

## World's Largest Oceanography Library Goes Digital

*Holdings of UCSD's Scripps Institution of Oceanography Library digitized by Google*

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Dolores Davies

Approximately 100,000 volumes from the Scripps Institution of Oceanography Library, the world's largest oceanography library, have been digitized and are being made publically accessible as part of a partnership between Google, the University of California and the UC San Diego Libraries.

In 2008, UC San Diego became the first Southern California university to partner with Google in its efforts to digitize the holdings of the world's most prominent libraries. Since then, approximately 300,000 volumes and other materials have been digitized from UCSD's International Relations & Pacific Studies Library, the East Asian Language Collection and the Scripps Institution of Oceanography Library. The University of California was an early partner with Google, joining the Google Book Search Project in 2006 and agreeing to provide several million books from UC libraries for digitization. To date, more than 2 million books from UC libraries have been digitized.

"Partnering with Google in this global effort will lead to much greater scholarly and public access to the rich, diverse and, in many cases, rare, materials at the Scripps Institution of Oceanography Library," said Brian E. C. Schottlaender, The Audrey Geisel University Librarian at UC San Diego. "Making this treasure trove of materials accessible to anyone with Internet access is a tremendous boon for scholars, students and interested members of the public."

"I am very proud that another vital part of the Scripps-Google relationship has come to fruition," said Tony Haymet, director of Scripps Institution of Oceanography at UC San Diego and UCSD vice chancellor for Marine Sciences. "Scripps Professor David Sandwell's state-of-the-art bathymetry in 'Ocean in Google Earth' has been warmly received around the world, and I am sure this initiative will be too. The leadership of Brian Schottlaender and his staff in transforming our UCSD libraries into 21st century relevance is outstanding."

According to Peter Brueggeman, director of the Scripps Institution of Oceanography Library, the materials digitized by Google include a wealth of books and journals, as well as numerous scientific expedition reports. The Scripps Library's collections cover subjects ranging from oceanography, marine biology, marine geology, marine technology, climate science and geophysics, with extensive resources in ecology, zoology, fisheries and seismology.

"The Scripps Oceanography Library has been in existence for more than 100 years, so digitizing and providing access to this extensive book and journal collection helps to create a larger and more complete digital library of materials on the marine environment for searching and use, including older works dating back to the 18th century in full-text," said Brueggeman. "While these books and other materials have long been available on our library shelves for individual use, Google Books' in-depth cross-collection searching feature is definitely a game-changer for scholarly research. Through word and phrase searching, all books on specific topics can be identified and reviewed by scholars for their research needs. The Scripps Library has scientific journal runs going back to the early 1800s, and many have never been available in an electronic format. Google's digitization of our journal backruns makes these older scholarly resources searchable for scholars and other researchers."

The digitized materials include numerous research expedition reports documenting scientific observations and discoveries dating back to the 1800s. These works, which laid the foundation for modern oceanography, include a report on crustaceans ( *The Stalk-eyed Crustacea*, Walter Faxon, 1895) collected on a U.S. expedition to central and South America and the Galapagos on the famous ship *Albatross*. The *Albatross*, a ship built by the U.S. government specifically for marine research, was a precursor to today's U.S. oceanographic fleet of ships. Another report ( *The Fishes of the Swedish South Polar Expedition*, Einar Lonnberg, 1905) documented the fishes collected on a famous Antarctic expedition, the Swedish South-Polar Expedition of 1901-1903 led by Otto Nordenskjold. Although the expedition was a great scientific success, resulting in the collection of many species new to science, their ship was crushed by ice, forcing the crew to build and live in a stone hut on an Antarctic island, subsisting on bird's eggs and penguins, until they were rescued by a ship from Argentina. Other digitized works include: *The Medusae*, (1909) by the pioneering ocean researcher Henry Bigelow, the founding director of the Woods Hole Oceanographic Institution; *The Echinoderm Fauna of Torres Strait: Its Composition and Origin* (1921) by Harvard zoologist Hubert Lyman Clark; and *The Land and Sea Mammals of Middle America and the West Indies* by zoologist Daniel Giraud Elliot, one of the founders of the American Museum of Natural History in New York and the American Ornithologists' Union.

"Digitization of the oceanographic expedition reports and older journals from the 1700s and 1800s is very exciting," said Lisa Levin, a biological oceanographer at Scripps Institution of Oceanography. "Scientists in those days made some extremely astute observations; most have been lost to the general scientific community simply because the documents reporting them have not been accessible. Those early observations take on greater significance as environments change and species disappear in the anthropocene (due to climate change, pollution, habitat degradation, overfishing and species invasions). They may hold the key to understanding conditions and ecosystems of the past, which will help us in coming to grips with the future."

According to Levin, who has utilized the Scripps Library's expedition reports in her teaching, the digitization of the early documents also allows students and historians to better understand the evolution of modern ideas and understanding. "For example, I ask my deep-sea biology students at Scripps to track an idea, theme or taxonomic group from the start of the discipline to the present using the historical literature."

The Google project is helping UC San Diego and other university libraries to create digital access to thousands of texts and scholarly materials. Consequently, this helps to protect and preserve library collections for future generations and from catastrophic loss such as an earthquake or fire. As part of the agreement with Google, the University of California is receiving digital copies of all books and other materials scanned from the UC libraries. The university's copies are stored in HathiTrust, a shared digital repository developed in partnership with other major research institutions across the country.

The digitized books from the Scripps Institution of Oceanography Library and other materials from the UCSD Libraries are accessible via the Google Book Search index. The search engine allows anyone to search the full text of books from libraries and publishing partners. For books in the public domain, readers will be able to view, browse and read the full texts online. For books protected by copyright, users can access basic background (such as the book's title and the author's name), a few lines of text related to their search and information about where they can borrow or buy a book.

Since the Google Book Search Project's inception in 2004, Google has digitized more than 12 million books from libraries and publishing partners throughout the world. In addition to the University of California, other libraries at the University of Michigan, Harvard University, Stanford University and Oxford University are among those that have also partnered with Google. Google's ultimate goal with the project is to make all of the knowledge contained within the world's books searchable and discoverable online.

The UC San Diego Libraries, ranked among the top 25 public academic research libraries in the nation, play an integral role in advancing and supporting the university's research, teaching, patient care and public service missions. The nine libraries that make up the UCSD Library system provide access to more than 7 million digital and print volumes, journals and multimedia materials to meet the knowledge demands of scholars, students and members of the public. Each day, more than 7,300 people stream through one of the university's nine

libraries. The Libraries' vast resources and services are accessed more than 87,500 times each day via the UCSD Libraries' website.

Media Contact:

Dolores Davies, 858-534-0667 [ddavies@ucsd.edu](mailto:ddavies@ucsd.edu) Mario Aguilera, 858-534-3624 [scrippsnews@ucsd.edu](mailto:scrippsnews@ucsd.edu)





