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The Radio Obliterator

It Spells Death to Radio-Controlled Devices.

WE are all doubtless aware of the wonderful results that John Hays Hammond, Jr., has achieved with his radio-controlled torpedo; in fact, the world has been so amazed by the performance that the United States Government offered him \$500,000 for his device, it is said.

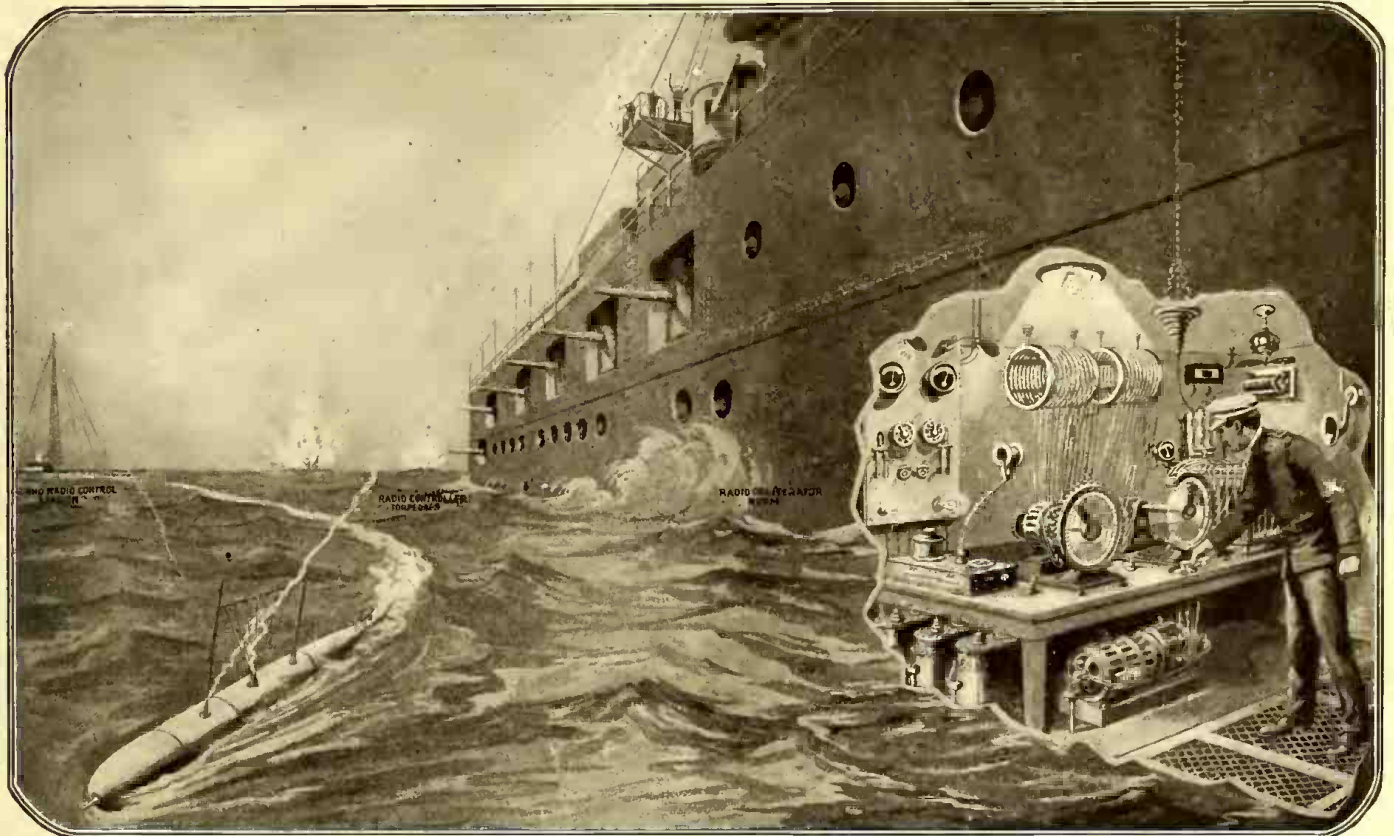
However, to an invention of this character there are always two sides. One con-

cerns the world over, that as soon as one nation has constructed a new and powerful weapon, then immediately some other nation will exercise every effort to construct a more powerful or combative defensive device. It might be assumed that this is an analogous case.

The Hammond radio-controlled torpedo has yet to meet exhaustive tests of external wireless interference. As an example: Let us suppose that a war-vessel discharges

trolling his missile, i.e., he employs a sensitive detecting device, tuned by suitable inductances automatically controlled by relays, which inductances control the wave length variations.

Assume, for instance, that the receiver is tuned to 600 meters to operate the explosive charge, 500 meters to start, 800 meters to steer to left, 1000 meters to steer to right and 200 meters to go backwards. These wave lengths are then sent out by the trans-



The Latest Marvel of Science, the "Radio Obliterator." It Radiates a Perfect Avalanche of Rapidly Changing Wave Lengths, which Spells Failure to All Radio-controlled Torpedoes and Similar Mechanisms, its Inventor Claims.

cerns the merits and advantages of the invention, while the other considers its disadvantages and shortcomings. Insofar as the radio-manuevered torpedo itself is concerned, this has proved in recent tests to possess, apparently, a marvelous and well-nigh uncanny sense of direction.

Attention is now directed, however, to the real efficiency of the invention when put to active service in time of war, when all the cunning and science of master technicians may be brought to bear on combatting such a demon.

It has been noted as a natural stage in the development of military and naval ma-

such a radio-controlled torpedo, and assume that the enemy ship has observed the dispatch of this deadly missile. Quite possibly it will know that the torpedo is of the radio maneuvered type and the officer on watch will immediately notify its radio operator, who, knowing his technique, causes his wireless transmitter to radiate a composite wave of many different lengths, thus destroying the effectiveness of the torpedo directed towards his vessel.

It has been learned from an authentic source that the above inventor is employing at present in his radio-controlled device a change in the wave length for con-

mitting station on land by merely pressing a certain key, when the impulse of the desired wave length is transmitted and the accurately adjusted receiver will respond to that certain wave length, thus causing the proper mechanism to function, which controls the vessel with perfect ease.

Now if we had a powerful radio transmitter device which would change automatically the emitted wave length from 100 to 10,000 meters, during say one minute, then the radio-controlled affair will be interfered with invariably, as its apparatus will act at every change of wave length, not permitting enough time to cause the con-

THOMAS A. EDISON IN HIS LABORATORY.

THOMAS A. EDISON, the well-known electrical inventor, is here pictured at work in his chemical laboratory. So vast has become the researches of this master investigator of electrical and physical subjects, that he has several laboratories in which he may drop at any time for a few hours or possibly a month's work. He is a persistent and indefatigable worker and pursues a particular problem unrelentingly until success seems assured.

Mr. Edison has been honored by many learned institutions and societies the world over and can exhibit when he so chooses, a very formidable array of medals and other symbols of honor.

Many anecdotes have been told about Mr. Edison and his distinct abhorrence to anything at all theatrical or artificial, for to those who know him best he is the soul of modesty.

An amusing incident of his social tendencies in this direction is cited by Frank Dyer and Thomas Commerford Martin, biographers of Mr. Edison.

On one occasion, receiving a medal in New York, Edison forgot it on the ferryboat and left it behind him. A few years ago when Edison had received the Albert medal of the Royal Society of Arts, a visitor at the laboratory asked to see it. Nobody knew where it was; hours past before it could be found; and when at last the accompanying letter was produced, it had an office date-stamp right over the signature of the royal president! A visitor to the

laboratory with one of these medallic awards asked Edison if he had any others. "Oh yes," said he, "I have a couple of quarts more up at the house!" All this sounds like lack of appreciation, but is anything else than that. While in Paris, in 1889, he wore the decoration of the Legion of Honor whenever occasion required, but at all other times turned the badge under his lapel, "because he hated to have fellow-

from the Government of Japan, steel trophies from Krupp, and a host of other mementos, to one of which he thus refers: "When certain experiments with the electric incandescent lamp were going on at Menlo Park, Sarah Bernhardt came to America. One evening, Robert L. Cutting, of New York, brought her out to see the light. She was a terrific 'rubberneck.' She jumped all over the machinery, and I had

one man especially to guard her dress. She wanted to know everything. She would speak in French, and Cutting would translate into English. She stayed there about an hour and a half. Bernhardt gave me two pictures, painted by herself, which she sent me from Paris."

"After years of watching the processes of nature," he says, "I can no more doubt the existence of an Intelligence that is running things than I do of the existence of myself. Take, for example, the substance water, that forms the crystals known as ice. Now, there are hundreds of combinations that form crystals, and everyone of them, save ice, sinks in water. Ice, I say, doesn't, and it is rather lucky for us mortals, for if it had done so we would all be dead. Why? Simply because if ice sank to the bottoms of the rivers, lakes and

oceans as fast as it froze, those places would be frozen up and there would be no water left. That is only one example out of thousands that to me prove beyond the possibility of a doubt that some vast Intelligence is governing this and other planets." Thomas Edison is a true genius and scientist.



A Recent Photograph of Thomas A. Edison at Work in His Chemical Laboratory.

Americans think he was showing off." And anyone who knows Edison will bear testimony to his utter absence of ostentation. It may be added, that, in addition to the two quarts of medals up at the house, there will be found many other signal tokens of esteem and good-will—a beautiful cigar-case from the late Czar of Russia, bronzes

trolling mechanism to properly operate and thereby altering the desired course of the boat or its performance.

It may seem impossible on first impression to build an apparatus for automatically changing the wave length of the transmitter at such a rapid rate as above mentioned, so as to emit different wave lengths and thus produce effective interference. Yet there are people who are working on the subject; notably, Colonel F. P. Cobbam, U.S.A., an engineer of national repute who has spent much time and money in developing his *Radio Obliterator*, an apparatus designed to interfere with any radio-controlled vessel or torpedo which is intended for use in modern warfare.

The U.S. Navy Department is making preparations for a complete test of this device in conjunction with the Hammond radio-controlled torpedo and if the latter will stand the test of Colonel Cobbam's *Radio Obliterator* the Hammond invention will undoubtedly be accepted as a successful and ingenious device.

Very little information can be obtained as to the technical details of Colonel F. P. Cobbam's *Radio Obliterator* just at present. The illustration herewith shows schematically a view of the necessary apparatus. It consists of large helical inductances with numerous leads connected to a rotary switch mounted upon a shaft and revolved by a motor. In front of this inductance a movable contact might be placed so as to press against the convolutions of the in-

ductance, and as the inductance is revolved this contact could be caused to move from left to right and from right to left. As the movable contact moved in or out the inductance effect of the coil would be changed, thus changing the wave length emitted by the transmitter.

On the same shaft or geared to it, as shown, a suitable automatic switching arrangement is connected which changes simultaneously the condenser capacity, which also helps to change the wave length. The exciting apparatus consists of large, high tension transformers, connected in the usual way to the alternating current supplied thru special protecting devices.

Colonel Cobbam's device has been so cleverly designed that the wave length radiated can be changed from 100 meters to 10,000 meters in the space of one second! The time taken to change the wave length can be increased by reducing the speed of the motor driving the inductance and capacity switches. Thus, by merely controlling the speed, the wave length corresponding to that of the torpedo can be ascertained sooner or later which will interfere with the radio-controlled weapon and render its effect nil.

Mr. John Hays Hammond, Jr., claims that no outside radio interference can affect the journey of his vessel or torpedo, and he further states that if a hostile vessel attempts to interfere with his boat that the latter will immediately turn in the direction of the enemy. That sounds bad for the

vessel fitted with the new device, if it fails to obliterate—but we shall see.

Mr. Hammond employs, among other things, a time relay for controlling his vessel, thus eliminating most all ordinary radio interference. But the wave length emitted by the Cobbam *Obliterator* can be changed in a fraction of a second to any wave length desired; and at the same time the wave length is automatically changed from a low time value to a very high time value and vice versa, thus a point is sure to be reached, it seems, where the *Radio Obliterator* will strike a wave length and duration of time corresponding exactly to that of the time relay. This causes the desired interference.

We must wait and see the result of the Hammond radio-controlled torpedo when tested with the Cobbam *Radio Obliterator*. A number of the leading radio and electrical engineers of the country have cautioned the U.S. radio experts not to close their tests on any form of radio-actuated device or torpedo until it has absolutely showed that it can withstand the perfect onslaught of wireless waves of every conceivable magnitude hurled at it by the Cobbam machine. The editors have seen these papers and are heartily in accord with the caution note which they sound. There seems a strong probability that we shall presently see a radiodynamic torpedo doubling back on its course and possibly blowing up either itself or its base control plant.