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The Bell Kite and Wireless Telegraphy

Recent Progress In the New Method of Communication With the Tetrahedral Kite as the Aerial Support at the Receiving Station

refutation of the arbitrary age theory evolved by Dr. Osler. Although he is at the time of life

when most men fortunate enough to reach it are content to abandon business activity and retire to the calm seclusion of private life, the inventor of the telephone Professor Alexander is still energetic

Graham Bell. in the exploration of new and promising scientific fields. His most recent schievement is the promotion of wireless telegraphy by means of his tetrahedral kite.

From the earliest days of wireless communication scientists and other interested persons have understood that there were wonderful possibilities for wireless telegraphy carried on by means of balloons and kites used as sending and receiving stations. Professor Bell, however, is the first inventor to point the way to a practical application of the scheme. For several years this inventive genius, at his laboratory in Nova Scotla, has been trying to solve the problem of aerial navigation along new lines. For this purpose he has been experimenting with a tetrahedral kite of his own designing. He has not yet succeeded in penetrating the secret of air navigation, but his kite has given wireless telegraphy a tremendous boost.

The aged scientist made all of the initial experiments. For this purpose he fitted up a station at Columbia Pike. Va., not far from his Washington home, and went to work with all the enthusiasm of his earlier years. The kites, it is scarcely necessary to explain, serve the purpose of masts. Used in this way they possess immense advantages over the ordinary mast; they may be carried from place to place, and the height may be lessened or increased at a moment's potice. These features are calculated to give the new scheme an immense advantage in time of war or other unusual emergency.

unwinds from a reel as the kite as-

necessary for sending messages, since raphy-too much weight and too great each of which is triangular in form, no substance so that it would give an in- reliable. At the critical moment the a 54 horsepower equipment. Here the

LEXANDER GRA- | end of the receiving terminal, to which the Bell experiments for the purpose cube as rapidly as the lifting power St. Johns, Newfoundland. It is a fact | But kites were not a great success in nouncement has been made recently HAM BELL is a is attached 400 feet of antenna wire. of getting pointers. The bureau has does with the square. So that the that Marconi's original patent proposed early wireless telegraphy, due to the by this company that messages have The operator is stationed close be- been experimenting on its own account larger the kite the less it will lift in the employment of lites or balloons to uncertainty of their action. A sudden been transmitted successfully from side the resel of wire, which constitutes with the box kile, but without gratily- proportion. It was to remedy these support the aerials. The young in- squall or a change in the direction of Manhattan Beach, on Long Island, to and impertinent the base of operations. The station ing success. Box kites have been found unfavorable conditions that Professor ventor's idea at that time was to promaintained by Professor Bell does not to have two radical defects which Bell suggested the use of his tetrahe- vide the kite or capity balloon with include in its equipment the apparatus make them unsuitable for aerial teleg- dral kite. This is made up of cells, a coat of tinfoil or some other metallic periment. The balloon was equally un- Beach, only completed last spring, has



violent wind and perfect calm. They at the Nova Scotla laboratory, and in which increases the weight without increases at a greater ratio. are held by a plano wire line, which the autumn the work will be resumed adding to the flying power and at the in Virginia. The United States weather same time interposes a greater obcends. The kite also carries aloft the bureau expects to make active use of stacle against the wind.

that is already an accomplished fact | buik. The box kite is braced in a matter from which side it is viewed. | ductive capacity at the upper end of | gas supply was apt to fail and col-These kites seem to be available at and requires no further demonstration, horizontal and vertical direction, but Each unit is a perfect tetrahedron and the antenna. It was soon demon-all times. They ascend in all kinds of During the remainder of the summer not otherwise, so that cross supports is self braced in every direction. With weather and are equally serviceable in the experimentation will be continued have to be introduced in the frame, the increase of weight the lifting power any practical importance. Still, it was in disgust. Since then he has made evident that the kite had one great ad- | use of masts exclusively.

There is nothing especially novel in vantage: it would carry the aerial to a Professor Bell succeeded in interestthe use of kites as telegraphic aerials. much greater height that could be ing the American De Forest Wireless The first wireless signal to cross the reached by any mast. The antenna Telegraph company in his tetrahedral telegraph line, consisting of ordinary these kites in its forecasting work and Another serious defect of the box kite Atlantic, sent by Marconi in 1901, was will then intercept waves that are too device, and some highly gratifying regreen electric light cord, to the upper has a representative present at all of is that the weight increases with the received by a kite supported aerial at high to be affected by earth currents. Suits have been obtained. The an-

the wind sent them swooping toward Glengariff harbor, County of Cork, the ground, making a failure of the ex- Ireland. The station at Manhattan aerial is supported by masts 210 feet in height, but at Giengariff, the receiving station, the aerial was upheld by a Bell kite.

The accompanying illustrations are reproductions of photographs taken at one of the tests under the supervision of Professor Bell in Virginia. A pilot kite is usually sent up to determine atmospheric conditions in the upper strata of air before the main kite is flown. The antenna wire is attached to the kite wire and carried up to a beight ranging from 1,000 to 2,000 feet. Both aluminium and copper wire have been used, and there seems to be little choice between them.

At this altitude messages are easily picked up from vessels many miles out at sea and from stations all along the coast. It was found that the Bell kite affords the best aerial support yet. tried. The kites fly steadily and may be kept in the air continuously day and night, regardless of changes of wind. Very little trouble is experienced in managing them, only an attendant to pay out the line or reel it in being required. Of course a prolonged rainstorm will so increase the weight of the flier that it will eventually come down, but that is about the only thing that will put it out of service. The remedy consists in reeling in a sumcient quantity of the wire to enable the kite to maintain a certain level until the silk has had time to become dried.

One of the practical uses of the kite aerial will be to facilitate the proper attuning of the two terminals of a line, which has always been a difficult and rather uncertain matter until now. The purpose of the experiments in Ireland was to attune the station at Giengariff with that at Manhattan Beach. After that delicate operation is performed satisfactorily it is possible to transmit messages to aerials supported by stationary masts.

The aerials supported by kites, therefore, will be used chiefly in an emergency and at a temporary station. practical benefit-on the march, in the field and in the reporting of all racing events on water. So that Professor Bell's tetrahedral kite, although it has not yet made practical air navigation possible, has served an exceedingly



ings for ventilation and a tray with papyrus staps. From inscriptions on some these interesting objects it was found that they date from the eighteenth dynasty, at least \$,000 years ago.

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