contains the vast amount of detail usually included.

In addition to the foregoing specific value this map is of general interest at present as showing the relation between the United States, its possessions, and the Far East and as including those areas around which present problems in the North Pacific Ocean are centered. It extends from New York and Panama to Singapore and Calcutta, from Alaska and Siberia to the Hawaiian Islands and includes a part of South America and a portion of Australia. Through its lateral center it extends over 180°.

The distinctive feature of the map is that these localities are here pictured in practically their true relation as to distances, areas, and comparative angular direction of coast line. The property of true scale along a great circle tangent to the forty–fifty parallel of north latitude at the central meridian of the map was chosen. This great circle is approximately the shortest distance between San Francisco and Manila, and in close proximity to it lie practically all the important points of interest such as the Panama Canal, Mexico, our Pacific Coast, Alaska, the Philippine Islands, Japan, and the coast of China. This is accomplished through the use of the transverse polyconic projection, which is the regular polyconic or American projection turned from its normal vertical axis to a lateral great circle axis.

THE STEAMER "ALBATROSS"

THE Fisheries Service reports that the steamer *Albatross* has been taken to Woods Hole (Mass.) and on October 29 was there put out of commission, the naval crew being released. This action was made necessary by a lack of sufficient funds to operate the vessel on a scale that would yield results commensurate with the basic cost of maintenance. It is hoped that by another year it may be possible to restore the vessel to active service and assign her to work on fishing grounds on the Atlantic coast awaiting attention.

The *Albatross*, which for nearly forty years has been an important unit of the Bureau of Fisheries, was the first vessel especially designed for deep-sea exploration and was equipped with the most approved apparatus and appliances for the work. These have been renewed, modified, or extended as the occasion arose. The vessel was built under the supervision of Commander Z. L. Tanner, United States Navy, from designs prepared by the naval architect, Charles W. Copeland. She was launched at Wilmington, Del., in 1882, and, excepting brief interruptions, has been constantly employed until the present time. The fact that after all these years she is now in excellent condition is a tribute to her construction, the quality of the material used, and the care which she has had.

The *Albatross* was engaged in investigations off the Atlantic coast from Newfoundland to the West Indies until 1888, when she was sent through the Straits of Magellan to the west coast, and during the next 30 years was engaged in investigations, surveys, etc., in the Pacific Ocean, particularly in Alaska. During the long period of the fur-seal controversy the *Albatross* formed part of the naval patrol of Bering Sea and was used by the commission created for the investigation of the fur seals. In 1891 the vessel was employed in surveying a cable route to the Hawaiian Islands, in 1899 and 1900 in a voyage to the tropical Pacific and Japan, in 1902 in investigations about the Hawaiian Islands, and from 1907 to 1910 in a comprehensive survey of the fisheries and aquatic resources of the Philippine Islands. In the War with Spain and in the World War the *Albatross* was taken into the naval service, returning to the Atlantic coast in 1917.

MULFORD EXPLORATION IN BOLIVIA

THE latest message received from Dr. Rusby, the director of the Mulford Exploration, was dated August 30 and was written from Huachi on the Bopi River in Bolivia. Dr. Rusby arrived at Huachi on August 23 and he and his party spent some time making collections in the vicinity and making excursions into surrounding territory. During their stay there four members of the party made a trip up the Cochabamba River.

Dr. Rusby states that the journey from Espia, at the head of navigation on the Bopi River, down to Huachi, was accomplished successfully except for the loss of five boxes of provisions and ammunition. The loss of their ammunition leaves the party in a rather precarious condition as they were depending on it for obtaining not only museum specimens of rare birds and small mammals but also to supply the camp with fresh meat.

Among botanical collections are included specimens of the "tree of life." This name is a literal translation of the Spanish name "Arbol de la Vida," given to the "Boldo" plant, so called because of its use by the natives for medicinal purposes. Photographs were made of what Dr. Rusby considers the largest true cactus in the world, which rises to the height of a good-sized tree and with a limb spread of forty feet or more.

Many forms of insect life have been collected. With these, as in the case of plant life, specimens collected in one of these deep Andean valleys may differ entirely from those of a similar valley very closely adjacent.

The party expected to arrive at Rurrenabaque, Bolivia, about October 1 and by this time are probably forcing their way into the depths of the Bolivian jungle in the vicinity of Lake Rocagua.

THE ECLIPSE EXPEDITIONS TO CHRISTMAS ISLAND

ACCORDING to an article in the London *Times*, with the aid of the Joint Permanent Eclipse Committee of the Royal Society and the Royal Astronomical Society, the Royal Observatory at Greenwich is sending an expedition to Christmas Island to observe the total eclipse of the sun which will occur on September 21 next year.

The Greenwich party will consist of Mr. H. Spenser Jones, Chief assistant, and Mr. P. J. Melotte, the discoverer of the eighth satellite of Jupiter. They will leave England early in February for Singapore, whence they and their equipment will be conveyed to the island by a steamer belonging to the Christmas Island Phosphate Company, which is giving valuable help to the project.

A joint Dutch and German expedition, the personnel of which will include Professor Voute of Batavia University and Professor Freundlich of Germany, will also go to Christmas Island, and it is possible that Professor Einstein will himself be present to observe the eclipse.

It is hoped to confirm the results obtained by the British expeditions at Principé and Sobral during the eclipse of May, 1919, when Einstein's prediction as to the value of the deflection of a ray of light passing through a gravitational field was verified by measurements of the position of start in the immediate neighborhood of the sun during totality.

It has been arranged that the Greenwich expedition, which will have erected its instruments by May, shall carry out an extensive program of photometric work. Based on the Harvard standard sequence of stars at the North Pole comparisons will be made of areas in South Declinations 30 deg. and 45 deg., with areas in North Declination 15 deg. Magnitudes of stars in the latter zone have already been determined at Greenwich in direct comparison with those in the North Polar area, and the photographs to be taken at Christmas Island will enable work on these lines in the northern and southern hemispheres to be linked up and carried on to the South Polar area by southern observatories. The equipment to be taken by the British party will include the 13 in. astrographic telescope used in the making of the Greenwich sections of the international photographic chart of the sky.

The path of totality will begin in Abyssinia, pass over the center of Italian Somaliland and across the Maldive Islands, where Mr. J. Evershed, the director of the Kodaikanal Observatory (India), will be stationed. At the Maldives the duration of totality will be 4 min. 10 sec. with the sun 34 deg. above the horizon. At Christmas Island the duration will be only 3 min. 42 sec., but the sun will be 78 deg. above the horizon. The maximum duration, nearly 6 min., occurs over the Indian Ocean where no observing station exists. After leaving Christmas Island the