tistics showing the annual world catch as exceeding 20,000 whales. There were no returns then available of later date than 1928.

We are now in possession of statistics on whaling in all parts of the world for the season 1928–1929, showing a catch of 27,566 whales, yielding 1,867,848 barrels of oil. The composition of this catch was: blue whale 13,650, finback 9,132, sperm whale 1,761, sei whale 1,549, humpback 304, other whales 1,170. The species taken in greatest number is the blue whale, constituting nearly half of the total catch. To the above world catch may be added a few gray, beaked, bottle-nosed right and other whales now seldom found. The equipment employed in world whaling during the 1928–29 season was 25 shore stations, 30 floating factories and 237 killing boats attached to stations and factory steamers.

Norwegian whaling in all seas is far in the lead, with a catch of 14,996 whales. British whalers took 8,230 whales. The United States, once leader in the industry, does not figure, as the limited amount of whaling off our west coast and at Alaska shore stations is under Norwegian auspices, as is also that of British Columbia.

Mr. Takahashi, of the Marine Products Company of Tokyo, has supplied certain details respecting whaling in Japanese waters: The gray whale formerly rather common there is now rare, only six having been taken in 1928. Whales being used extensively for human food in Japan, the yield of oil for that country is not included in the above world total of products.

Other countries engaged in whaling in addition to those already mentioned are Denmark and Argentina, with a total of 1,770 whales. Shore whaling stations in South Africa and on islands in the Antarctic are operated by both Norwegian and British companies. At the present time whaling is conducted chiefly in Antarctic waters, where the annual catch of whales is on the increase. The whaling industry in northern waters is declining.

There has been an increase in the number of floating factories operating in the Antarctic, where the fleet is assembling for the Antarctic summer season. It seems probable that with increased equipment the total catch of whales for the 1930–1931 season will exceed that of any season so far recorded.

C. H. TOWNSEND

NEW YORK AQUARIUM,
DECEMBER 18, 1930

A SEQUOIA FOREST OF TERTIARY AGE ON ST. LAWRENCE ISLAND

THE recent discovery of the fossil foliage, cones and wood of Sequoia on St. Lawrence Island, in the Bering Sea, is of exceptional interest from the standpoint of the Tertiary distribution of this genus, and the geographic conditions under which it formerly lived.

Several references in the literature to the occurrence of fossil Sequoia on St. Lawrence Island have not been substantiated up to this time by actual specimens, so far as known to the writer. With the hope of securing material evidence of the occurrence, a request was made last May to Dr. Henry B. Collins, Jr., of the Smithsonian Institution, that he collect any fossil plants encountered during his ethnological investigations there. With the assistance of Captain Edward D. Jones, of the Coast Guard cutter *Northland,* Dr. Collins visited the locality near the west end of the island on August 14, and collected the specimens which are the basis of this record. Writing to me from Nome on August 20, Dr. Collins makes the following statement:

> I have just returned from St. Lawrence Island where I took occasion to look up the fossil plants mentioned in your letter of May 2. From the Eskimos I learned the location of the place they occurred (15 miles east of the N.W. end of the Island), and when the *Northland* came for me we stopped for a few hours and made a collection. Captain Jones was much interested, for which we may both be grateful, for it would have been difficult to reach the place except with the ship. Along a high bank bordering a lake, outcrops of coal were visible, and associated with these, slides of reddish slate in small blocks. These were very rich in fossil plants. Captain Jones is bringing you what I hope will be an adequate sample, almost one hundred pounds of the rock slabs.

When the *Northland* reached Oakland on November 23, Captain Jones turned over this collection to me. It comprises some twenty-five slabs bearing abundant impressions of the leafy twigs of *Sequoia langsdorfii,*[1] with a few Sequoia cones and the impressions of several broad-leafed species. There are also some specimens of fossil wood, all apparently of Sequoia, which indicate that the trees represented were of a size comparable to the living redwood, *Sequoia sempervirens.* The broad-leafed species include a species of poplar, probably *Populus richardsoni,* and what appear to be species of sycamore and alder. In addition to these slabs, all of which are a dense gray shale, Captain Jones brought me a small piece of light-colored volcanic tuff bearing impressions of Sequoia leaves, which was picked up elsewhere on the island by a native. It is lithologically similar to the matrix in which abundant fossil Sequoias have

[1] This species is not readily distinguished from the living redwood, *S. sempervirens,* but is considered as distinct because of its geologic antiquity.

been collected in the John Day Basin and elsewhere in western America. A future search for the source of this specimen may result in the discovery of many other species which are the common Tertiary associates of the Sequoia.

The occurrence of this genus on St. Lawrence Island during the Tertiary is highly significant in the light of its distribution elsewhere in the north Pacific region during that period. It is of wide extent in North America from California and Colorado north to Alaska, and is commonly associated in the fossil record with the Tertiary equivalents of most of the species now living in the Coast Redwood forest and in the Bigtree groves of the Sierra Nevada, in California. In Asia *Sequoia langsdorfii* and many of its American fossil associates are found in Manchuria and Siberia. St. Lawrence Island, at 63½° north latitude, lies approximately 40 miles from the nearest shore of Asia and 100 miles from the Seward Peninsula in North America.

A study of the distribution of the modern redwood along the California Coast indicates that its migration over a salt-water barrier is seldom if ever achieved. There are no known cases of the occurrence of redwoods on the islands adjacent to the main land occupied by the Redwood Belt. This is due partly to the fact that the redwood is largely restricted to valleys protected from the wind, where rich soil and constant climatic conditions are in marked contrast with those of the shore habitat. It is also due to the difficulty of cone distribution; the green cones are so heavy that they do not float; by the time they have dried out and become buoyant, the seeds have been shed. One of the common tests for viability of redwood seeds is to place them in water, the viable seeds sinking. While there is no reason to believe that redwood seeds would lose their viability through exposure to salt water for a few days, it is difficult to reconstruct conditions under which they would be floated either before or after being shed from the cones. The possibility must be considered that a trunk, with a cone-bearing branch attached, might have floated across the 40 miles of water from the mainland of Asia to St. Lawrence Island during the Tertiary, have seeded the island as a result of being dragged up into a valley suitable for the growth of redwood trees, and have made possible subsequently the journey of another cone-bearing log over the 100-mile stretch of water to North America; or that the journey may have been made in the reverse direction. On the basis of probabilities such a means of migration seems much less likely than that St. Lawrence Island represents the remnant of a land bridge which connected Asia with North America—a bridge over which the redwood forest was essentially continuous during at least the first half of the Tertiary, and across which not only land plants but land animals were able to migrate from one continent to another. The similarity of the life, both fossil and living, of the two continents lends much weight to this interpretation of the Tertiary Sequoia forest of St. Lawrence Island.

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THE DESCRIPTION AND FIGURING OF IMPERFECT FOSSILS

In 1845 the Rev. P. B. Brodie published a work with many illustrations on the insects of the Mesozoic rocks of England. There were no formal descriptions of genera or species, but Brodie considered 32 of the species sufficiently well preserved to deserve names. In 1856, without seeing the specimens, Giebel provided names for 67 others, and much later Handlirsch proposed a number of genera and named 22 other Brodie figures. In one case a figure received a generic and specific name, and being inaccurately copied the copy got another generic and specific designation! The general result is that our catalogues of fossil insects are encumbered with numerous names which represent nothing which can be precisely identified. The example cited is only one of many coming down to modern times.

It is undoubtedly true that on occasion new knowledge or more critical judgment may justify the naming of a fossil first left nameless. But on the whole, if the original author does not care to give a name, the chances are that none is desirable. As it is impossible to prevent the naming of such figures or descriptions, it appears desirable to urge paleontologists to refrain from describing or figuring fossils they do not think deserve a name.

I had some correspondence with an eminent paleontologist on this subject and he was unable to support this conclusion. He urged, with reason, that it was often of importance to indicate the presence of a family or genus, though the species could not be determined. But it seems to me that in all such cases it would suffice to state the fact of occurrence without giving details or figures which could be made the basis of a new name.

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NAMES AND AMBIGUITY

Occasionally the technique of scientific writing may be improved by lessons from the technique of journalism.