, Sweden, from 1910 to 1928.* — *The Patent Controversy.* — *High Tension Condensers for Compensating Reactive Effect in Alternating Current Nets.* — *Modern Manual Exchanges.* — *The Lemberg (Poland) Telephone Exchange.* — *The Electrotechnical Propaganda Courses in Sweden 1925 to 1927.* — *Calculation of the Required Number of Switches with Consideration for the Value of the Subscribers' Time.*

*Supplement.* Contents: Articles published in The L. M. Ericsson Review issues vols 1924—1928.

— **Nos 4 to 6 (2nd quarterly issue)** 46 pages: *The Continued Automatization of the Stockholm Telephone Net.* — *Electrolysis in Underground Cables.* — *The New Interlocking Plants in Linköping and Mjølby.* — *Ericsson Interlocking and Railway Signalling Equipment at the Barcelona Exhibition 1929.*

— **Ericsson Railway Interlocking Plants.** During this year the following installations have been completely erected and put in service:

at the railway station of the *Estonian State Railways at Tallinn (Reval);*

at the new railway station of the *Danish State Railway at Horsens;*

at the two shunting stations of *Luossavaara—Kirunavaara Aktiebolag* at Narvik, Norway. The two latter are without doubt the most northerly railway stations in the world;

at the *Teckomatorp* station of the *Landskrona—Hälsingborg* Railways in Sweden.



R 1332 Group of members of the International Congress for Fire Protection held in Paris, June 24th—25th 1929.

The plants at Horsens, Teckomatorp and Narvik are briefly described in *The Ericsson News* No. 7, 1928.

The installation at Tallinn is combined with line blocking for the double track line between the stations Tallinn—Järva—Nõmme and line blocking for the single track line between Tallinn—Uelemiste. Between the two last-mentioned stations there is a loading platform also connected with Tallinn by means of block arrangement. At each station, as well as at the loading platform, there is a lock-and-block apparatus for this purpose.

At Järva, Nõmme and Uelemiste there are arranged small interlocking machines of table type, equipped only with signal levers. Connected to these signal levers are 4, 3 and 2 light signals respectively.

A switch is placed in the main line at the loading platform; and for the locking and supervision of this switch a key combination is arranged between 2 control locks at the switch, and 2 control locks in the lock-and-block apparatus.

The interlocking machine at Tallinn has 27 levers to which are connected 15 light signals and 23 points. The switch machines are of the newest type and the motors are driven by 220 volt alternating current.

Up to the 1st of July orders have been received through Signalbolaget for interlocking plants for *The State Railways* at the *Gothenburg Terminal*, *Stockholm Södra* and *Abisko*, for *Halmstad—Nässjö Railways* at *Halmstad Station*, and for the *Danish State Railways* at *Klampenborg*.

All installations for the *Swedish State Railways* will be of the same type as the *Hässleholm* plant described in Volume IV (1927) nos. 1 to 3 of *The L. M. Ericsson Review*, the interlocking machines being made without mechanical interlocking gear, and all locking being done electrically.

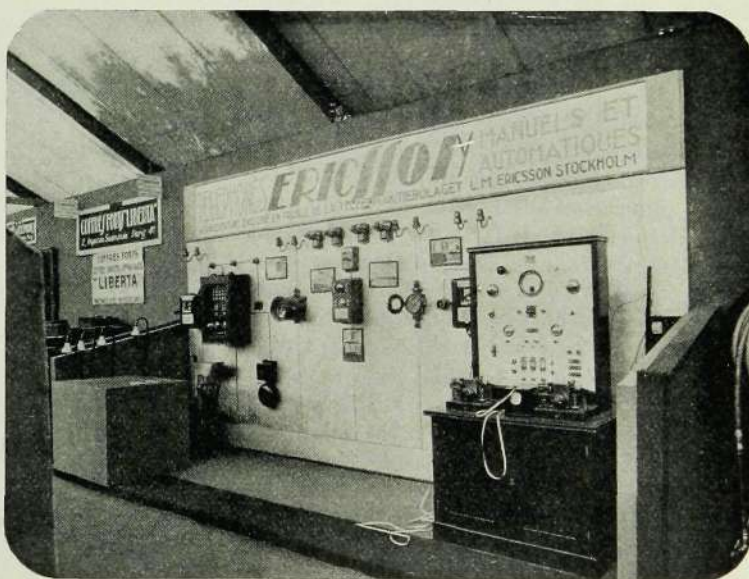
The interlocking machine at the *Gothenburg Station* has 72 levers, to which will be connected 72 signals and 54 points. The corresponding figures for *Stockholm Södra* will be 16 levers, 22 signals and 15 points and for *Abisko* 24 levers, 17 signals and 3 skotch blocks.

The Interlocking machines at *Klampenborg* and *Halmstad Station* will be of the ordinary type. The former will have 32 levers, to which will be connected 21 points, 2 skotch blocks and 9 signals. The latter will have

24 levers with 15 signals, 23 points, 8 skotch blocks and 6 crossing-gates.

— We quote below a report made on the Congress as well as on the **International Fire Protection Exhibition** arranged in connection with same by **Captain R. Götherström**, appointed by the **Government** to represent Sweden at the **International Fire Protection Congress held in Paris, June 24th to 25th** of this year.

“Before the Great war there existed an International Fire Protection Council with its permanent seat in Paris. Not until 1928 did the Fire Protection people meet again at a small congress in Prague, when the possibility of organising international co-operation between those interested in fire protection was investig-



R 1331 Ericsson's Exhibit at the International Fire Protection Exhibition in Paris 1929.



R 1333 The International Congress for Fire Protection at Paris 1929. Fire chiefs including the chief of the Paris Fire Department (X) during a demonstration.

ated. For the Paris Congress official invitations were sent to the Governments of most countries requesting them to appoint representatives. In addition, fire brigades and fire protection organisations were requested to send one or two members.

The following countries were represented at this Congress: France, England, Germany, Holland, Italy, Luxemburg, Poland, Switzerland, Spain, Sweden, Czechoslovakia, Hungary and Austria. A proposal containing rules for an international fire protection committee had been made but was considered too extensive to be as yet adopted. A temporary committee was therefore appointed to work out the question and to procure from the fire protection organisations of the different countries their opinions about this proposal.

The main impression from this international exhibition and congress was that it is being realised all over the world that fire protection is an extremely important matter for every country, technically as well as economically. Therefore the question demands intimate co-operation between industry, the state, the community, fire insurance companies and fire brigades, as well as fire protection organisations.

The Fire Protection Exhibition which took place between the 21st of June and the 7th of July was arranged by the recently formed fire protection committee in France appointed by the State (le Comité technique de prevention du feu), the French Fire Brigade Union (la Fédération nationale des sapeurs-pompiers français), the Military Fire Brigade Regiment in Paris (le Régiment des sapeurs-pompiers) and the State Industrial and Scientific Research Institute (L'Office national des recherches scientifiques et industrielles et des inventions). The Exhibition received financial support from the French State, the great banks and great railway com-

panies, fire insurance coalitions, certain industries etc.

In order to give the Exhibition an official aspect and to impress favourably the necessity of extended fire protection work, from the point of view of political economy in France, the French President, and a great number of the members of the Government as well as some of the most important personages of the country had subscribed as members of an honorary committee for the Exhibition.

Most of the exhibitors were of course French. The main interest was concentrated on fire extinguishing and alarm apparatuses. The importance which now everywhere is attached to good fire alarm installations was manifested by the number of exhibits in this line. The importance of the telephone system in this connection was also emphasized.

The Société des Téléphones Ericsson exhibited alarm boxes and alarm boards of different types, as well as one automatic fire alarm installation.

A study of this section made it obvious that in all civilized nations action is being taken to produce reliable and relatively inexpensive automatic fire alarm installations. A considerable number of larger and smaller firms exhibited such apparatuses of the most varying types. It is indisputable that the *Ericsson* type compares favourably with any on the world market. *The automatic alarm apparatuses appear, in contrast to the Ericsson type, rather complicated, and in addition they lack the thoroughly worked-out and reliable alarm board with arrangements for the supervision and examination of the network of lines etc., which are characteristic of the Ericsson system.*"



R 1330 View of the International Fire Protection Exhibition in Paris 1929. The Ericsson section is to the left.