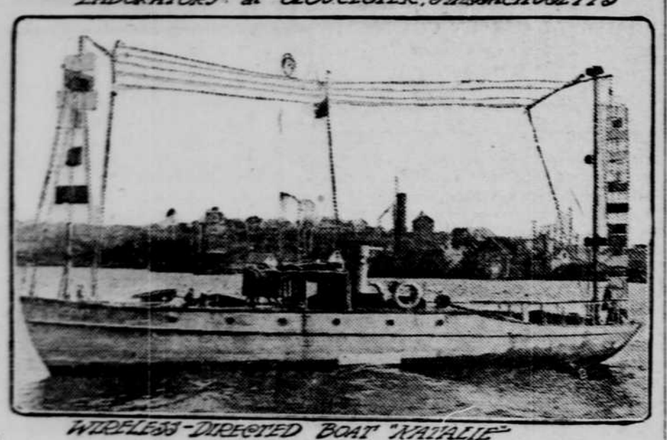
# John Hays Hammond, Jr.

## A NOTABLE INVENTOR

HAMMOND and His ELECTRICAL DOG

LABORATORY at GLOUCESTER, MASSACHUSETTS



WIRELESS-DIRECTED BOAT "NATALIE"

THE old rule that sons of able men don't amount to much is ill observed in the United States. A notable case in point is John Hays Hammond, Jr., son of the mining engineer and financier.

Just at present young Hammond is getting greater publicity than his father. It seems probable that the German army technicians have appropriated his thermit shell, which will gnaw its way through steel girders. His wireless-controlled torpedo for harbor defense is about to be adopted by the United States military services. He will probably sit some day on Secretary of the Navy Daniels' new board of inventors, with Edison and Ford and Steinmetz.

This is considerable progress for even a young American to make in five years out of college. Hammond follows right after his dad in that unofficial gazette of celebrities, "Who's Who in America." We learn there that the inventor was born in San Francisco April 13, 1888. He is therefore twenty-seven years old.

Hammond is a hard-bitten young American, to use a phrase of Sir Arthur Conan Doyle. Just at the "tango age," when with his father's great wealth he could cut a wide swath in gay and frivolous society, he has devoted his days and nights to abstruse calculations, endless blueprints and sputtering dynamos.

His keen, lean face and spare figure remind one much of Henry Ford. Both men are hard-headed, practical Yankees, without a bit of fuss or palaver about them.

Reading further in our "Who's Who," we find that in 1912, two years after his graduation from the Sheffield Scientific school of Yale university, Mr. Hammond was a delegate by appointment of the United States government to the Radio-Telegraphic convention at London.

He is, moreover, the treasurer and chairman of the committee on membership of the Institute of Radio-Engineers, a member of the advisory committee of the aerodynamic laboratory of the Smithsonian institution, and a member of the Royal Society of Arts of London.

All this Mr. Hammond has done with three years still to go to the thirty mark—not by being an infant prodigy, but by hard work, by driving every nerve and fiber of his wiry body at full speed.

Mr. Hammond has an office in lower Broadway, New York city, but has done most of his work in the more inspiring and less distracting atmosphere of a beautiful little slate-roofed laboratory situated in the side of a ring overlooking the water at Gloucester, Mass. Here he has conducted the important experiments which may mean much to America some day in repelling a powerful enemy.

Nikola Tesla was the pioneer in telautomatics, as the branch of electrical science to which Mr. Hammond has devoted himself is called. Telautomatics is the control of mechanical movements at a great distance by means of wireless waves.

Mr. Hammond is not the first person to control a water craft at a distance by wireless. But he is the first man to do this effectively. He has taken out more than one hundred patents to protect his inventions. Incidentally he has spent $50,000 in experiments.

Until Mr. Hammond improved on the previous devices, it was not possible to guide by wireless a torpedo making a greater speed than eight miles an hour, and even then it was impossible to prevent the interference of a hostile wireless apparatus.

The young inventor has solved both these difficulties. He can control a boat or torpedo making 33 knots, or 38 miles an hour. Wireless transmitters much more powerful than his own have tried in vain to check the direction of his boat.

The secretary of war, Mr. Hammond recently announced, has recommended that the Hammond system be purchased by this government and be kept as an American secret.

If congress will appropriate the money a number of wireless plants and torpedo units to be directed by radio will be constructed. One of the first of these will be installed at Fisher's island, Long Island sound, and here all the testwork in torpedo units will be carried out.

The war department is keeping very mum on the subject. It is not regarded as desirable that any official publicity be sought, especially as agents of the belligerent European powers are ever ready to grab up any new device which seems to promise use in warfare.

It was well known in Washington, however, that the army officers of the commission which visited Gloucester were enthusiastic when they returned here. They saw Mr. Hammond put his famous wireless boat, the Natalia, through its paces without a single failure to respond to radio control.

Sitting in his laboratory on shore, the inventor put the Natalia on her course and held her there until he wished to turn, when she took the precise angle he desired.

He demonstrated that he could control the Natalia for the ordinary range of vision, which is about eight miles on the ocean surface. Indeed, the distance of control is limited only by the power of the high radio station. He used a five-kilowatt station. A big battleship carries a station of from thirty to fifty kilowatts.

Gen. E. M. Weaver, chief of the coast artillery corps, said in regard to the Hammond invention:

"If such a means of attack were added to those we now have we would then be able to attack an enemy's ships by mortar fire falling vertically on the decks of the ships, by gunfire against the side, turret and barbette armor and by mines and radio-controlled torpedo below water."

To test the possibility of interfering with the wireless control of the Natalia the Dolphin, which has the best radio-transmitting apparatus in the United States navy, was sent to Gloucester, and by breaking in with her powerful waves attempted to neutralize or disarrange the messages from the shore. The experiments continued many hours. Throughout all this time the little Natalia darted about under perfect control, while the Dolphin operator tried in vain to fathom the secret and send out ether vibrations which would confuse her. Not until the Dolphin was only 230 feet distant from the Natalia could the shore control be affected. That would be too close for its battleship victim to stop a torpedo.

It is suggested that the final form the radio-directed torpedo may take will be that of a submarine running a few feet below the surface or a hydroplane traveling at immense speed on the surface of the water.

Mr. Hammond's second important device is the thermite shell, which he says was handed over to the Germans by a traitorous German employee of his and is now being used in the war in Europe.

As Hammond's projectile flies through the air the composites of thermite, oxide of iron and finely divided aluminum are brought together inside it and unite, with the production of a temperature of 5,400 degrees Fahrenheit, the greatest artificial heat known except the electric arc.

In another compartment of the shell, a second chemical reaction produces deadly hydrocyanic gas, or prussic acid.

When the projectile penetrates a battleship or a fort, a small bursting charge cracks the shell. The prussic acid gas prevents approach. The thermit produces a white hot mass of metal which, showered about the spot, will instantly set fire to anything inflammable, or eat through a battleship's decks and right down into the ocean.

A third invention of Mr. Hammond is his curious electrical dog, which will follow anybody who has a lantern about the Hammond lawn at Gloucester in the darkness.

The interior of the dog consists of a battery, relays and a motor. On either side is a selenium disk, which is so affected by the light that it pursues a visitor until he puts out his lantern.

### Dared Them to Shoot Him.

In 1864 Colonel Daniels of the Seventh Rhode Island became unpopular with some of his command, and a rumor spread that he would be shot at the next engagement. He heard of it. It was customary when guns had been loaded for some time to have them discharged into some convenient bank, and Colonel Daniels took advantage of this. Marching his regiment out with loaded rifles, he faced them toward a suitable elevation, and, taking position on the top of it and in front of them as at dress parade, he gave the commands "Ready!" "Aim!" "Fire!" and the pieces were discharged.

Needless to say, any man could have shot him with little danger of discovery and needless to say also, none of them did. There were no more threats of that kind in his regiment.—"Recollections of a Varied Career."

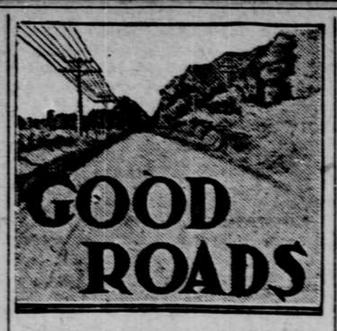
### Origin of War Terms.

With the exception of shrapnel, named after its inventor, an English colonel, there are very few war terms now in use which have a British origin. "Grenadier" is generally supposed to come from the French. The word is, however, of German birth, and originally was "grenatier," the force owing their name to the hand-grenades with which they were armed. The word "musket" has an Italian derivation—"moschetto," which was really a species of small sparrow-hawk. In ancient times and in the middle ages the name musket was used to designate a small mortar which threw arrows. When gunpowder was invented a small cannon was baptized "musket," and later the rifle of the ordinary infantryman earned the name, while the whole unit was called "musketeers."

### Convenience.

"Yes," said the artist; "I once lived in a little room on the top floor."

"How nice!" exclaimed the girl who reads about the gay life. "Only one flight up to the roof garden!"

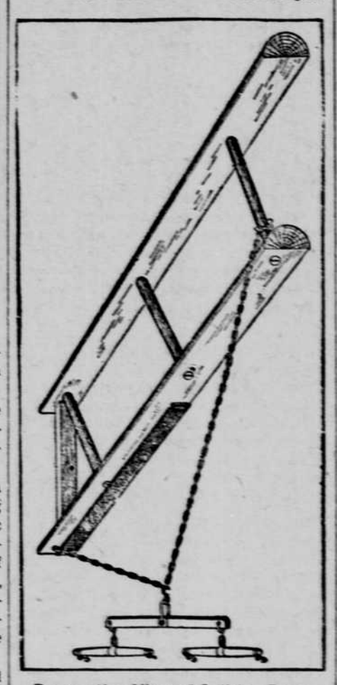


GOOD ROADS

## GOOD USE FOR A ROAD DRAG

**Implement Is Light, Easily Handled and Should Be Worked Soon as Possible After Each Rain.**

There exists a prevailing opinion in the minds of those who have used the King road drag that the persistent use of this simple drag will do the ordinary earth roads more good for the amount of time and labor required than any other method of working ever proposed. Some of the best earth roads have been made good by the use of this simple implement. In fact, some advocates of the drag claim that the trustees of many townships could well afford to sell the heavy road machines to a junk man and invest the proceeds in a number of split-log drags. Spasmodic use of the split log or similar drag or the like use of any road-working implement will not make bad roads good. The drag is light and easily handled and should be used as soon after each rain as the condition of the surface will permit. The job was quickly finished and the results are surprising where the dragging is carried on throughout the year. Possibly the most marked improvement from the use of the road drag will result from the early spring dragging.



Perspective View of Splitlog Drag.

## BUILDING MORE GOOD ROADS

**America Now Has 6,000 Miles More of Improved Highways Than France—Total Now 31,000 Miles.**

According to the Good Roads Year Book of the American Highways association, recently issued, America now has 6,000 miles more of good roads than France, the total for this country now amounting to 31,000 miles.

Of this 5,000 miles were built in 1913 and about 6,000 in 1914, making a total of over one-third of the entire mileage of the good roads of the country.

New Jersey was the pioneer state to provide state aid for public highways in 1891, and Massachusetts and Connecticut soon followed, but it is only during the last ten years that the state-aid policy has been in effect to any considerable extent.

## PHASES OF ROAD PROBLEM

**Those Interested in Work Will Find Joint Congressional Committee Report Quite Handy.**

Persons interested in the good roads problem, either from the engineering or the legislative standpoint, will find the report of the joint congressional committee on federal aid to good roads a convenient source of information. It not only contains the most extensive data ever published on this subject, but contains a bibliography which gives a list of books, pamphlets and speeches on all phases of the good roads problem. The report is printed as house document 1510, Sixty-third congress, third session, and copies may be secured by application to members of congress.

### Do Road Work Early.

For good roads the work should be done in the spring and early summer, if possible. Roads worked in the late fall don't get time to settle before winter, consequently are rough and uneven all winter. Do the road work early.

### For Best Results.

The fruit and vegetable garden require richest soils and best culture. Of all farm work it pays best for work done, and suffers most from neglect.

### Grafting Tomatoes.

A Michigan gardener has been grafting tomatoes on egg plants and red peppers. He began this experiment in 1898, and his first achievement was called the Kaiser. The Kaiser often produces fruit weighing one and a half to two pounds, and will yield a bushel to the plant, on suitable soil.

### To Cure Hog Cholera.

The only way to cure hog cholera is to prevent it. This might be said of almost any disease, human, bovine or porcine.

### Poetry and Noses.

I have read that no poem was ever written to a nose. Can you, offhand, recall a single rapturous or even admiring description of one? I search my memory in vain, but produce instead one instance that has always interested me by neglect. You recall that little poem of Brownings, A Face, the brief and charming description of a girl's profile against a background of gold. The "matchless mold" of softly parted lips, the neck "three fingers might surround," and the "fruit-shaped perfect chin" all receive their due of praise; the nose, a seeming necessity in any profile, is not even mentioned. It may be as well; each reader supplies in the lovely face the line that suits him best. The poet may have feared that by its mere mention he would produce the effect too often given by the nose in real life—a heaviness that mars an otherwise charming face.—The Atlantic.

If it is anything he has paid to hear, the average man believes it is true.

### No Indians in 100 Years.

The American full-blooded Indian, of course, will not be extinct within the life of any person now living, but it will not be more than a century when the original American will have passed off this continent. There are enough Indians left on the reservations to keep up the full-blood line for 100 years, but tuberculosis and the change of environment have done their work, until now there are comparatively few full-bloods left on any of the reservations.

### Flashlight for Rifles.

Intended for point-blank firing at close range, a flashlight equipment has been devised for high-power rifles which simplifies the aiming of a weapon when it is used for shooting wild beasts after dark. Unlike other lighting apparatus heretofore introduced for night hunting, the beam of light has the shape of an inverted letter "T." This character is brilliantly emblazoned upon whatever object the shaft of light strikes, as, for instance, the shoulder of a lioness. The hunter in this way is able to point his rifle almost as one would the nozzle of a hose, for upon firing, his bullet will strike the point indicated by the character. Just enough light is diffused outside of the plane of the "T" shaft, says Popular Mechanics, to illuminate dimly a small field and show the outline of an animal.

The custom among women of our town is to take two handkerchiefs to a funeral. But Mrs. Tug Watts never takes fewer than four.

### Dollars and Age.

"And how does this hat look on me? Does it make me look younger?" asked the woman in the millinery shop.

"Ah, madam," replied the modiste, "it makes you look thirty dollars younger."

### The True Significance.

"Why do you keep that sign over your desk, 'This Is My Busy Day'?"

"So that people won't hang around and try to transact business when I want to play golf."



## THE UNMARKED GRAVE

The unmarked grave is one of the saddest things in the world. Every human being feels strongly the desire to pay the last tributes of respect to his dead. The Indestructable Grave Marker is made from a non-corroding metal, measuring 12x36 inches with legs attached for anchoring in concrete. The name and dates are drilled into the marker similar to the costly monuments. The delivered cost of this marker is $6. For either temporary or permanent marking this indestructable monument is ideal. Write for complete information. County Supply Co., Box 519, Sioux City, Ia.

The thread of the silkworm is one-thousandth of an inch in diameter.



If you find it difficult to tell twins apart, tell them together.



A catalogue of the fishes of Maine shows that the state has 140 species, but only 25 are fit to eat, and only 17 are of commercial value.



### Preparing.

In one of the southern states the negroes are great patrons of a matrimonial agency. One darkey, anxious to find a wife for his son, went to this agent, who handed him his list of lady clients. Running through this the man came upon his own wife's name, entered as desirous of obtaining a husband between the ages of twenty-eight and thirty.

Forgetting about his son, the darky hurried home to announce his discovery to his wife. She was not at all disturbed.

"Yes," she said, "I done give him my name. I puts it down when you was so sick in de winter and de doctor says we must prepare for de worst."—Chicago Journal.

Our Christian year 1915 corresponds to the year 5676 in the Jewish calendar.

### Homesick.

"Ever since you've been in town," said the city relative, "you've been having two or three lemon squashes every day!"

"Yes," replied Farmer Corntossel. "A habit's a habit."

"But you don't drink them!"

"I don't want it. I am willing to pay the money so as to get a straw to chew."

### Quite a Hint.

The Guest—Your wife is such a handsome woman. I should think you'd be jealous of her.

The Host—I am. And for that reason I never invite any man here that any sane woman would take a fancy to.

Frankly admitting that the baby resembles its father is the shortest way. It also is the safest.

### Longings.

A well-known essayist and connoisseur of New York attended recently an artistic tea in Washington square.

Near-artists of all sorts—near-poets, near-sculptors, near-painters and near-novelists—attended the tea. The ladies wore djibbahs of green burlap. The gentlemen wore sandals. The collation was vegetarian, of course.

Looking calmly at that mass of freaks, he said, with a smile:

"Artistic longings consist invariably, it seems, of long hair, long teeth and long faces—everything but long purses, in fact."

### Two Classes.

The late Charles Frohman used to divide Americans into two classes—those who dine in evening dress and those who dine in their shirt-sleeves.

"Or, to put it better," Mr. Frohman would say, "the two great American classes are, first, those who dress for dinner, and, second, those who undress for dinner."

### The Reason.

Simpson—I wonder how it is that nearly all the misers we read of are old bachelors?

Mrs. Simpson (insinuatingly)—Oh, married misers are so common that they are not worth mentioning.

A close friend is one who won't lend you money.

In guarding his reputation every man should be his own watchman.



### A Forlorn Hope.

"Mr. Corncobble, I dare say your son has learned a great many things at college."

"Yes. He's larnt how ter yell, how ter dance, how ter play football an' baseball, how ter set in a stiff game of poker, an' has other accomplishments I haven't been able ter classify yet, but I hope ter find among 'em what I'm looking for."

"And what is that?"

"Something that will help him ter get more out of an acre of land than I've ever been able ter get."

### She Needs It.

"I hope you won't be angry, dearest," said wifey as she displayed her purchases, "but I simply could not resist buying this lovely wrap to wear over my bathing suit at the beach."

"It's a beauty," admitted her husband. "Why don't you buy another one to wear over your street costume."

### Wasn't on the Map.

Little Lemuel—Say, paw, what state is Effigy in?

Paw—Effigy! Why, I don't believe I ever heard of such a town, son.

Little Lemuel—Well, I was just reading about a man who was hanged in effigy, and I can't find it on the map.

### Tired of Him.

He—I always pay as I go.

She (yawning)—I don't think you'll ever become bankrupt.—Judge.

## CREDITED TO THE BOSTONESE

**Proverbs With Which Most Are Familiar Set Forth Clothed in New Language.**

If upon the initiative attempt success eludes your efforts, repeat the operation ad infinitum.

It is an exceedingly lengthy byway that fails to produce some tangible evidence to prove that its natural tendencies point to an apparent longing to execute a right angle.

When the household feline has temporarily vacated the premises, the small rodents will undoubtedly take advantage of her absence to participate in unseemly gambols commensurate with the joyous occasion.

The operation of convoying a beast of burden in the general direction of the trough containing aqua distilla may prove to be one of comparative ease, but the process of inducing the quadruped to partake of the contents thereof is often a matter of conjecture, to be determined only by the avowed inclination of the animal in question.—Judge.

### Office Chatter.

"How do you like your job?" asked the inkwell.

"It's dirty work," replied the new blotter. "Still it's rather absorbing."

A man goes to the table to eat. A woman to demonstrate how gracefully she can demean herself.