

## PHOTOSPHERE

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In the 1960s, it was fascinating to watch the undersea adventures portrayed on TV shows like *Sea Hunt* starring Lloyd Bridges, and later in special documentaries presented by Jacques Cousteau. How great it would be to swim under water to observe all the marine life, and also perhaps to discover some sunken treasures? Probably few viewers paused to consider the challenges of capturing all of these images below dozens, sometimes even hundreds of feet of water.

Many people think of underwater photography as a relatively modern invention. But this medium has been around for 100 years. John Ernest Williamson (1881-1966) was the first person to make underwater movies in 1914. He designed a spherical observation chamber with a large funnel-shaped glass window at the end of deep-sea tube invented by his father. These were the first underwater movies taken on the sea floor. Before that, all underwater movies had to be shot through windows in aquariums.

On 7 January 1965, the Bahamas released a set of 15 stamps in denominations from ½-pence to £1 celebrating its colonial heritage. The 5-shilling value depicted Williamson's apparatus, which he called the "Photosphere." It commemorated the 50th anniversary of his 1914 film project that produced the first underwater movie and his 1939 underwater post office, which we will get to later on.

This stamp (Sc#216) was printed by lithography for the orange-brown and ultramarine colors and by intaglio for the green Queen's portrait and country name, on paper with the St. Edward's crown watermark and perforated 13½×13.

One year later on 25 May 1966, the Bahaman post office re-issued the set surcharged with decimal currency values. The 5-shilling stamp (Sc#242) received a \$1 surcharge in black.

The following year on 25 May 1967, the post office issued the set in decimal values using the same printing methods, paper, and perforations, but with different colors for the intaglio portions. The \$1 stamp (Sc#264) used a sepia color for the portrait and name.

Williamson's father, Captain Charles Williamson, the President of Williamson Submarine Corporation in Norfolk, Virginia, had invented a flexible waterproof tube reinforced by iron hoops attached to a caisson at the bottom, which enabled men to work on sunken wrecks. Captain Williamson employed it in 1911 in an unsuccessful attempt to recover a half-million dollars worth of silver bars from the liner *Merida* off the coast of Virginia.

In 1912, young Williamson, then a journalist, realized that he could use his father's mechanism to obtain undersea photographs. Using a light hung from the mother ship to illuminate the sea in front of the tube, he took still photographs of the depths off Hampton Roads, Virginia. These proved so successful that he decided to try making motion pictures.

To facilitate this new purpose, he designed a spherical observation chamber with a large funnel-shaped glass window, five feet in diameter, and an inch-and-a-half thick, and attached it to the end of the tube. He took the equipment to the Bahamas, to take advantage of the clear water where the sunlight reached down to a depth of 150 feet. He had a special barge built to carry the tube and Photosphere, and christened it the *Jules Verne* in honor of the person who was his inspiration.

His Submarine Film Corporation made its first production in the spring of 1914, a one-hour documentary titled *Thirty Leagues Under the Sea*. The climax of the movie was his fight with a shark, which he killed with a knife while remaining within the camera's range.



Photosphere



On 21 August 1997 Turks and Caicos Islands issued a set consisting of a sheet of nine se-tenant stamps plus two souvenir sheets at the APS StampShow held in Milwaukee, Wisconsin. This set was the third in its series on underwater exploration. The second souvenir sheet (Sc#1236) commemorates Williamson's 1914 underwater movie and shows an artist's view of the Photosphere with a cutaway revealing the operator (presumably Williamson himself) inside at work.

This set was printed using lithography. The sheet is perforated  $14 \times 14\frac{1}{2}$  and has the APS and StampShow logos in the margin.



Photosphere  
Cutaway View

Subsequently on 16 October 2000, Palau issued a sheet of seventeen 33-cent stamps plus one label in its Millennium series commemorating undersea history and exploration. One of these stamps (Sc#584j) shows an almost identical rendition of the Photosphere. The sheet was printed using lithography and perforated  $12\frac{3}{4} \times 12\frac{1}{2}$ .

The historical importance of the Photosphere is evident from its many commemorations on stamp issues



On 12 December 1962, Monaco issued a set of seven stamps with values from 5-centimes to 1-franc to promote an exhibition at the Oceanographic Museum titled "Man Under Water." This set, on unwatermarked paper perforated 13, depicted ancient and modern methods of underwater exploration. The 25c value (Sc#523) shows our subject on the left-hand side employing yet another cutaway image and on the right-hand side is an image of the bathyscaphe *Trieste*.

This article is not the first time that the Unit journal has published about the Photosphere. One of the very first pictorial illustrations used in the journal was on page 238 of Volume 8, Number 6 of what was then named *Biology Tid-Bits* published in June-July 1959. The article by the editor, Dr. Willard F. Stanley, dealt with two stamps issued by the Bahamas titled "Sea Gardens, Nassau."

The first stamp (Sc#106) had been issued on 1 July 1938 as part of a set of 13 definitive stamps showing King George VI and Bahaman scenes. The set was on paper with multiple crown and script CA watermark. Ten of the stamps were printed by typography and perforated 14, but this 4-pence stamp was engraved in red-orange and blue and perforated  $12\frac{1}{2}$ .

Four years later on 12 October 1942, the post office had the set overprinted to commemorate the 450th anniversary of Columbus's landing in the New World and this overprinted set, including the Sea Garden stamp (Sc#122) replaced the regular definitive set for a period of six months.

These stamps show an undersea scene with fish, corals, and other marine creatures and this scene happens to be based on one of Williamson's early photographs taken using the Photosphere. The image printed in *Biology Tid-Bits* was of the original photograph published by Williamson in his 1936 book, *Twenty Years Under the Sea*. The editor reproduced the photograph using xerography. It is significant to note that in 1959, the journal was printed using the multilith process, and the Xerox method was in its infancy. In fact, this was cutting edge technology.

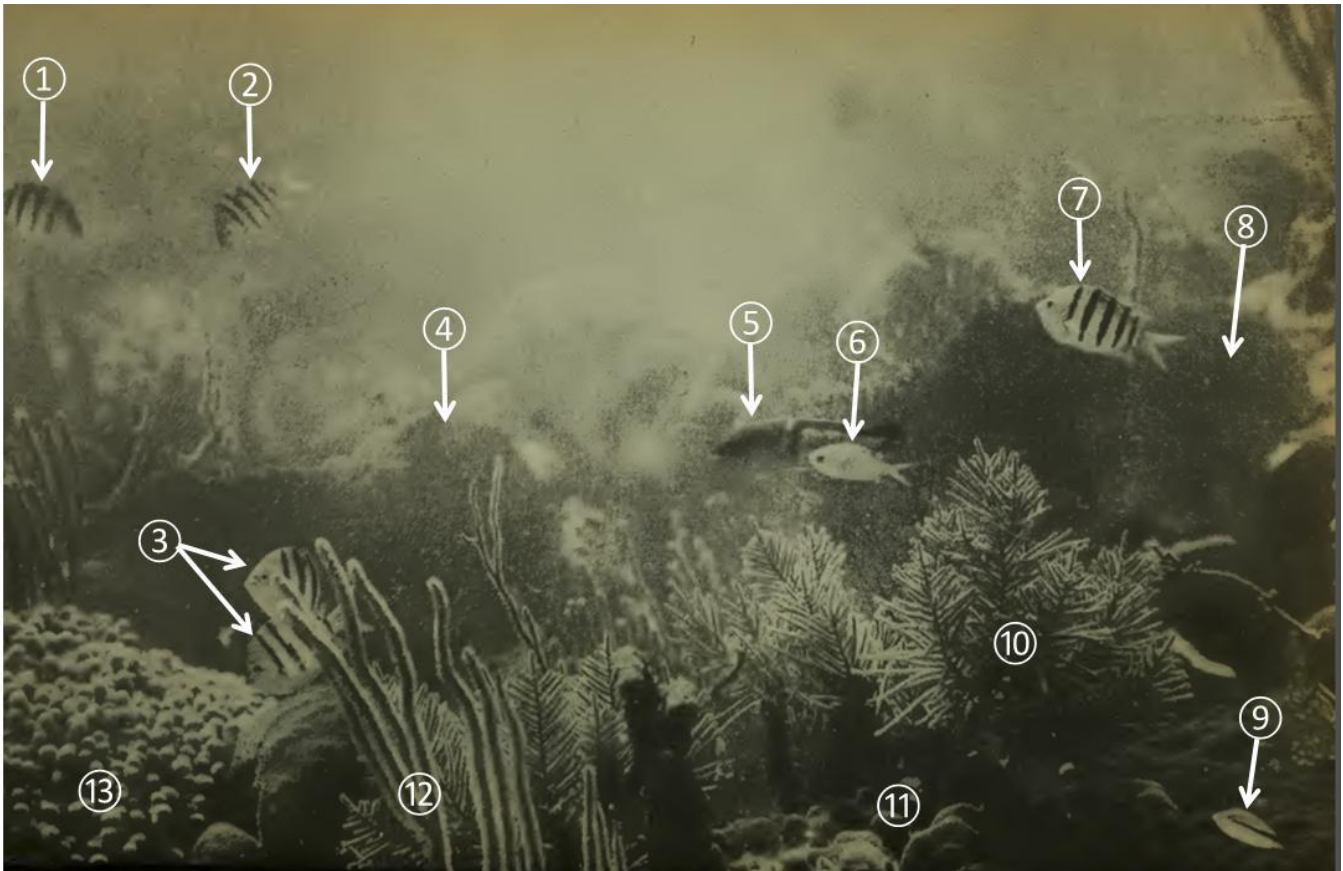


The following section is an excerpt from Dr. Stanley's article and it includes an updated copy of the image that originally accompanied it.

"There has been considerable difference of opinion concerning the animals shown on Bahamas A13, #106 & 122.

"Through the courtesy of Dr. Maynard S. Raasch we learned that this stamp was designed from a photograph taken by John Ernest Williamson from his historic undersea Photosphere and that this picture appears in his book, *Twenty Years Under the Sea*. We tried to no avail to obtain the loan of this book from several libraries. Again, through the courtesy of Dr. Raasch we obtained loan of the book. We had a copy made of the plate in the book. We reproduce this below as best we can—knowing that it will not come out well by the Xerox method (because of the hazy nature and lack of sharp contrast). With a bit of touching up, this will serve much better than a sketch by your non-artistic editor for discussion of the stamp."

[Ed. Note: The original image was very unclear and further impaired by the reproduction process. I have substituted a new scan and added new tags that correspond with the original numbering.]



Undersea Scene, from *Twenty Years Under the Sea*, page 258 (index numbers added)

The chapter in Williamson's book, which contained this photograph, is devoted to the story of his expedition to obtain hundreds of tons of material for Bahama Reef habitat groups for the Field Museum (now the Chicago Museum). Realizing that the museum would have great familiarity with the Williamson expedition materials, and possibly with his undersea photographs, I contacted my college friend Dr. D. Dwight Davis of the Chicago Museum Staff and sent a print of the book illustration. Below are their identifications.

- 1, 2, 3, & 7: Sergeant Major, *Abudefduf saxatilis* Linnaeus, Family: Pomacentridae
- 5: Variegated Wrasse, *Halichoeres garnoti* Valenciennes, Family: Labridae
- 6: Brown Chromis, *Chromis marginatus* Castelman, Family: Pomacentridae [Ed. Note: *C. multilineata* Guichenot]
- 9: Yellowtail, *Ocyurus chrysurus* Bloch, Family Lutjanidae
- 10 & 12: Gorgonians, genera and species indefinite, Order: Alcyonaria, Suborder: Gorgonacea
- 11: Brain Coral, *Diploria* sp., Order: Madreporaria
- 13: Finger Coral, *Porites* sp., Order: Madreporaria

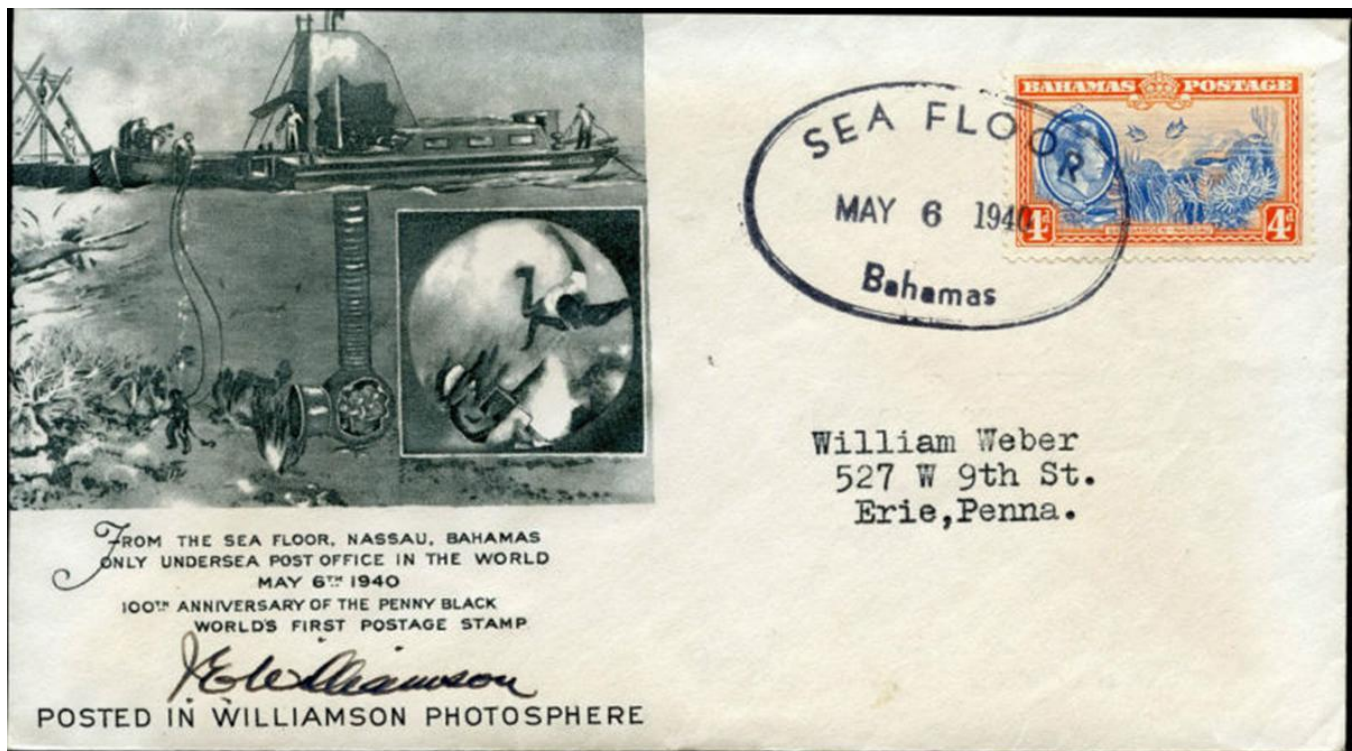
“Though the Chicago Museum men must have thought differently, I am thoroughly convinced that the stamp and the picture show beautiful Sea Fans at positions 4 and 8. The stamp left me in doubt, but the texture is nicely shown in the picture.

“It is obvious that the artist has taken a number of liberties. Fish 1 and 2 were moved to the right in order to superimpose the royal portrait. Fish number 5 is not at all accurately reproduced. Fish number 9 does not appear on the stamp. The branching nature of the left group of Gorgonians (#12) was completely eliminated. An extra ‘pair’ of fish were inserted below the portrait and seem to have been inspired by fish numbers 5 and 6. The Finger Coral shown so nicely in the lower left of the picture are not shown on the stamp. Also, a few ‘sea weeds’ seem to have been added to get ‘balance.’

“The relatively tall structures between the two kinds of ‘Gorgonians’ certainly have the appearance of sponges.

“For those who do not have ready access to a zoology book, the Gorgonians are rather close relatives of the corals. Sea Fans, Sea Plumes, and Sea Whips are among those [that] have received ‘common names.’ The skeletal material is, for the most part, flexible, at least as compared with the ‘typical’ corals. The Phylum is Coelenterata, the Class is Anthozoa. This class is characterized by the fact that there [is] no free swimming medusae (jelly-fish) stage in their life cycle, and contains the Sea Anemones in addition to the Corals and Gorgonians.”

After Williamson completed his documentary, he determined to produce a fictional film and Jules Verne’s novel *Twenty Thousand Leagues Under the Sea* was an obvious subject. He began production in the Bahamas in 1916, but faced many obstacles. Heavy seas would rock the barge endangering the suspended tube, or the water would become cloudy with sediment, making photography from inside the photosphere impossible. Nearby barracudas actually menaced the men in diving suits portraying Captain Nemo’s crew. Upon its release, the film became a major popular success, enhanced by the public concern with submarine warfare during World War I.



Autographed Cover from the Photosphere Sea Floor Post Office

Williamson has another claim as a pioneer. Although other countries have claimed to be the first, Williamson actually was the first to establish an undersea post office. According to Christer Brunstrom at the Philatelic Database, Williamson opened his Sea Floor post office in the Bahamas using the Photosphere on 16 August 1939. It remained in operation until sometime in 1941. Williamson operated this service to create publicity for his undersea expeditions.

He used the 1938 stamp along with other issues to frank these covers and incorporated some of his underwater photographic images as cachets. Illustrated above is an image of one of these covers autographed by Williamson himself. These covers are currently very popular with collectors and can fetch prices of up to \$200.

**References:**

*Twenty Years Under the Sea*, J. E. Williamson, Boston: Ralph T. Hale & Co., 1936.

“Going Down in a Tube to Hunt for Sunken Treasure,” *New York Times*, 16 July 1911.

“The Bahamas Sea Garden Stamp,” W. F. Stanley, *Biology Tid-Bits*, Volume 8, Number 6, pp.238–39.

[http://www.therebreathersite.nl/12\\_Atmospheric%20Diving%20Suits/1911%20C%20Williamson/1911\\_Charles\\_Williamson.htm](http://www.therebreathersite.nl/12_Atmospheric%20Diving%20Suits/1911%20C%20Williamson/1911_Charles_Williamson.htm) (J.W. Bech)

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<http://www.submarinesonstamps.co.il/History.aspx?h=334>