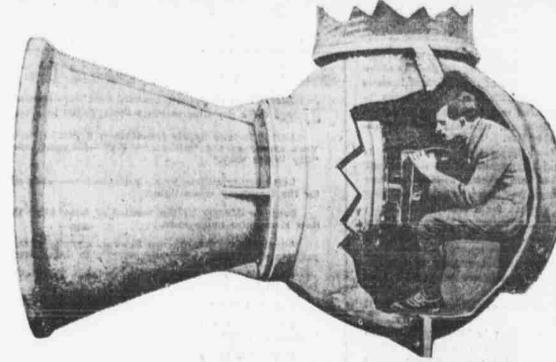
THE OMAHA SUNDAY BEE MAGAZINE PAGE

Taking Moving Pictures

UNDER THE SEA!

The Camera Operator in the Great Horn That Is Lowered Into the Ocean Depths.



The Most Remarkable Photograph Ever Taken—A Man Fighting a Shark Under the Ocean Off Nassau.

HE recent announcement that submarine ore fields may perhaps be located by the use of wireless apparatus assumes additional interest because of the fact that submarine moving pictures have now

been made possible. The dangers which beset submarine workers will be greatly lessened when they are better understood, and the submarine moving picture will doubtlessly reveal many unfathomed caves of ocean bear."

Except from the lips of divers who have descended on the edges of the coasts to a puny depth of a hundred feet we are in ignorance of what Hea beneath the waves. Divers, with the limited field of observation accorded them by the crude appliances of their trade, have been able to tell us but little of the nature of things in that vast area beneath the waters, which embraces three-fourths of the earth's surface. By the weight of a lump of lead on the end of an inanimate wire we have sounded the depths and learned that there are where the ocean's bottom spreads full five miles beneath the From samples of soil hauled up by mechanical means, we know, in a small way, the character of this bottom.

But experiments just concluded on the oceans' bottom in the Bahama Islands have given us far more instructive data than that.

For hours at a time men have sat in comfort within six inches of the bottom and fifty or sixty feet be-neath the surface. There they have smoked and talked and breathed as naturally as though they were upon the shore. And they looked with ever-widening eyes at the wonders and beauties of subaqueous forests, the countless thousands of brightly colored tropical fish, the panorama afforded by the lace-like length of a coral reef, with hosts of brilliantly hued fish swimming in and out of its pearl caverns, and the skeletons of once proud ships, with backbones and ribs exposed, as they rested where they struck and disappeared from

human ken generations ago. What these men saw beneath the sea they photographed, and some of the wonderful pictures they secured

are reproduced on this page. While it is true that the greatest An Under-Water Moving Picture, Showing a Horse Being Lowered Through the Depths to Attract Sharks, While the Shark-Fighter, Knife in Mouth, Swims Beside It.

is not far distant when it will be easy to go down several hundred feet. The apparatus used in the experiments was subjected to a thorough submarine test and structural analysis at the Norfolk navy yard by officers of the navy, who reported that it would be perfectly safe, in its present form of construction, at a depth of 800 feet. To make it strong enough to go even deeper is simply

a mechanical detail. Several years ago Captain C. Williamson, of Norfolk, began working to perfect an invention that would take the place of the ordinary diving suit. 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 experiments extended over a long time, but finally he was successful and the Government granted him a basis patent.

Broadly considered, his apparatus is in three parts; (1), floating vessel of any suitable design; (2), submersible terminal operating chamber, which work or observations can be carried on at the bottom of the water, and (3), a collapsible, flexible tube of metal, connecting the floating

vessel and the submersible chamber. 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 along radial lines to the axis of the tube, 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 when collapsed the flanges rest upon each other. In sets of hinges joined to each other

reached by divers, it was clearly three feet high; they are eight feet demonstrated that the means for long when extended. The sections deeper trips into the unknown waters can be fitted to each other readily, has been found, and that the time and by this means the length of the tube is regulated. Because of the collapsible nature of the sections it is possible to submerge the tube. Any one who has tried to push a large bucket bottom downward into the water will realize what a diffi-cult thing it is to do. With the collapsible tube each section just a lit-



The Bait Rising with Sharks Attacking It-An Under-Water Photograph.

the longer sections there are several weight in water at the surface when sets of hinges joined to each other extended. Therefore, it will sink. depth achieved in these experiments between the upper and lower flanges. But deeper down the pressure of the section closes its weight remains the is not greater than that frequently When collapsed they stand about water overcomes this greater dissame, but its volume of displace-

tle more than displaces its own placement. Then the tube automati-weight in water at the surface when cally collapses, section by section, extended. Therefore, it will sink. from the bottom upward, and as each

ment grows less. By this means the continual adding on of sections at the surface forces down the sections below. To the bottom section is fitted

What the Stars Predict for August

of testimonies contained in the first, denoting some sudden mutations in Bryan, the Tammany Hall chief, Mr. both governmental and economic policies toward the close of the month. The midsummer is replete with significant happenings, and press and public will not lack for thrills.

Saturn in the fourth angle betokens earth disturbances, fall of buildings, mining disasters in the Pennsylvania and Southern regions, and some mishap to the Panama Canal, else earthquake shocks in

In many respects the lunar period does not promise favorably for the country, and to the disinterested onlooker, if any such there be, it will present some puzzling perspectives

n the panorama of human ethics.

on the 21st. The latter is a reversal tabilities struggling under a Saturn near the 17-18th and the close of regime, of whom may be mentioned Murphy and Colonel Goethals, each with Saturn crossing the natal Sun; ill health and other difficulties to be feared, and considerable worry for

President Wilson after the 21st. The angular position of Mars and Venus square Saturn shows great humidity and increase of temperature-with the Moon on the equator at the full-between the 5th and 12th, similarly between the 21st and 24th. There will be violent electric

storms on the 2d. The stock markets are much depressed in the first half of the month, with more stability and some definite recoveries in the latter half; the money interests are correspondingly conditioned.

The criminal fraternity reaps a re-There is some suspicion of trouble grettable harvest, and with the Moon from abroad, and the Secretary of in conjunction with Uranus so near

UGUST is dominated by two State in some official capacity will Jupiter on the 12th, many criminals mic disturbances reported; this date lunations, the Full Moon on evoke censure. As this midsummer will use automobiles to carry out marks a solar eclipse node, coincithe 5th and the New Moon approaches there are not a few no-

The telegraph, postal, railroads, and all carrying companies are bene-fitted through Venus up to the 21st, with the literary, scientific and religious worlds not so happily circumstanced. This order is reversed after New Moon on the 21st. Specific incidents on or near the

following dates: August 2.-Destructive storms in middle and Southern section of the country, crops endangered; a casualty on an electric railway.

August 5.—Some interesting social and lessen the labor of the medico. function, an engagement in naval or military circles announced, with Venus conjunction Mars.

August 10.-A prominent business failure in trade or banking circles. Stocks erratic, reaching lower points

on the 12th, with recoveries around the 17-18th August 21 .- Tidal waves and seis-

any, apprehensions; this especially ances. According to Justinius, this near the 17-18th and the close of occurring in Leo denotes martial activity, movement of troops soon to follow, war dangers and deaths among the ruling class. The effect obscuration. Philadelphia will feel this unpleasantly before the next New Moon, a lunation that will bring troublous times to governing fac-

> August 24.-An advancing market, money conditions more equable, and social world very active. General conditions much better to close of month. High winds on 30-31st, which will clarify the atmosphere

those born between the 5th and 10th of February, April or June, or the 9th to 13th of October or December of any year; with an accentuation of the same if in the Summers of 1851 or 1853, the first quarter of whose anniversaries fall between 1855. Fall of 1858 and Winter of the 5th and 12th of the current Au-1859, close of 1862, early Summer of gust.

1863, in 1864, Winter of 1867, in 1869, Summer of 1870 and Winter of 1871, Fall of 1874, Winter of 1879-80, Summers of 1882 and 1884, Fall of 1886, in 1888, Fall of 1890, Summer of 1894, or Fall of 1898. Jupiter sits benignly over their destinies, and of a solar eclipse is prolonged to some months, according to time of young ladies will have matrimonial opportunities.

A depressed, obstructive condition obtains for those born between the 17th and 22d of March or June, or the 21st to 24th of September or December of any year; or in the Summer of 1855 and through the Winter of 1856, early Fall of 1862 last half of 1864, Spring of 1865, in 1870. Spring and Fall of 1878, Spring August promises good fortune for of 1889, Fall of 1884 and first half use born between the 5th and 10th of 1885, in 1892 or Summer of 1907. Guard health, business interests, and cultivate a patient and more opti mistic spirit. A bereavement likely to come their way, as well as those

Copyright, 1914, by the Star Company. Great Britain Rights Reserved.

of the Oceans Now to Be Laid Bare by a New Astonishing Advance of Science idea of taking submarine gauge showed the water motion pictures came to the sons of against the outside of the glass. The other showed the air pressure within the cone. The pump was used to keep these two pressures equal. The steel bulkhead at the small end of

The Most Baffling Mysteries

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 ever since they could remember, and while watching this film they got into a discussion over the feasibility of placing a camera in the apparatus and photographing submarine life in its natural haunts and surroundings. 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 did not let the idea rest. The very next day they set about arranging experiments, and in a few weeks had seured excellent snapshots with an ordinary camera of fish swimming along the bottom of Hampton

Roads. The Williamson boys designed a special chamber for the photo-graphic 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 projects horizontally. This cone penetrates the sphere, and at its

the cone prevented the compressed air from escaping from the cone into the sphere. In the sphere the air was the same as that above the water. It came down the tube just as air comes down into the hold of a ship, and the photographer worked under the same conditions he would have experienced were he

graphing the inside of a building.
It was the original intention that the first pictures be taken on the Pacific Coast near Southern Califorsend, curator of the New York Aquarium, who has spent the best part of his life in oceangraphic study all over the world, the Bahama Islands were selected as being richest in varied forms of marine life and variegated coral, and the water of unexcelled clearness at Nassau, N.P., was selected as the central point about which the expedition was to

work. For the first time in the world photographs were taken of deep sea divers working on a wreck. Nassau there is the bulk of an old blockade runner that came to grief while seeking safety in that harbor during the Civil War. She lies at a



An Under-Sea Moving Picture of Boys Diving for Coins.

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, and 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 ave feet in diameter. It was manu-

factured in Germany especially for the purpose, and is optically flawless. To protect this glass from the pressure of the water gauges and pumps were installed in the sphere. One

depth of fifty feet, and scattered on the bottom near her are some rust-encrusted cannon and many cannon balls. George Williamson volun-teered to be a diver, and a suit was borrowed from the Colonial Government. Although he had never been beneath the surface 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