



Ericsson News

1929

Managing Editor:

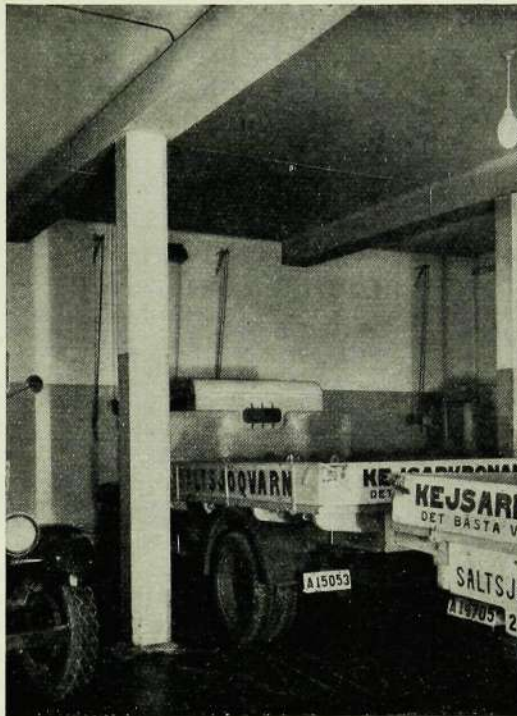
Nos. 10-11.

English edition

Woldemar Brummer

The Ericsson Automatic Fire Alarm in effective operation at a threat of fire in Saltsjökvärn (Flour Mill).

On the 22nd of October, at about 3 p. m. the Ericsson Automatic Fire Alarm at Saltsjökvärn (Flour Mill) gave warning of an outbreak of fire. A chauffeur in the big garage, which is seen in the illustration on this page, was busy cleaning some motor car parts. With the petrol can in his hand he unintentionally happened to short circuit the car battery. Through the sparks generated, the petrol became ignited. Further fuel was added to the fire when the chauffeur dropped the petrol can, which had got hot, and the petrol ran out on the floor. The accident occurred between the car visible farthest to the left in the illustration and the pillar on the right hand side of it. The thermo-contact visible in the ceiling, to the right of the pillar, immediately reacted to the increase in temperature, and the central apparatus with its bells and sirens gave warning of the outbreak of fire without the least delay. But in the meantime the chauffeur had rushed from the scene of the outbreak to fetch a fire extinguisher. On his return the firemen of the mill, with fire fighting appliances, had already reached the spot, and the



R 1452 Interior of Big Garage at the Saltsjökvärn Flour Mill.

fire was put out in a moment. The fire brigade, summoned simultaneously and automatically, arrived on the spot with the customary speed, but only to find that all danger from fire was past. The fire had not had time to cause any very material damage. Only the pillar got somewhat blackened. The accompanying illustration was taken a couple of hours after the fire alarm.

Extensive damage and loss to the Saltsjö Flour Mill was thus obviated by the Ericsson automatic fire alarm. This mill, situated eastward from Stockholm, at the entrance into the harbour, is one of the very largest in Sweden. Its output amounts to 1,800 decitons wheat flour, 800 decitons rye flour and 500 decitons semolina per day. The storage rooms of the mill can hold up to 13,000 tons grain and 60,000 decitons flour. The mill is electrically operated and equipped with a pneumatic elevator carrying 100 tons of grain an hour. The premises comprise total cubic space of 124,000 m³, and are fitted up with the Ericsson automatic fire-alarm, partly connected with the sprinkler system.

— **The Ericsson Concern.** This is to notify our readers that the Concern's sales and installation company in Brazil,

Sociedade Geral de Telephones L. M. Ericsson Ltda.

Rua São Pedro 106, Rio de Janeiro,
has changed its firm name to

Sociedade Ericsson do Brazil Ltda.

Telegraphic address unchanged. Postal address from the 1st of Dec., 1929: General Camara 58.

—The following company has become affiliated with the *Ericsson Concern*

Compañía Argentina de Teléfonos del Litoral with registered office at Concordia, Province of Entrerrios in Argentine.

This company, which was organized near the end of 1927, holds the *telephone concession* in the Provinces of Corrientes and Misiones and also in the Republic of Paraguay. The Con-



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The Wireless Week at Helsingfors, 13th to 20th October, 1929. The Ericsson Advertising Car.

cern's sphere of interest in South America has thus become considerably enlarged.

—The L. M. Ericsson Telephone Company's agency in Holland, Amsterdam,

Koopman & Co.

has opened a branch office in the Dutch East Indies with the name

N. V. Indisch Kontoor van Koopman & Co.

(address) Tjikininweg 39, *Bandoeng*.

— **Announcement from Holland.** The firm P. Nelis & Sohn A. G. in Heemstede has issued a pamphlet on the growing of hyacinth and tulip bulbs in electrically heated soil. It is pointed out that after long and thorough experiments and tests the best results were achieved by the heating system developed by the Sievert Cable Company. As a result of its experience the firm now gives definite expression to its belief that this method should in the future have extensive use. In the pamphlet there is a quoted statement about this matter by G. Lind, director of gardening at Experimentalfältet (the Experimental Field) in Stockholm; this was published in *Svenska Dagbladet* on October 21st, 1928, and stresses the fact that vegetables grown in electrically heated soil are ready for the table from two to three weeks before the others.

The experience of P. Nelis & Sohn fully corroborates the statement.

— **News from Finland.** The Association of Wireless Manufacturers and Wireless Dealers in Finland held a wireless week from the 13th to the 20th of October. The programme included, among other features, a joint advertising parade through the city. The L. M. Ericsson Company participated with an advertising car, which headed the procession. The car was equipped, inter alia, with a Marconi loud-speaker installation in actual operation. An illustration of the car is shown at the left.

— **News from Budapest.** On the 25th of May Mr. Z. Makó, B. Eng., gave a lecture before the Society of Engineers and Architects on the fundamental principles of Automatic

Telephony and on the L. M. Ericsson Company's huge automatic telephone system. Mr. Makó opened his address by using statistical diagrams to illustrate the economic importance of the telephone and the attendant technical requirements for good telephone service. With the aid of these he demonstrated the necessity of introducing the automatic telephone system. Its fundamental features were demonstrated by means of a technical film, which supplied the audience and spectators with a clear idea of the component parts and the connecting-up process in the Ericsson automatic telephone system. The film was accompanied by a complete description of the system and the fundamental technical principles of its construction, together with an analysis of the requirements that form a basis for calculating the number of the connecting-up systems. The latter part of the lecture was devoted to an account of the special characteristics of the automatic telephone, the question as to what details should be especially watched and tested while the telephone is in operation, and what methods should be applied for attaining the best technical and economic results from the operation. Various forms of construction of the Ericsson automatic telephone system were demonstrated by the lecturer by means of lantern slides, diagrams and also by means of a model exchange specially supplied for this purpose by the L. M. Ericsson Telephone Company, which was shown in operation.

The lecture was delivered in the large hall of the Hungarian Engineers' and Architects' Asso-

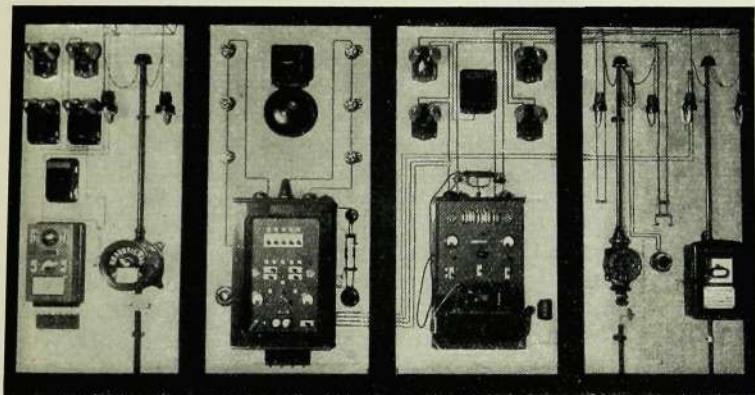
ciation and was presided over by the chairman of the Association, Mr. I. Orphanides. The crowded hall showed the keen interest displayed in automatic telephony by the technical world of Hungary. Among those present were: Secretary of State F. Kol, technical chief of the Hungarian Postal Administration, Chief Directors L. Lázár and D. Véghely, and several other representatives of the Hungarian General Post

Office. Further ex-Secretary of State D. E. Kolossváry, pioneer of automatic telephony in Hungary, ex-Secretary of State D. P. Balla, E. Pöschl, professor of applied electro-technics at the University of Technology in Budapest, and others. The lecture was also attended by several leading engineers and workers in the Hungarian industrial world.

Electro-Technical Course of Instruction by the Ericsson Concern at Sundsvall.

This course of instruction was held from Sept. 13th to 15th, 1929, and, according to programme, was published in No. 6—7 of this year's Ericsson News.

boards, conference telephones, electric clocks and time recording apparatuses, different kinds of fire alarm apparatuses, automatic inclusive.



R 1440

L. M. Ericsson stand for Fire Alarm.

The course was attended by about 500 persons, including chiefs of civil service and municipal officers, civil service and municipal clerks, business and industrial managers, contractors and fitters.

On Saturday, September 14th, a large number of guests, by invitation of the Ericsson Concern, gathered for a light lunch, at which, as on other occasions during the course, a musical programme was furnished by an electro-dynamic plant set up by the Swedish Wireless Company.

The exhibits of the Concern comprised:

Telefonaktiebolaget L. M. Ericsson (The L. M. Ericsson Telephone Company): Telephone instruments, private automatic telephone switch-

Sieverts Kabelverk (Sievert's Cable Works): Static condensers, acid-proof lighting fixtures and installation equipment, high tension installation equipment, etc.

Svenska Radioaktiebolaget (The Swedish Wireless Company): Wireless receivers and loud speakers of modern types together with details, as well as an electrodynamic installation.

All equipment was demonstrated in operation.

The accompanying illustrations are from the exhibition.



R 1442

Swedish Wireless Company's Exhibits.

The course was opened by the managing director of the Svenska Radioaktiebolaget (Swedish Wireless Company), Captain S. I. Wibom, who at this occasion acted as representative of the Ericsson Concern, with the following introductory words:

"Courses similar to this have for several years been held by the Sievert Cable Works, for the purpose of making their products better known among the general public. Since the Sievert Cable Works have amalgamated with the Ericsson Concern, this work has been continued in the joint interest of the Concern, the equipment about which we wish to disseminate information naturally having been augmented so as to embrace all the products of the Concern.

It is nevertheless not so much direct propaganda for our products that we have in view, but, as the programme states, our aim and purpose is to disseminate information about the proper use of electricity, principally in those branches where we have our own manufacturers. We are doing this with the firm hope that general guidance in the sphere of electricity, which some prominent electricians outside the Concern have been kind enough to undertake, will convince the participators that the motto of our activity is "to let many benefit by what is good".

I have once or twice made use of the term "Ericsson Concern", and it may not be amiss to explain in a few words what is meant by the same. By Ericsson Concern we mean here in Sweden the following four firms: the Telefonaktiebolaget L. M. Ericsson, (L. M. Ericsson Telephone Company) and those Swedish industrial enterprises that wholly or for the greater part are owned by the same, viz., Sieverts Kabelverk (Sievert's Cable Works), Svenska Radioaktiebolaget (Swedish Wireless Company) and Signalbolaget (Signal Company). Outside the borders of our country there is a far greater number of enterprises affiliated with the Concern. Just what the Telefonaktiebolaget L. M. Ericsson is, this grand structure founded on an ingenious Swedish instrument maker's clever design, is undoubtedly generally known; even beyond the borders of our country the name of L. M. Ericsson is synonymous with the best in high-grade mechanical industry, integrity and reliability into the minutest details. The Company's activity, which falls within the low-tension technical sphere, nevertheless embraces not



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Captain S. I. Wibom.
Managing Director of the Svenska
Radioaktiebolaget (Swedish Wire-
less Company, Ltd.)

merely the manufacture of big telephone exchanges, but also minor telephone installations for communication within an office, a factory or the like, time-recording apparatus, electric meters, fire alarm apparatus, signalling and safety installations, interlocking plants for railways, etc. Briefly, everything technical relating to telephone and telegraph, signalling and safety is part and parcel of the firm's business. As a heading, we might suggest "time-saving" and "safety".

That the Sieverts Kabelverk under such circumstances should find a place in the Concern, is quite natural, since for the establishment of signalling connections not only termini but also lines between the same are necessary. Already at the time when old

L. M. Ericsson and Sievert took their first steps in a more craftsmanlike manufacture, there was cooperation between them. Sieverts Kabelverk and its manufactures are, however, not least through courses previously held in Sundsvall, known to the present audience. The material manufactured by Sieverts is, however, also looking for a public independent of the Ericsson manufactures, particularly high current contractors and fitters, who are endeavouring to secure the utmost available safety for their plants. Also the farmers in their work can benefit by Sievert's material.

The Signalbolaget, which exclusively supplies the needs of railways, of electrical interlocking plants and signalling installations does not participate in this course by the exhibition of any material. It should, however, be noted that the activity also of the Signalbolaget comes under the heading of *time-saving and safety*.

The Svenska Radioaktiebolaget, I trust, is familiar to the public through its receiving sets, which, following the popularity achieved by broad-casting throughout Sweden, are being sold under the trade-mark of "Radiola". But, as we are aware, it is not this, the main part of the company's activity, which has made its acquisition a desideratum for L. M. Ericsson. Up-to-date telephone technique operates under the sign of long-distance telegraph and telephone, the so-called interurban or trunk service. For establishing such connections, amplifiers of all kinds, based upon the use of what are popularly called valves, are necessary. The wide experience of the Svenska Radioaktiebolaget in the use of these has resulted in its affiliation with the Ericsson Concern, and the designing of instru-

ments required for interurban or trunk service, e. g., amplifiers, high frequency telephone lines, line transformers, etc. has been entrusted to the company in question. It might be mentioned that the interurban service of Ericsson's big operating company in Mexico will be carried on with high-frequency telephone lines chiefly of the same type as those supplied by the Svenska Radioaktiebolaget for the lines Sundsvall—Örebro and Stockholm—Umeå. However, it is in its capacity as manufacturer of wireless receiving sets that the Svenska Radioaktiebolaget participates in this course and aims to give an idea of the present standing of broadcasting, once so discredited, and its employment for practical use and amusement.

After this account of the Ericsson Concern I should like to convey my heartfelt thanks to all those who have been kind enough to accept our invitation, and at the same time express the hope that the course will offer both value and pleasure, and that the participators, on its conclusion, will return to their homes richer in experience and pleased at having attended the same.

In expressing this hope I declare the course open".

Then followed an introductory lecture by Professor S. Velander on "The Use of Electricity in the Modern Community" in which he delineated, through broad, educational outlines, the part which electricity at present plays in the service of civilization and culture. In his opening remarks Professor Velander stated that nowadays we always think of electricity as the form of energy

in which the forces of nature stand available for performing labour and increasing hundred-fold the working capacity of the human muscles, as tools, in fact, for the entire system of communicating of the present day. The speaker emphasized that electricity, almost unknown a little over one hundred years ago, is no longer



R 1445

Professor Sten Velander.

the marvellous force of nature which only scientists and inventors use. Fifty years have turned electricity almost into a sine qua non for the proper functioning of the social life of a community.

After these opening words the lecturer passed on to a characterization of the application of electricity in the various spheres of employment which it has created, and the scope and perfection this application has attained in our day.

Professor Velander's lecture will be published in extenso in the first quarterly issue (1—3) of the L. M. Ericsson Review for 1930.

Mr. Gustaf Lind, director of gardening, at the Experimental Station at Stockholm, opened his lecture on "Elec-

tric heating of soil in hot beds and in open ground", with an account of the tests made with electrical heating of the soil in Norway and Sweden, and then passed on to a description of the actual establishment of such a plant, giving particulars as to how it should properly be arranged from a practical, gardening point of view. Thereafter he gave an account of plant cultivation both under glazed windows and in open soil, touching upon the increased advantages that electrical heating of the soil offers the gardener or nurseryman in securing garden products under circumstances considered economically or technically impossible with the old heating methods.

Mr. G. Törnquist's lecture on "Time recording in the Service of Estimating Costs" appears in extenso in the third quarterly issue of The L. M. Ericsson Review (7—9).

The general scope of the lecture by Mr. G. Grönwall, civil engineer, was identical with that of his lecture published in No. 6—7 of Ericsson News for this year.



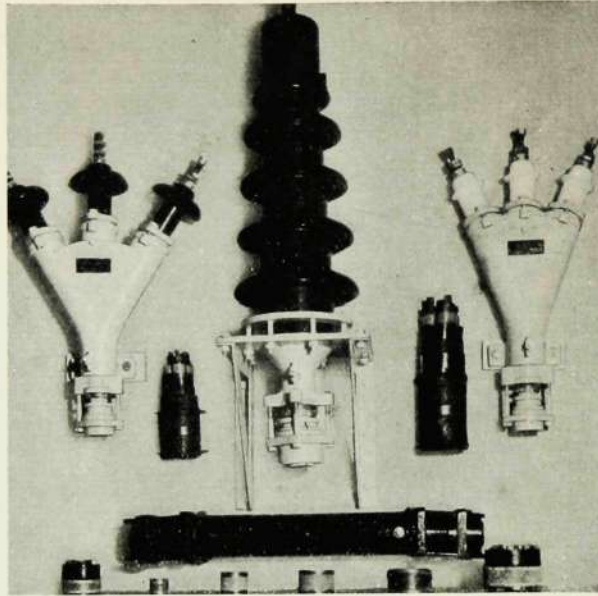
R 1447

G. Törnquist,
Departmental Instructor
the Business
Institute in Stockholm.



R 1449

Gustaf Lind,
Director of gardening at
the Experimental
Station at Stockholm.



R 1443
Sieverts Kabelverk. High tension installation material.

Summaries of Lectures delivered in Connection with the Information Course held in Sundsvall from Oct. 13th-15th.



R 1446

Captain R. Götherström.
Secretary of the
Fire Protection
Union in Sweden.

— **Captain R. Götherström** on *Electricity and Fire Risk*. With the aid of generous statistics was demonstrated the error in the common conception that, since life had become more and more mechanized and electrified, the risk of fire had been reduced. Statistics reveal the shocking fact that through fires values amounting to 4 or 5 billion kronor are destroyed annually in the world. These losses are naturally distributed over the various countries in widely different figures, both absolute and per capita, but at all events they everywhere reach values that cannot be

ignored, and must lead to taking steps for diminishing these losses. The lecturer demonstrated that the cause of a large part of damage by fire is inferior or defective installation equipment.

Several samples of such equipment were shown to the

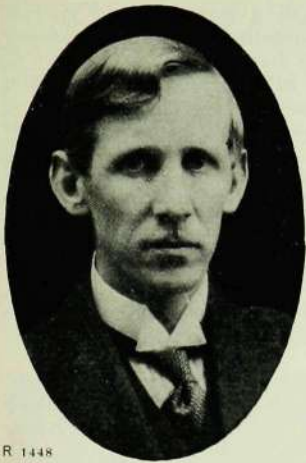
audience. However, nowadays quite a number of trades, particularly in the cellulose industry, employ only fire and acid-proof material. In this connection the lecturer pointed out the great risk in industry or homes, where the non-technical workers do the repairing or put in the fuses. Inter alia, he mentioned a case where an industrial enterprise lost the entire indemnity following a factory fire; the insurance company was released by the Supreme Court from payment of damages by fire because the safety fuses had been made at home with bits of copper and iron wire.

Incessant fires caused by electricity have induced the fire insurance companies to issue a regulation which is far too little known, viz., that the electric current in factories and farms must be cut off during those hours of the day when the current is not used.

The lecturer pointed out that the electrical motors, in sharp contradistinction to the electrical installation equipment, are on a very high level of development so far as safety from fire is concerned.

Finally the lecturer mentioned the enormous benefit which fire-fighters derive from certain electrical devices, especially in the low current field, when it is a case of raising a prompt fire alarm, and in this connection the greatest trust is placed in up-to-date *automatic fire alarm installations*.

Captain R. Götherström's lecture will be published in extenso in the first quarterly issue of *The L. M. Ericsson Review* for 1930.



R 1448
H. Ekman.
Engineer of the Fire Brigade
at Stockholm.

modern fire-protection and much fire statistical data, the lecturer dwelt on the great importance of raising a fire alarm as quickly as possible, something that can be achieved with the *automatic fire alarm* which is put in operation by the fire itself the very moment it breaks out. »Thus we no longer leave it to chance to determine the moment for raising a fire alarm, but are able to attack the fire at once, and know through a separate central device where the source of the fire is located».

The lecturer thereupon passed on to a discussion of the principles for the erection and function of the automatic fire alarm system, with particular emphasis on the Ericsson system.

Those who are interested in obtaining further particulars are referred to the *L. M. Ericsson Pamphlet on Automatic Fire Alarm*, which will be sent by request.

— **Mr. A. M. Andersson** on *Static Condensers for the Improvement of the effect factor in an alternating current system*. The purpose of the static condensers is:—

to relieve generators, transformers and lines,
to improve the economy of the plants.

Every electrical motor or transformer calls for a magnetic field for its operation. For generating this field, a certain portion of the current, the so-called energizing current, is consumed. This current does not perform any useful labour, but merely magnetises the machine; it is what we call non-watt or reactive. On the other hand, it augments the total current and, therefore, gives rise to increased loss in the winding of the machines and transmission lines.

If we could get rid of this reactive effect, and by so doing diminish the total current strength, very great advantages would be gained.

- 1) The charges for the reactive effect disappear.
- 2) Diminished losses in transmission.
- 3) Diminishing of drops in tension in the lines.
- 4) Better exploitation of generators and transformers.

A great deal can also be gained in the shape of diminished loss in transmission in lines and transformers. To bring down these losses to less than half by the setting up of a condenser, is nothing out of the common. This gain by the condenser can, therefore, occasionally become so great that it pays for the condenser in the course of 4 or 5 years.

Another benefit gained by fitting up these condensers is, that they raise the tension, i.e., reduce the drop in tension on the lines.

— **Mr. H. Ekman** Engineer, on *Automatic Fire Alarm*. In the opening passages of his lecture, Mr. Ekman reminded his audience of the fact that »well organised fire-protection is a great saving not only to the nation but also to the enterprising individual wise enough to make use of it». He pointed out that even a well-managed organisation, properly operated system and apparently correct economic calculations may easily be wrecked by the ravages of fire along with the objects insured. After a thorough analysis of the principles of

By removing the reactive effect from generators and condensers we are enabled to get more kilowatt out of the machines.

In the case of a power station with plenty of water, one may say that one gets these kilowatt gratis.

Also where there is an inadequate water supply, a condenser may be a necessity. By allowing a condenser to supply the reactive effect required, one can concentrate the kilowatt load to a few machines and thus save water.

The condensers possess many advantages over other machines for producing reactive effect.

In particular may be pointed out

- 1) the high degree of efficiency of the condensers and their own small losses.
- 2) The absence of movable parts in the condensers and their »silent running».
- 3) The condensers require no care or supervision.
- 4) The condensers require no cast foundations for their fitting up. They may be set up anywhere.
- 5) The fitting up of condensers is the easiest task imaginable. It is only necessary to connect the three phases to the three notches from the condenser through a switch, and, if the condenser is very big, also an oil-switch.

Mr. Andersson's lecture will be published in extenso in the fourth quarterly issue of *The L. M. Ericsson Review* for this year.

— **Mr. O. Jöhnk**, Engineer, on *Some New Types of Swedish Electric Meters*. The lecturer opened his remarks with a brief historical review of the origin of this branch of manufacturing in the L. M. Ericsson Telephone Company.

After thorough preparation and preliminaries the L. M. Ericsson Company, before the outbreak of the Great War in 1914, started the manufacture of electrical meters for continuous and single-phase and three-phase alternating current. The manufacture of details was distributed among the respective departments in the works, and for the assembling, adjusting and testing of meters, new workshops and test-rooms were equipped with ingenious, labour-saving tools and first-class instruments and control-devices.

Attempts at rationalization, accelerated in most industries by the results of the war, called for simplifications and improvements in the manufacturing methods and designs even of the electric meters. At the same time were introduced new types of construction adapted to the reform in tariff for electrical energy drawn up for certain purposes.

During the fifteen years that have passed since L. M. Ericsson started turning out the *ampère-hour meter*, it has gradually been more and more improved, especially in respect to accuracy of constancy measurement over weight capacity, and I am not exaggerating when I say that L. M. Ericsson's ampère-hour meter for continuous current is now looked upon as being the best and foremost of this type. The Stockholm Electrical Plant alone has to date bought 40,000 of these meters.

In the new L. M. Ericsson *single-phase meter*, which has been standardized for currents of from 1.5 to 15



R 1450

O. Jöhnk, Engineer.

ampères, the self consumption in both the tension and current coils has been reduced to 0.5 or 0.6 watt with a torque of 5 gramme/centimeters on the armature-disc, which weighs only 23 grammes. The meter, which starts with absolute certainty already with c.a. 0.3 % of a full load, which, e. g., for a 5-ampère meter is equivalent to a starting current of about 15 milliamperes, makes with a full load only 38 to 46 r.p.m. The exactitude in measurement is so great that the meter under normal conditions of current and tension registers practically the entire scope of measurement, i.e., from about 5 % load up to about 125 % load; and with higher loads up to double the current-strength marked on the meter, there is only a slight deterioration. Not even great and simultaneous variations in tension and number of periods are able to reduce appreciably this favourable exactitude in measurement. The regulation of the friction compensation is made in the simplest manner with a conveniently accessible micrometer screw, and the essential parts are easily exchangeable, e.g., the tension and current coils, the driving system, the rotor with accompanying bearings and counting mechanism.

Special meters for sundry purposes are being manufactured or in course of preparation at L. M. Ericsson's according to principles and constructions elaborated in Sweden; these also have prospects of being put to use in other countries: *household tariff meters*, *duration meters* and *subtraction meters* for several subtraction limits.

The experiences hitherto gained with L. M. Ericsson's *household tariff meter* go to prove that the same in a simple and comparatively cheap way permits of coupling up loads of long duration, which on a very small scale make use of the electric company's distribution system and only slightly increase its maximum load. Nor need the private subscriber's maximum load be increased by connecting up an accumulating range or hot water boiler, if this type of meter is used. It also enables rural distributing enterprises to allow their shareholders or subscribers to utilize their subscription for cheap bottom-power, where the tariffs permit such, without making a temporary peak-load impossible.

The Duration Meter. In solving several problems in power technics, especially in *electro-power technics*, it is of importance to deal mathematically or graphically with a curve which varies irregularly as a function of the time.

The lecturer then passed on to a detailed description of this kind of meter and a discussion of the instances in which it will be employed. In plants in operation it is thus possible with the aid of this instrument to determine the »relative production curve» and the »relative exploitation period» for machinery less than the maximum load, the most advantageous operation in works with various power sources, or the most advantageous distribution of the power requirements over different tariffs, the losses in a buffer battery, losses of energy in a line, transformer, motor or generator, mean efficiency in a water turbine connected with a generator, fuel consumption of a steam engine or other heat-motor operating a generator.

By means of a duration meter one can ascertain the joint storage between several loads, the connection between active and reactive consumption and, on the whole, analyse the load of different categories of load-objects in respect to power consumer.

One can thus with the aid of the duration meter obtain fixed starting points in solving a large number of technically economic problems, which occur in the production of power and in the sale of it.

The *subtraction meter* for several subtraction limits is designed for the purpose of enabling the electrical plant to make an easier transition for energy charges from lower effect amounts to the necessary higher charges in successively augmented effect amounts. The new meter is provided with a varying number of counting mechanisms for different subtraction limits, and

is furthermore equipped with a separate and special counting mechanism, the so-called duration counting mechanism, which indicates how many times one of the subtraction limits, as a rule the highest, has been reached during a certain period of registration.

From the particulars supplied by the lecturer about new types of L. M. Ericsson electrical meters, it is seen that this Swedish specialized industry, particularly of late years, has improved a great deal and that the result is a precision article, that is yet another fine exponent of the designation »Swedish made», which is enjoying such an international reputation in so many branches of industry.

Mr. Jöhnk's lecture will be published in one of the first issues of The L. M. Ericsson Review for 1930.

— **Mr. E. Olsson** on *Rubber-lead Cable Installations*. During the Great War, Sweden, like so many other countries, was obliged to be content chiefly with inferior installation material. The result has been not only technically and economically inferior installations but also the need for our contractors to struggle with serious economic difficulties.

The fever of electrification, which followed the war, accentuated the first of these drawbacks in a high degree, attracting the attention not only of technicians but also of fire insurance men and civil authorities.

The causes were investigated and various methods for remedying the defects and drawbacks were discussed. It was soon discovered that the only way to arrive at a good result was to break radically with all previous practice and to apply to installation technic the same methods as in all other technical activity — viz., by a careful and meticulous study to determine the character of all concomitant factors, and then to design and turn out installation equipment which in every particular fulfilled the requirements.

The equipment developed at the Sieverts Kabelverk for rubber-lead cable installations is the result of the effort in Sweden for the rationalization of installation technics. This system of installation is remarkably well adapted to all kinds of industrial premises, and is in many instances the *only one* which results in an installation with sufficient safety in operation.

An installation with rubber-lead wires or cables can easily be fitted up, is durable and possesses always great insulating capacity. Properly carried out, it is perfectly safe both electrically and from a fire-technical point of view.

The initial cost for industrial objects pure and simple is hardly 20 % greater than for the older system of installation but already now it has been fully demonstrated that the annual expenditure, i.e., the total for amortisation and upkeep, is *lower* for this system than for any other.

If an industry adopts rubber-lead wire installations, there is furthermore gained the advantage of a uniform system of installation for all kinds of premises, no matter whether they be damp or inflammable or ordinary dry premises.

The rubber-lead wiring material was demonstrated in detail, and instructions for the selection of material and method of filling were given.

— **Mr. E. Olsson's** lecture on »*Lead Cable Fittings*» was a dissertation of a purely instructive character on the subject, which was listened to with the keenest interest, particularly by the numerous contractors and fitters present at the lecture. Such instruction cannot satisfactorily be made the subject of a brief report.

— **Mr. B. Ell's** lecture on the *Action of the Variations in Temperature on Installation Material* and **Mr. N. Törnquist's** lecture on »*Modern Broadcasting*» will be reported in the next issue of The Ericsson News.

Persons interested in further details about this matter are referred to the Sievert Cable Company's pamphlet, »*Sieverts starkströmskondensatorer*» (The Sievert Static Condensers) (N 62), which can be obtained on request.