Electricity the Beneficent

By Benjamin G. Lamme

Chief Engineer Westinghouse Electric & Mfg. Company, and Member Civilian Naval Advisory Board

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THE benefits of electricity to mankind are so various and so far-reaching that it is difficult for any one person to fully appreciate them. These benefits are both direct and indirect, the latter sometimes the greatest. Many of the present generation are so accustomed to electrical appliances and methods that they do not fully perceive the importance of many of their daily uses.

Let us assume that by some means, all electrical apparatus, methods and usage are suddenly withdrawn from the world. By considering the consequences of this we may possibly get a fair idea of the scope of the electrical field.

Let us consider first the general subject of transportation. Possibly no other activity calls up so great and so apparent high development of mankind as our modern methods of transportation. Taking steam operations, wherein does electricity play so important a part? By a more specific question, suppose the electric telegraph were suddenly eliminated, how would general railway transportation be affected? Would they be completely disregarded, or would our ports be paralyzed, and would be very greatly handicapped permanently. Rarely is it appreciated by what extent our great railway systems are conditioned upon means for almost instantaneous communication between distant points. Without such means a busy railroad could only operate upon an infrequent basis. If the telegraph is broken, disaster and confusion would follow. Incidentally, someone will suggest that if the electric telegraph were eliminated, the railroad would turn to the telephone. But this again is an electrical apparatus.

A second great item in railroad transport is that of gasoline engine equipment, which furnishes the service. No other means can fairly compare with the electric car systems in bringing the people of city and country together. Steam service, with its infrequent trains, did little in this direction. The figures of the passenger traffic between country and city districts following electric car operation, tell a most interesting story.

Electric haulage in coal mines is now standard practice. Decrease in fire risks and increased capacity are two prime reasons which have led to electric operation.

Eliminate the electric current and coal mining would suffer more or less, but with decreased production and increased cost, which must be borne by the public. We can always go back to the old methods of doing things, but we will have to pay the price.

In water transportation, electricity, perhaps, has not played such a conspicuous part. Yet the electric installations on ocean vessels were eliminated, there would have to be a reorganization. Electric propulsion of large and high-powered vessels promises to be one of the most important changes in naval engineering in the near future. Wireless telegraphy has become a necessity in modern sea service.

T he next important aspect of our business and industrial life, let us imagine a few of the things which would happen if electricity were entirely eliminated. Without the telegraph, business would be very badly handicapped, although it might limp along after a fashion. But the telephone—here would be the rub, if we had to give it up. Wireless telegraphy has become a necessity and dependent upon the telephone. Disorganization would be certain to follow in many lines if it were eliminated. Even home life would be greatly affected.

Let us next consider the elevator. What has been its influences on life and business in the cities? How about the large many-storied department stores? Can anybody connect 24 or 30-story skyscraper without elevators? And one must remember that most of these elevators are electrically operated. True, there are other methods of operating them, but nevertheless, the elimination of the electric elevator would make a large gap in our methods of vertical travel.

This leads us to a very common piece of apparatus, namely, the electric motor. This has come into use so gradually, and with increasing improvements, that most of us have never given a thought to the possibilities of using the electric motor in fields that have been heretofore open to the steam engine. In all the fields of activity where the motor may be used it will be found, but in most cases it would require a complete reorganization of many of our present industrial methods, and efficiency would take a long time to reach its present high state of development.

In the smaller shops and power applications, the electric motor fills a fully as important role. Small steam plants are usually too small and expensive for many purposes.

Coming now to one of the oldest and best-known fields of electrical activity, namely, electric lighting, we find a class of service the abolishment of which would be felt by all classes equally. But without the street lighting were abandoned, we could doubtless manage with some other form of illumination, but the results probably could never approach the standard. In the case of interior lighting, the result of a replacement of the incandescent lamp by other forms of illumination would result in the elimination of metal, electro-plating, etc., have been said, and without the electric spark for ignition, if electricity is to be eliminated? It may also be kept in mind that many establishments using power have been so designed that the replacement of the electric motor by any form of steam or gas engine is not practicable for many reasons outside of our present discussion.

The writer is convinced that only in the field of illumination can a comparison be made. The absence of the electric light will bring a great increase in cost. But an old maxim says that a long walk will be far better than being illiterate, and the latter can be true of the electric light users will pay a greatly increased price rather than be obliged to give it up in favor of any other method of illumination.

Another class of electric service of a comparatively recent period is represented by household utilities, such as electric iron, toaster, refrigerator, and other electric heating appliances. Motors for general household purposes, for running sewing machines, washing machines, etc., are becoming cheaper and are luxuries which are fast becoming necessities. If these were eliminated a big gap would be created, even though they are comparatively new field of application.

The above is only a very incomplete presentation of the direct possibilities of the electric motor, and one would not feel that it has always been with us. Yet, in less than one generation, it has revolutionized all kinds of manufacturing establishments, and industries. Take the electric crane for instance, what would the great industrial works of the present time do without this particular application of the electric motor? Take the use of electric motors in general throughout such establishments. How would the necessary power be distributed over the vast areas of modern manufacturing plants if electricity were eliminated? True, if all classes of electrically-bound people could be satiated, would it be found, but in most cases it would require a complete reorganization of many of our present industrial methods, and efficiency would take a long time to reach its present high state of development.

Possibly, some persons may feel that the above argument is somewhat exaggerated. Possibly, there is a feeling that the mere elimination of the electric motor would be a little too much. But the writer is convinced that only in the case of illumination can a comparison be made.

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Very soon, it is freely predicted, ocean liners will also be driven by electric power. The Government orders for new vessels of the type just outlined will be placed with contractors able to build them, and similar orders will be placed with contractors able to supply the electrical equipment from the General Electric Co. to drive the new battleship California, the largest in the world.

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great aluminum industry with all its branches, for instance, is directly dependent on the electric current for the production of the aluminum itself. Acetylene gas which is now used for so many purposes is obtained from calcium carbide, which is produced by means of the electric current. Carbonatium, the well-known and widely used abrasive, is a product of one form of the electric furnace. The electric current is used in refining copper on a vast scale, for the purpose of purifying it and for the separation of the precious metals. Numerous other chemical industries are founded upon the use of electric current. Fission of atmospheric nitrogen for producing nitrates for fertilizing and other purposes is now accomplished on a large scale by means of the electric current, and promises to become in time one of the largest industries in the world. In fact, power plants of approximately half a million kilowatts, or more than three-quarters of a million horsepower, concentrated in single station are now being considered for such production of nitrates. The time is coming when the whole world will be affected by this industry through food production.

Such a cataclysm as the complete cessation of all electrical activities would therefore result serious consequences as greatly increased concentration of population around industrial centers, the city and the country would be pushed farther apart, many industries would be disorganized and some would be stopped completely, many great establishments would have to be reconstructed, types of buildings would be changed, methods of business would be modified, the producing capacity of individuals and of industries would be greatly reduced, methods of living would be modified, methods of transportation would be changed and for the worse; in fact, all conditions of life and fields of endeavor would be influenced, either directly or indirectly.

Myriad of times it has been said that "electricity is in its infancy," and yet people have come to believe that it is a perpetual infant like Buster Brown for instance, but it has now grown to robust stature and indubitably has assumed a useful share of the world's burdens. Its efforts have been productive and not destructive. In this sense it has been one of the most beneficent agents of progress. In Arabian Nights' parable it is one of the good genii.