

# Photographer Uses Bell of Ocean as Studio to Take Motion Pictures of Sea Life off Bahamas

[From Washington Times.]

With the floor of the ocean as a studio, the beautiful vegetable and coral growths for background, a series of moving pictures has been made which will be exhibited before scientific men next Thursday at the Smithsonian Institution that are the most unusual ever taken. It would seem that the limit of human ingenuity had been reached, that with the moving picture bringing all parts of the world together on a celluloid film, scientific achievement would take a rest. But the unexplored depths of the sea, so filled with mystery and romance, were yet to be plumbed, and it has been the moving picture machine that has done it.

Thursday afternoon a party of scientific men will gather at the Smithsonian Institution to view the result of a long season of investigation of the sea bottom off the Bahamas, with a moving picture camera. Not only will there be displayed the beauties of marine life, but also the more gruesome water life of the world, but there will also be shown the moldering bones of long-lost ships, the fierce struggles of giant sharks with each other and with their prey, the smaller fishes.

As a climax, there will be shown a series of pictures of an actual fight between a man-eating shark and a diver, staged for the purpose of making this film.

There are more than 20,000 feet of film, showing the ocean depths that were made at a depth of eighty feet below the surface.

Dr. Rathbun in Charge.

The exhibition Thursday will be under the direction of Dr. Richard Rathbun, assistant secretary of the institution and director of the National Museum. Dr. T. W. Vaughan, of the Geological Survey, will tell the assembled guests something of the manner in which the pictures were made, as Dr. Vaughan was present at the time as a member of the party aboard the Carnegie Institute yacht,

which was making marine surveys in the same locality when the pictures were started making their films. Some of the film-making was superintended by the scientists, and results were obtained that astonished even them. Later in the week the film is to be exhibited in the assembly room of the Press Club.

The experiments in the waters of the Bahamas were made to secure a scientific motion picture film, one that would show the actual conditions on the bottom and the daily life of the many forms of sea life that abound in the waters of the tropics. The apparatus used was a curious mechanical contrivance, the invention of Capt. C. Williamson, of Norfolk, Va., who began working to perfect an invention that would take the place of the ordinary diving suit several years ago.

It was his idea that some means should be developed by which a man could go down into the water unhampered by weights and ropes and compressed air and water pressure. His experiment extended over a long time, but finally he was successful, and the Government granted him a basic patent.

The main feature of the invention is the tube. It is made of steel, in sections of varying lengths. Each section is composed of an upper and lower flange, and these are connected by a set of steel hinges, so arranged as to open and shut, but at all times to fit against each other so closely as to be water-tight. Some of the sections have only one set of hinges, and others have two flanges rest upon each other. To the bottom section is fitted the operating chamber.

The idea of taking submarine motion pictures came to the sons of the inventor while watching the projection of a scientific film showing fish swimming in a small glass aquarium tank. These two boys, J. Ernest Williamson and his brother, George M. Williamson, had worked with their father in the development of the tube. They had

both often been down in the tube in the waters of Norfolk Harbor and seen fish swimming about as they looked through the glass ports. They set about arranging experiments, and secured excellent snapshots with an ordinary camera of the swimming along the bottom of Hampton Roads.

It is a curious coincidence that the first successful motion pictures ever taken beneath the ocean were made at a spot only a few miles from the place where Columbus's ships first dropped anchor in the New World. The Williamson boys designed a special chamber for the photographic work and also drew the plans for a vessel from which to lower the tube and chamber.

This chamber is a hollow sphere of steel with an inside diameter of five feet. From its centre a cone of steel five feet long and five feet in diameter at the large end project horizontally. This cone penetrates the sphere, and at its small end, where it is eighteen inches in diameter, a steel bulkhead is fitted. In this bulkhead there are two glass ports, three inches in diameter, placed one above the other with about five inches between them. They are the eyes for the photographer and the camera. The large end of the cone is closed by a piece of plate glass an inch and one-half thick and five feet in diameter. It was manufactured in Germany especially for the purpose and is optically flawless.

It was the original intention that the first pictures be taken on the Pacific coast near Southern California, but upon the advice of Dr. Townsend, curator of the New York Aquarium, the Bahamas Islands were selected as being richest in varied forms of marine life and variegated coral.

The Williamson boys had charge of the entire outfit—its preparation, construction and operation. They secured Carl L. Gregory, of the Thanhouser Film Company, regarded as being one of the most expert photographers in the country, to make the first photographic film ever taken beneath the ocean, and to these three young men

is due the success of the undertaking. Photographing under water through water is something new. Density and light values had to be studied carefully to avoid improper exposure and faulty focus. Besides, the problem of finding good "locations" was a troublesome one. Prior to starting work with the camera, Mr. Gregory cruised around the waters near Nassau, carefully scanning the bottom through plates of glass inserted in the bottom of their boat. Whenever a spot of unusual beauty was seen it was buoyed. So the old records that could be destroyed were the prettiest stretches of coral were. The prettiest stretches of coral were the curves in the bottom that were the abodes of thousands of brightly-colored fish.

Film of Marine Garden.

The first film was made in the celebrated Marine Gardens at a depth varying from fifteen to twenty-five feet, according to the surface of the bottom. By moving the large to four anchors across the tide and then slackening the cables on one side and taking in the other, it was possible to let it swing with the tide. While it was swinging, Mr. Gregory, down in the chamber, turned the crank of his camera and photographed a panorama of sea bottom. The clearness of the water and the perfect illumination afforded by the sunlight coming through it and striking the white coral bottom was remarkable.

Nearly everyone who has toured in tropical waters has seen the native black boys dive for coins. One of the most interesting of the films is that which shows these boys working the water and the perfect illumination afforded by the sunlight coming through it and striking the white coral bottom was remarkable.

For the first time in the world photographs were taken of a deep-sea diver working on a wreck. Near Nassau there is the hulk of an old blockade runner that came to grief while seek-

ing safety in that harbor during the Civil War. She lies at a depth of fifty feet and scattered on the bottom near her are some rust-encrusted cannon and many cannon balls.

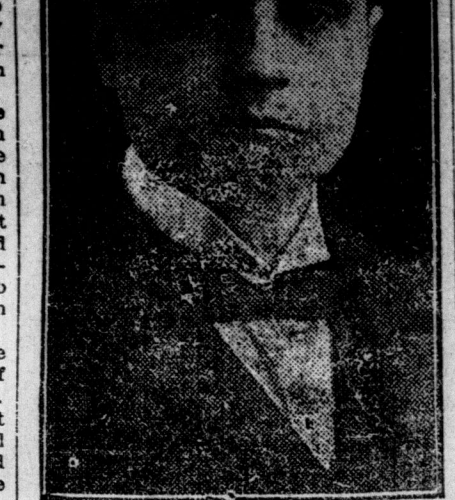
George Williamson volunteered to be a diver and a suit was borrowed from the Colonial Government. Although he had never before been in the water in this sort of garb before, Mr. Williamson gamely went down and strolled about the wreck, picking up cannon balls and sending them aloft in a wire basket attached to a line. While he was so engaged Mr. Gregory, safe and dry in the chamber, was photographing him.

Many, many feet of film were made of the hundreds of different kinds of fish that abound in the Bahama waters. Some were caught as they swam about in their natural haunts among the coral reefs, and others, by means of a baited line, were drawn close up to the chamber.

As in all tropical waters, the sea around the Bahamas abounds in sharks, and a film that has no counterpart in the annals of photography was secured of a battle between two of these monsters. There have been many fish films taken in tanks at aquariums, and from the surface, but the tank has never been built that could stage the spectacle made by these sharks.

Many stories have been written of hand-to-hand conflicts with man-eating sharks, but when it comes to finding a native diver who will actually go down armed with nothing but a short knife and engage in a single-handed combat with one of these brutes, it means considerable more effort than an exercise of a fertile imagination with a pencil and paper.

Such a man was at last found, and motion pictures made of a naked diver meeting one of these kings of the deep in his own element and with a long, sweeping stroke of his keen knife dispatching a monster shark. The diver escapes the yawning jaws as a matorador dodges a bull, and with one swift thrust of his knife strikes a death stroke in the monster's vitals.



JOHN LEWIS, of the Toronto Star. Treasurer of the Canadian Press, Limited.

eye while the right, wide open, gleams with intelligence and high spirits. His pronunciation unlike that of Sir Wilfrid, is entirely free from the American accent, but it is more reminiscent of his native French than the speech of Sir Wilfrid, in whose English there is no hint of the fact that he did not speak it until he was eighteen.

But it is the impetus of mind, the strength of conviction and the high character of the man, rather than the externals of manner, that are the source of the impression he conveys. Obviously here is one who has to be reckoned with in forecasting the future of Canada. Able, resolute, disinterested, clear and decisive in his opinions, the master of perhaps the most solid phalanx in Canadian politics—it is important that we should ascertain what he is out after, to what sentiment of patriotism and to what ideal of government he is attached, if we would understand the drift of events. For the future of Canada is not the least obscure and perplexing of the many problems afflicting the future of the British Empire. Everywhere the artificiality of that structure is today becoming apparent, everywhere we are confronted with difficulties that seem insoluble. Directly a test question like that of citizenship is applied the unreality of the position is apparent. We call the Indians our fellow subjects, but when they ask for admission to a British colony we have no power to support their claim and every British port is closed against them. And nowhere is the Imperial posi-

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## FRY'S COCOA

The Dominion are so much cohesive as separatist. The industrial East wants protection; the agricultural West wants free trade. The East (Continued on page fifteen)

## ONE HUNDREDTH BIRTHDAY OF A GREAT NOVEL; HOW SCOTT CAME TO WRITE "WAVERLEY"

In an age of centenary celebrations it would be unpardonable to allow the hundredth anniversary of the first publication of "Waverley" to pass unnoticed. Certainly it marked an epoch in our literary history, and the turning-point in Scott's dual career as poet and novelist. It was on July 17th, 1814, that Sir Walter took the world by storm by the first volume of "Waverley," three anonymous volumes. He did not publicly avow the parentage, either of these or their successors, until Constable's failure in the London market stripped what little veil remained from that transparent mystery.

Restoring Olympus.

The inner history of the "Waverley" novels is curiously interesting. Byron had lately awakened to find himself famous, and Scott, who in 1813 declined the laureateship in favor of Southey, was perhaps too ready to acknowledge that the younger man had supplanted him in popularity as a poet. The comparative failure of "The Lord of the Isles," a little later, seemed to confirm this view.

"Well, well, James, so be it," he said, with cheery resignation, when the printer told him how matters stood with "The Lord of the Isles." "But, you know, you must not droop, for we can't afford to give out. Since one line has failed, we must stick to something else."

And with that he went on with the wonderful series of prose romances which began to make their appearances just a hundred years ago.

How "Waverley" Was Written.

What really induced him to insist upon the secrecy of authorship for so many years it is difficult to say, though various reasons have been advanced. "I do not see how my silence can be considered as imposing on the public," he wrote to his friend Morritt, of Rokeby and the "Venus of Velasquez" fame, whose own "letters," by the way, are about to be published by Mr. Murray. "If I give my name to a book without writing it, unquestionably that would be a trick. But, unless in the case of his averring facts which he may be called upon to defend or justify, I think an author may use his own discretion in giving or withholding his name. Harry

Mackenzie never put his name in a title-page till the last edition of his works; and Swift only owned one out of his thousand and one publications. In point of emolument, the turning-point in Scott's career was not what it might seem, and what should I gain by it, that any human being has a right to consider as an unfair advantage? In fact, only the freedom of writing trifles with less personal responsibility, and perhaps more frequently than I otherwise might do."

The Magician at Work.

Long before he dreamt of becoming his son-in-law and biographer, Lockhart caught a fleeting glimpse of the novelist at work at this period, headless of the effect of his titanic labors upon overlooking eyes. The story, as told by Lockhart, is worth reading in a small glass aquarium tank. In June, 1814, he happened to be spending the evening with his friend William Menzies, afterwards one of the judges of the supreme court at the Cape.

When my companion's worthy father and uncle, after seeing two or three bottles go round, left the juveniles to themselves, the weather being hot, we adjourned to a library, which had one large window looking northwards, after consulting here for an hour or more, I observed that a shade had come over the aspect of my friend, who happened to be placed immediately opposite to myself, and said something that indicated a fear of his being unwell.

"No," said he, "I shall be well enough presently, if you will only let me sit where you are, and take my chair; for there is a confounded head-ache in sight of me here, which has often bothered me before, and now it won't let me fill my glass with a good will." I rose to change places with him accordingly, and he pointed out to me this hand which, like the writing on Belshazzar's wall, disturbed the hour of his hilarity.

"Since we sat down," he said, "I have been watching it—it fascinates my eye—it never stops—page after page is finished and thrown on that heap of MS., and still it goes on unwearying—and so it will be till candles are brought in, and God knows how long after that. It is the same every night—I can't stand a sight of it

when I am not at my books." "Some stupid, dogged, unexpressing clerk, probably," exclaimed myself, or some other giddy youth of our society. "No boys," said our host, "I will know that hand it is—its Walter Scott's."

That was the hand which, in the evenings of three summer weeks, exactly a hundred years ago, wrote the last two volumes of "Waverley."

Scott insists on Anonymity.

Al Edinburgh was soon busy in identifying not only the author, but the originals of "Waverley" portraits. "Jeffrey," wrote the Great Unknown to Morritt, two days after the publication of the first volume, "has offered to make oath that it is mine, and another critic has tendered his affidavit ex contrario; so that these authorities have decided in my favor. The mystery failed to deceive his intimate friends; nor did he in their case attempt any real concealment, even though he carefully abstained from formally confessing to most of them. Lockhart was probably correct in holding that the mystification never answered much purpose. It was doubtless sufficient for Scott "to set the mob of readers at gaze, and above all, to escape the annoyance of having productions, actually known to be his, made the daily and hourly topics of discussion in his presence."

One report had it that the novel was the work of Scott's brother Thomas, who had gone to Canada as paymaster of the 70th Regiment and it amused the real author to encourage this idea. He even invited his brother to join in the plot, by sending over the raw material for another novel.

His Brother as Mask.

"I will give it all the cobbling that is necessary, and if you do but exert yourself, I have not the least doubt it will be worth £500; and, to encourage you you may, when you send the MS., draw on me for £100, at fifty days' sight—so that your labors will not at any rate be quite thrown away. You have more fun and descriptive talent than most people; and all that you want, i.e., the mere practice of composition, I can supply, or the devil's own. Keep this matter a dead secret, and lock knowing when 'Waverley' is spoken of." Nothing came of this, but Scott continued to do his novels. When he told to Constable the remaining copyright of the four works published between December, 1813, and January, 1821—"Ivanhoe," "The Monastery," "The Abbot," and "Kenilworth"—the stipulation was that his name was not to be revealed under a penalty of £2,000. For the remaining copyright of the four novels he had already cleared at least £10,000 before this bargain was made, thus making in all £12,000 for the fruits of scarcely more than a year.

What Might Have Been.

The first series of Tales of My Grandfather which followed "Waverley" in 1815, had been secured by the first William Blackwood, then rising into prominence as Edinburgh bookseller-publisher, in co-operation with the second John Murray; and it would have been well for Scott had he remained in their hands.

Unfortunately, young Blackwood, who took the literary side of his craft very seriously, ventured, when he saw one of the tales in press, to suggest a different conclusion. Scott was furious. "G—d—his soul!" he wrote to Ballantyne, his printer, who acted as his secretary in the matter. "Tell him and his coadjutor that I belong to the Black Hussars of literature, who neither give nor receive criticism."

"Probably," says Mr. Oliphant, "ruin would never have overtaken Sir Walter had he been in the steady and careful hands of Murray and Blackwood, for it is unlikely that even the glamor of the Great Magician would have turned heads so reasonable and sober."

Digby, N. S.

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JOHN R. HOLDEN.

Witness, Perry Baker.

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This "Orange Proclamation" bore the following legend: "The constabulary are respectfully warned that the search for arms in Orange lodges is highly dangerous."

## MR. BOURASSA A REAL IMPERIALIST, SAYS EDITOR OF THE LONDON LEADER IN A BRILLIANT CHARACTER SKETCH

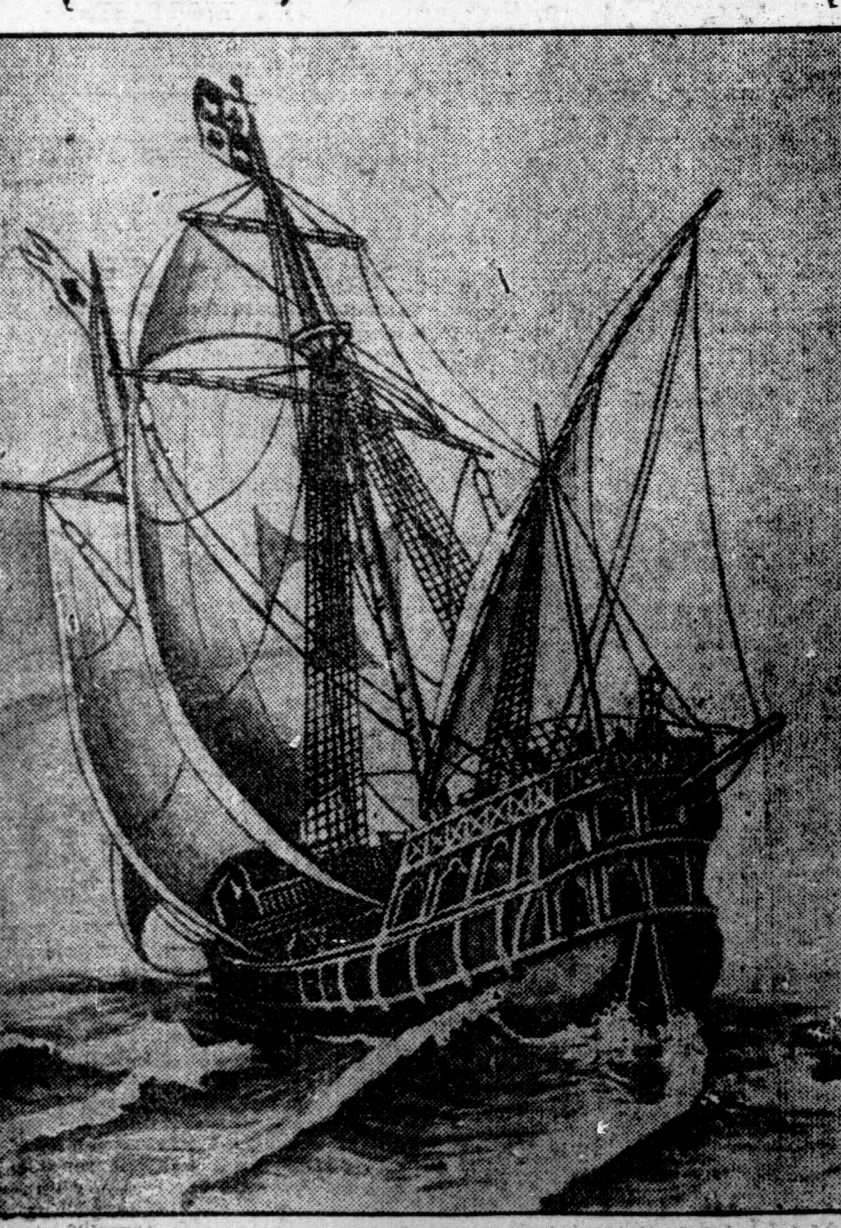
Perhaps the most interesting figure to be met with in London today is Mr. Henri Bourassa, the leader of the French-Canadians, who is on one of his not infrequent visits to Europe. "When I die," Sir Wilfrid Laurier is declared to have said long ago, "Mr. Bourassa will be king in Quebec." He is king in Quebec already. It was the desertion of the French-Canadians who dominate Quebec from his standard at the last election which was largely responsible for the downfall of Sir Wilfrid and that due to the influence of Mr. Bourassa.

It is not difficult to understand that influence in the presence of this alert and engaging Frenchman. He has not of course the grand air of Sir Wilfrid, who, as someone said, is "a picture gallery all to himself." But then there is no one in the English-speaking world today who comes trailing such clouds of glory from the past. He is not "a book

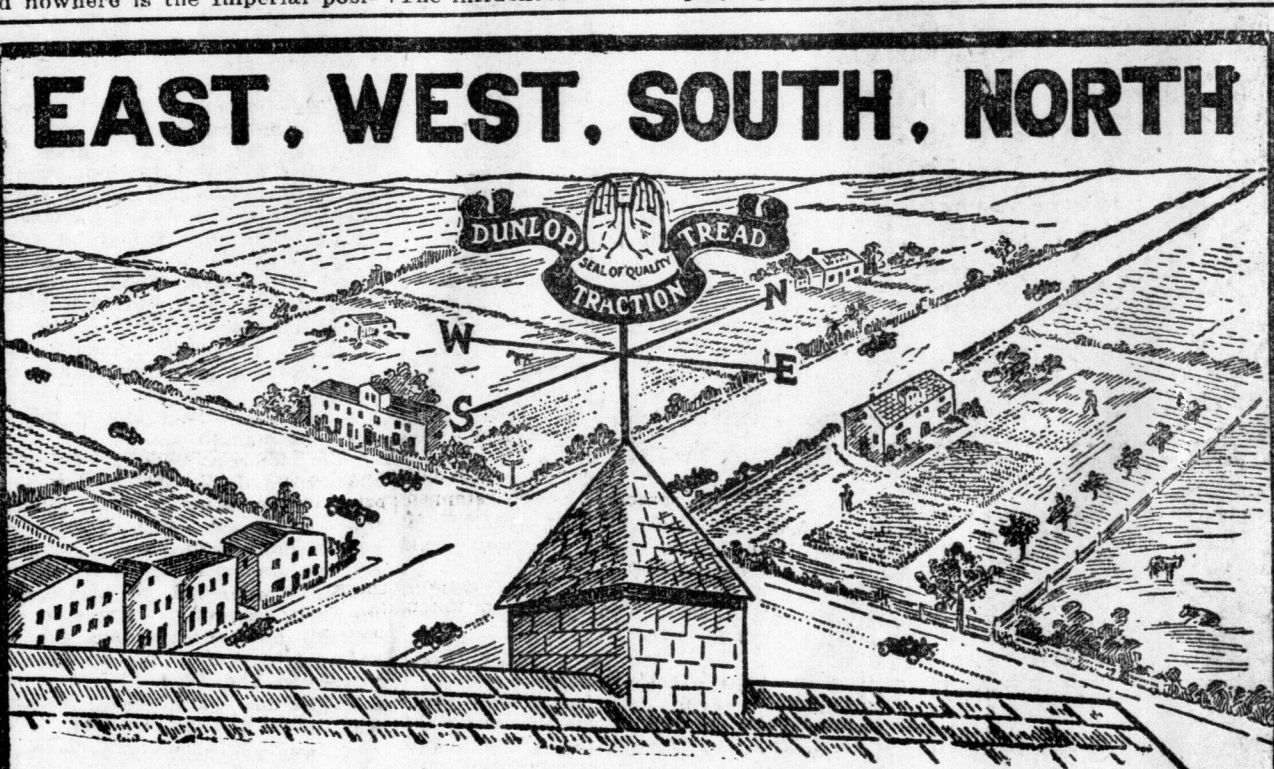


MRS. CROTHERS, wife of the Minister of Labor.

## Replica of Columbus' Ship



This production of the Santa Maria, in which Christopher Columbus crossed the Atlantic and discovered America, is now making a tour of the great lakes and is calling at a number of Canadian ports. The craft is en route from Chicago to San Francisco, going via the Panama Canal to be shown at the Panama Exposition. Her length is 94 feet over all and her beam is 25 feet 8 inches.



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