Correspondence.

Brooklyn Bridge Moving Platform.

To the Editor of the SCIENTIFIC AMERICAN:

My attention has been called to the article published in the SCIENTIFIC AMERICAN last Saturday in reference to the proposition to place a moving platform on the Brooklyn Bridge.

This plan was indorsed by the Prospect Heights Citizens' Association of Brooklyn last winter, after the most careful consideration, as the best means of solving the bridge problem.

Your reference to the prevention of through traffic leads me to call your attention to the fact that the moving platform is the only system of transportation that it is possible to carry across and down town.

We believe the moving platform should be installed at once on the bridge; and extended at the earliest possible moment by a subway loop across town and down town, and thereby enable a great majority of passengers over the Brooklyn Bridge to board the platform without the necessity of walking to the bridge terminal.

The streets and sidewalks of lower Manhattan are overcrowded now; and our public officials should adopt a policy that would result in the distribution of traffic, rather than a policy that would increase the congestion and concentration, as would be the case if any terminal plan or bridge loop plan were adopted.

JUDSON G. WALL,
President Prospect Heights Citizens' Association.
Brooklyn, New York, September 24, 1907.

Telephone vs. Telegraph Train Orders.

To the Editor of the SCIENTIFIC AMERICAN:

Referring to the inclosed letter, headed "The Evils of Train Telephone Orders," signed by F. H. Sidney, Signal Department B. & M. Terminal Division, and appearing in your issue of September 14, we desire to take issue with Mr. Sidney on the statements in his letter. We think we can give very much better reasons for our statement that the telephone is not only as good but better and safer for train dispatching than the telegraph than Mr. Sidney has for his statement that the telegraph is the only safe method.

Mr. Sidney, on the basis of one accident, jumps at a conclusion which is unwarranted. The inclosed statement of the cause of the disastrous wreck on Mr. Sidney's own road, which occurred at Canaan, N. H., on September 15, is but too sad a proof that orders over the telegraph may be misinterpreted with the most disastrous results. This in itself answers Mr. Sidney's letter fully, and fully proves the weakness of his position and of his reasoning as stated in his letter of September 3.

Furthermore, we have this advantage over him as between the wreck at Mattoon, Ill., and that on his own road. The electric road at Mattoon, Ill., was not regularly dispatching its trains by telephone or any other means, was without a regular train dispatcher, was without any standard of rules or discipline for handling trains by the dispatching method. This road was without system; and the fact that an accident occurred because of a misunderstood telephone message in no way condemns the use of the telephone, but condemns any unsystematic and haphazard method of operation. such as seemed to be employed. The accident on the Boston & Maine occurred on an old steam road that has been using the dispatching system for years, and has standard rules and regulations for this system. Furthermore, the accident happened between two well-trained and competent telegraphers, who had been in the service of the road for years.

We are not content, however, with answering him in kind. We go further, and dare to make the statement that the telephone, when properly used in connection with a reliable dispatcher's signal, may be made a safer and altogether better means of dispatching trains than the telegraph.

In the first place in using the telephone the conductor should go to the telephone, receive the order from the dispatcher, write down what he hears on an automatic triplicator, and repeat back to the dispatcher what he has written: the dispatcher then giving him an O. K., conductor signs his name and goes on car or train, then the engineer or motorman goes immediately to the telephone, and reads what the conductor has written back to the dispatcher. Again, upon receiving a "complete" from the dispatcher he signs the order, takes the original for himself, hands the duplicate to the conductor, and leaves the triplicate copy locked up in the machine for the management. It is obvious that this method prevents possibility of mistakes due to the unaccountable mental lapses of humanity, mistakes such as a transposition of figures and so forth, because one man is reading what another man has written, and you thus have a check on all orders.

When so used we repeat again that the telephone, in connection with a reliable dispatcher's signal, such as there is now on the market, is a better and safer means of handling traffic than the telegraph.

When the dispatcher is speaking direct to the train crew, as he is with the telephone, he is communicating direct with the men whose lives may depend on the proper understanding and execution of the order, whereas with the telegraph the dispatcher is giving the order to a third person.

Again, a mistake is much less apt to be made if you give an order to a person direct, as you do with the telephone, instead of giving it through a third person to be repeated by him to someone else who is to execute the order, as is done with the telegraph. It is well known that the greater the number of hands through which an order has to be passed, the more liable the order is to be misinterpreted or misunderstood.

Finally, the telegraph is a more or less slow and cumbersome means of transmitting a message, and orders must be reduced to the least possible words. Very often, however, the addition of a single word may enable the person receiving the order to better understand it. This additional word can be given over the telephone without causing any delay.

It is frequently claimed that the telephone, because it transmits sounds, is liable to errors and misunderstandings; that a word or a number spoken over the telephone may be misinterpreted or misunderstood. This is perfectly true, but does not exactly the same argument apply to the telegraph as well? The telegraph transmits its message by means of a series of sounds, which are just as capable of being misunderstood or misinterpreted as sounds over the telephone. Indeed, the sounds over the telegraph are so short and follow each other so closely, that they require an extremely well-trained and expert operator, with his mental faculties exceptionally clear and active to understand them at all. Therefore, we repeat again that in connection with a reliable semaphore signal, under control of the dispatcher, the telephone is a better, safer, and quicker means of communication than the telegraph.

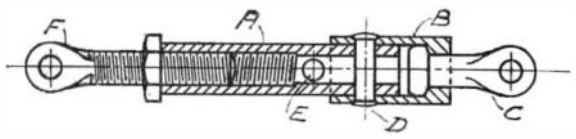
Trains must be handled by train orders and dispatchers, no matter how many safeguards, such as automatic blocks and other devices, are installed; but the telegraph is by no means the only or even the best means of communication for this purpose.

BLAKE SIGNAL AND MANUFACTURING COMPANY,
E. J. BURKE, President.
Boston, Mass., September 24, 1907.

A STRONG HOME-MADE TURNBUCKLE.

BY L. W. M'CAUGHREY.

Requiring some small turnbuckles which would stand a sudden strain, I hunted through the hardware stores of New York without success. I could obtain



A STRONG HOME-MADE TURNBUCKLE.

none small enough, having the left and right hand bolts cast in one piece to the rings at their ends. I tried the buckle with bolts made of wire threaded at one end and bent into a ring at the other, but the moment a load was applied the ring opened. Next I tried those with a swivel at one end, but in every case the riveted neck of the swivel pulled out.

I then determined to make my own, but found that small left-hand taps and dies were only to be obtained, and not promptly, from the factory.

All told, I required a dozen turnbuckles. So I bought two feet of ⅜-inch Shelby steel tubing, No. 13 gage, and one foot ½-inch No. 11 gage. Also one dozen ¼-inch bolts and nuts, and one dozen ¼-inch nails with heads ⅛ inch thick. The material cost seventy-five cents.

I cut the material into required lengths and counterbored *B* with a ⅜-inch drill to slip over the end of *A*. The head of the nail *C* was filed to fit the counterbore, and after inserting it in *B*, its end was flattened and a hole drilled as shown. *B* was then riveted to *A* at *D*, using a 5/32-inch wire nail. The other end of *A* was tapped for the right-hand bolt *F*, the end of which was flattened and drilled like the nail *C*. A 5/32-inch hole *E* was drilled for a pin or nail for tightening the buckle.

The whole twelve were made, entirely by hand, in nine hours, or forty-five minutes each.

The aeronautical contest at St. Louis on October 21 will be, given fine weather, an assured success. As now arranged only nine balloons will take part in the international race—three from America, three from Germany, two from France and one from England. Other countries were barred because they failed to comply with technical requirements of the International Aeronautic Federation. Two of the German competitors arrived on October 1, and expressed an opinion that St. Louis was an ideal spot for the commencement of a long distance race. In Europe there is always the chance of drifting to sea—about the only danger which aeronauts really fear, and the sea is far from St. Louis. With a southerly wind the great lakes may be reached or crossed, but there is little fear of disaster there, for the lakes are crowded with shipping and everyone will be on the lookout for the balloons. A number of members of the Aero Club of America will leave New York for St. Louis, on the Pennsylvania Railroad, on October 17. The St. Louis headquarters of the club will be the Jefferson Hotel.

Official Meteorological Summary, New York, N. Y., September, 1907.

Atmospheric pressure: Highest, 30.41; lowest, 29.55; mean, 30.01. Temperature: Highest, 85; date, 21st; lowest, 46; date, 26th; mean of warmest day, 76; date, 17th and 21st; coolest day, 52; date, 26th; mean of maximum for the month, 74.3; mean of minimum, 61.3; absolute mean, 67.8; normal, 66.4; excess compared with the mean of 37 years, +1.4. Warmest mean temperature of September, 72, in 1881. Coldest mean, 61, in 1871. Absolute maximum and minimum for this month for 37 years, 100 and 40. Average daily deficiency since January 1, —1.1 Precipitation: 8.00; greatest in 24 hours, 2.68; date, 28th and 29th; average of this month for 37 years, 3.69. Excess, 4.31. Accumulated deficiency since January 1, —1.48. Greatest September precipitation, 14.51, in 1882; least, 0.15, in 1884. Wind: Prevailing direction, south; total movement, 7,632 miles; average hourly velocity, 10.6 miles; maximum velocity, 43 miles per hour. Weather: Clear days, 7; partly cloudy, 6; cloudy, 17; on which 0.01 inch or more of precipitation occurred, 13. Thunderstorms: 3d, 4th, 11th, 21st, 22d, 23d, 24th.

Naval Wireless Telephony.

The Navy Department is supplementing wireless telegraphy on warships with wireless telephony; it is hoped that all the battleships which are to start in December for the Pacific will be equipped. Telephones have been installed on the "Connecticut" and "Virginia," and communications have passed between them at a distance of twenty-two miles. Ships which were equipped with wireless telegraphy but not wireless telephony could distinctly hear through an ordinary telephone receiver what was said in the transmitter aboard another ship. Mr. De Forest, who is overseeing the installation, when on the "Connecticut" talked into the transmitter of the wireless telephone, and the operators on the "Kentucky" and "Illinois," although those ships were not equipped with wireless telephones, attached telephone receivers to the wireless telegraph instrument and heard distinctly conversational tones of Mr. De Forest. The "Kentucky" and "Illinois" were eleven miles from the "Connecticut."

The Current Supplement.

In the current SUPPLEMENT, No. 1658, Dr. W. Michaelis presents his views on the merits and limitations of cement and concrete and on the cause of failure in concrete construction. He suggests means for the prevention of such failure. He discusses his subject as a consulting engineer who is familiar with both the details of the manufacture of cement and its chemical and physical properties, and with the use of cement as a building material. The second installment of Prof. A. E. Watson's treatise on Elementary Electrical Engineering is published. It deals with the dynamo. William O. Eddy and Melville Eastham's splendid paper on the design of induction coils is concluded. During recent years parts of north Africa bordering on the Mediterranean have proved a rich mine for archæologists. The ruined wealthy cities which are the only evidence of ancient Roman occupation are very fully described by the Paris correspondent of the SCIENTIFIC AMERICAN, with the aid of copious illustrations. Under the title of "Vital Rhythm," Dr. A. Drezwina dilates on the importance of habit in biological phenomena and vital periodicity in plants and animals. J. F. Lanneau contributes an eloquent article on the measureless remoteness of the stars. The reconstruction of a steel bridge for the Strabane and Leterkenny Railroad over the River Foyle, Ireland, is an interesting departure from the general procedure in connection with the building of piers. This departure is excellently described by the English correspondent of the SCIENTIFIC AMERICAN in an article entitled "The Application of Ferro-Concrete for Bridge Foundation Caissons." The Barbazat gas turbine and centrifugal air compressor is described by the Paris correspondent of the SCIENTIFIC AMERICAN. Entirely new principles are involved in the construction of both machines. J. H. Morrison's paper on the development of armored war vessels passes to a seventh installment, in which the Confederate armorclads and the Union attempts at armor plating vessels are considered.

The night illumination of Niagara Falls, which was first done on September 2, has proved a great spectacular success. Thirty-one searchlights were used, and 25,000 spectators witnessed the first illumination. In a later issue we shall give particulars of the installation, and illustrations of the effect produced.