

Miscellaneous.

PROGRESS IN TELEPHONY.

A new advance has been made by this remarkable instrument. Mr. Van Rysselberghe has just devised a new system of telephone differing very sensibly from all those known. The arrangement and details of the apparatus have not as yet been made known to us, but the following result of some experiments that have just been made with it are communicated to *La Lumiere Electrique* by Mr. F. Gerdaldy:

The system had first been put in operation on the line from Brussels to Ostend, but its inventor, desiring to experiment with it to a greater distance, has just tried it between Paris and Brussels.

Through the kindness of Mr. Van Rysselberghe I was permitted to be present at the experiments on the 17th of May. I ascertained that conversation between Paris and Brussels was easy, that articulation was clear, and that it was not necessary to speak loud, but only in a clear and distinct voice—that, however, being required by the telephone.

Such a result, were it the only one obtained, would doubtless not be absolutely new, for our readers will recall the experiments at great distances with the Herz system, that we have had occasion to describe. Various attempts of this nature have been made with more or less success, but we may say that that of Mr. Van Rysselberghe has succeeded better than any that has been tried. But that is only one feature of the system.

The inventor has bestowed his attention on a means of overcoming that terrible enemy of the telephone, induction. On this subject, I recall anew the studies made by Mr. Herz, on a means of applying the condenser in telephone lines as a preserver as well as receiver. The process employed by Mr. Van Rysselberghe has some points of contact with those experiments, while very sensibly differing from them. Mr. Van Rysselberghe, by an ingenious detour, instead of guarding against induction on the telephone line where it produces its injurious action, endeavors to prevent its occurrence by suppressing it in the lines on which it is produced. To this point we shall hereafter return more in detail. He has experimented, however, only imperfectly at Paris, where there was no time during these first experiments, designed only as a study, to provide all the prejudicial lines with preservative apparatus. The partial experiments have, however, sufficed to prove the efficacy of the process on telegraph lines.

From the combination of these two measures (I mean the improved telephone, and induction overcome), Mr. Van Rysselberghe has derived an unexpected and striking result; for he has succeeded in putting upon the same line and in causing to operate at the same time, a Morse telegraphic apparatus and a telephone. I have seen these apparatus work at the same time, and it is beyond dispute that they do not perceptibly interfere with one another, the double transmission being effected without any difficulty. At the first trial, which took place on the 16th, there were transmitted simultaneously to Brussels two dispatches. The telephone dictated one (which it is unnecessary to reproduce here), while the telegraph was registering another (and entirely different one). These two dispatches were at once sent to their address. It should be remarked that they passed at ten minutes past eight in the morning, that is to say, after the work of the office had been resumed, and when inductive actions were already very energetic. We shall study more at leisure the processes employed by Van Rysselberghe, but it has seemed to us well to call attention to these beautiful experiments at once after their occurrence.

ELECTRICITY IMPORTED FROM FRANCE.

The curious feature of the importation of one of the impendable forces across the Atlantic is one of the scientific events of the day. The steamer *Labrador* imported a number of Faure secondary batteries which not only did duty on shipboard for illumination, but are ready for further service. It appears from a statement of the engineer who had charge during the voyage that a Faure battery will last about 400 hours, delivering one weber per hour of current, with an electro-motive force of two volts. If this is correct it requires two secondary batteries to run an Edison lamp, but these two batteries will run such a lamp steadily 400 hours without replenishing the charge. The battery is a very simple affair, composed of sections of sheet lead, coated with the red oxide, and contained in a water-

tight box. A battery large enough to run an Edison lamp of sixteen candles would occupy a space of about eighty cubic feet, and a battery large enough to light a Fifth avenue residence about 500 cubic feet. Such a battery would be contained in a box eight feet square, which is by no means of cumbersome proportions; and the objection which has been preferred against the system on this account is consequently without any proper foundation; while, on the other hand, the cost of the battery is not high and the cost of recharging is merely nominal. It must be conceded then that, with the Faure battery as a basis of operations, it is possible to prepare charges of electricity for the market to be sold to the general customer in the same manner as oil is sold to the customer, not alone for lighting purposes, but for all the purposes, scientific and practical, for which the current is available. The immediate value of the demonstration of the availability of the Faure battery concerns the introduction of the electric light for domestic purposes. Under it the consumer can buy and use any lamp he pleases—an Edison, a Swan, a Maxim, a Werdermann, a Brush, or a Sawyer—just as he buys and uses a kerosene or other oil lamp. It is claimed that the supply of electricity can be bought in Faure boxes at a moderate rate. What may be discerned in the Faure arrangement just now may be a destruction of the monopoly that has been created by the consolidation of electric light companies; and it is to be hoped that the work of manufacturing for consumption will soon be undertaken by those who are interested in M. Faure's discovery. It has been successfully initiated in Paris, and there is no reason why it should fail here.

BRICKLAYING AND BRICKWORK.

The supreme importance of the drainage of dwelling-houses led us to linger over this portion of our subject rather longer than we intended, but the gravity attending inefficient precautions in this particular is not merely an excuse but a justification for treating it at some length. The foundations may be of rock, the mansion may be built of marble, the workmanship may be unsurpassed, and the decorations may satisfy the taste of Alma Tadema himself, but if the drainage be at all defective, though it be a palace in appearance, it is little better than a hovel, in so far as a dwelling-place is concerned.

The foundations of a building are sure to be well looked after if the building itself is of any extent, or is required to carry heavy weights, and also if it be of sufficient importance to require the direct supervision of an architect. Indeed, architects as a rule pay a good deal of attention to the foundations, for they know that the security of the whole superstructure depends upon its solidity at the base. In this respect they seldom fail, and it is not often that any serious mishap occurs through deficiency or oversight in this particular. Where no architect or surveyor has charge of the building there is great danger of "scamping" in the foundations, and singularly enough nearly the whole of our suburban dwellings are erected entirely without supervision or control in this important respect. The freeholder stipulates for certain conditions—as to frontage, elevation, "class," materials, &c., and as to foundations, drainage, and the like, in general terms—but it is not often that any portion of the work is executed under the direct superintendence of the architect or surveyor. The result is that a large proportion of the houses of moderate rentals are built on what is little better than surface soil, or on "made ground" consisting of rubbish and offal.

If the houses have "basements" or only "half-basements," this necessitates a certain amount of excavation, and such excavation generally reaches to the more solid subsoil, if no deeper. This is perhaps one of the greatest advantages of a basement or half-basement story, but care must be taken to make provision to carry off the surface water, if any, so that no damp shall accumulate under the floors. But if there is to be no basement the trenches for the foundations must go down to a solid subsoil as a base. The builder who builds on "made ground," such as we often see in various parts of the metropolis, ought to be heavily fined, for not only is the building unsafe in the ordinary sense and meaning of that term, but it is unsafe by reason of the putrid matter of which a good deal of such made ground is composed, in so far as regards the health of those who are destined to dwell in houses so built. We have no hesitation in saying that the fearfully unhealthy condition of some houses is due entirely to this cause, and all efforts to effect a cure are unavailing, for the simple reason that the whole ground is putrid or tainted.