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"double elephant" folio presumably for the earlier *Ornithological Biography* and more the "egalitarian" Royal Octavo of *Birds of America*.

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Ryan Tucker Jones. *Red Leviathan The Secret History of Soviet Whaling*. Chicago and London: University of Chicago Press, www.press.uchicago. edu, 2022. 304 pp., illustrations, map, notes, bibliography, index. US \$30.00; cloth; ISBN 978-0-226-62885-1. (E-book available.)

In the twentieth century, whaling was conducted on an industrial scale by factory ships from several nations, in pursuit of animal fats used in producing margarine and other products. Most of the activity was in remote waters. Fleets of catcher boats would locate and kill whales and bring them to their parent factory ship for processing. This system owed its effectiveness to innovations by Norwegian whalers earlier in the century: deck-mounted harpoon guns armed with an explosive grenade, and a factory ship with a stern slipway that enabled the whale carcass to be winched inboard for processing instead of the former method of flensing it alongside.

The Soviet Union was a latecomer to the industry, creating its first whaling flotilla in the 1930s. After the 1950s, it was a major player, and "the world's most prolific whaler" (210). Between 1932 and 1987, Russian whalers killed 550,000 whales, roughly one in six of all those taken in the twentieth century. This stark story of the Russian decimation of whale populations was largely unknown in the west. It was publicized in the 1990s after the collapse of the USSR by Russian scientists and Yulia Ivaschenko, a Russian-American scientist. In *Red Leviathan*, Ryan Tucker Jones, an environmental historian at the University of Oregon, has now published a highly readable and thorough examination of all aspects of Soviet whaling. He covers why the industry was developed, how it was organized, and how it reflected the ideology of the USSR. He describes how it was supported by massive research, entered popular culture, created a group of privileged workers and finally, ended in the 1980s.

The book is based on years of study, interviews with former whalers and scientists in Russia and Ukraine, and Jones' reflection. An earlier work, *Empire of Extinction: Russians and the North Pacific's Strange Beasts of the Sea, 1741-1867* (2014) was about the dire environmental consequences of Russia's imperial expansion into the North Pacific. It also covered how Russia subsequently introduced progressive conservationist policies. Jones' even-handed perspective is a particular strength in *Red Leviathan*. While

he describes how the Russian whaling fleet of up to five flotillas operating simultaneously reduced certain whale species to near extinction while grossly under-reporting catches, he also puts the industry into its Soviet context. Marxist ideology stressed that man could harness nature. "Scientific socialism" meant that rigorous study of whale populations and their movements would facilitate maximum production of whale meat for food and bones for fertilizer. The whaling flotillas carried scientists whose studies, although not published in the west at the time, substantially advanced knowledge of whales while reflecting alarm about the pace of efficient slaughter. Scientists on board also educated the crews about their prey.

Early Soviet pelagic whaling began in the North Pacific in the 1930s, initiated under the first Five Year Plan of 1928. The USSR did not join international whaling in the Antarctic until 1947. That year the Soviets arrived with a flotilla centred on the modern factory ship *Slava*, a German war prize displacing 28,000 tons with a stern slipway. With a length of 155m, *Slava* was a "behemoth" compared with the 12,000-ton improvised Soviet factory ship of the 1930s (60). That year, *Slava* joined an international Antarctic whaling fleet of 16 floating factories (seven Norwegian, two British, two Japanese, and one Dutch) plus several shore factories on South Georgia Island. Jones notes: "Though every whaling nation recognized that a return to the disaster of the 1930s Antarctic whaling would sooner or later destroy the whales and the industry they supported, it was already too late to stop it" (66).

By the mid-1950s, central planners projected higher production targets even as Soviet scientists were aware that some species of Antarctic whales were "on the border of extinction" (91). The sixth 5-year plan of 1956 launched a major expansion of the whaling fleet. It resulted in five new whaling flotillas with factory ships displacing up to 45,000 tons crewed by up to 1000 men and women.

Jones devotes a chapter to the whaling industry workers, a predominately ethnically-Russian privileged caste in the USSR. Because of their unique skills, whalers were better paid than fishing-vessel crews. In 1950, when the average yearly wage in the USSR was 7668 rubles, cleaners in in the factory ship *Slava* were being paid 10,000 rubles, boilers 36,000, and the captain 134,000 RUB (100). Whalers were employed by trusts that provided superior housing in their home ports of Odessa, Kaliningrad, and Vladivostok. They received a "polar bonus" for time spent below certain latitudes, plus a twenty-five percent bonus for meeting their monthly quotas for catches and products. If the quotas were exceeded by twenty percent, the bonus rose to sixty percent. This was a legendary "long ruble." "The motivation to kill as many whales as possible was as clear as the incentive to work hard in any capitalist enterprise" (100). Visits to foreign ports gave the whalers sought-after access to consumer

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goods not available to most Soviet workers. They were able to invest their high salaries in western clothing, electronics, and other scarce items that were traded at high markups on the black market at home. But this chapter is about more than pay and perks because the author describes somewhat idealistically how a factory ship functioned as a Soviet *kollektiv*.

Soviet delegates made constructive contributions during the deliberations which resulted in creating the International Whaling Commission in 1946, which established catch limits for individual species. Within years, however, Soviet fleets were catching far more than their assigned limits. *Red Leviathan* includes figures for depredations of various species, but for example, by the early 1960s, in just four years the Soviets had killed nearly 30,000 humpback whales in the Antarctic while reporting less than 1000 (95). Russian overharvesting was happening as part of a devastating international effort. Jones writes that 1964 saw the greatest slaughter of 92,000 whales worldwide with the USSR accounting for forty percent of the total (95).

By the mid-1970s, pelagic whaling was becoming increasingly less economically sustainable. Soviet ships began better compliance with International Whaling Commission regulations after international observers started working on board in 1971. A nascent environmental movement was growing in the USSR. Because whale populations had been so decimated, catch sizes declined and in 1975, one huge factory ship began experimenting with catching fish instead of whales (188). Finally, Greenpeace actions caused unfavourable publicity that eventually jeopardized Soviet negotiations with the USA about access to fisheries. Jones was able to find telling documentation in Russian archives about the impact of environmental confrontations after the end of the USSR (201). All these factors combined to make 1986/87 the last Soviet factory-ship-season in the Antarctic.

The massive factory ships built in Nikolaev (Mikolaev) in Ukraine yards were among the largest vessels constructed in the USSR. To be fair, *Red Leviathan* does not describe the building and operation of Soviet whaling ships. The best such source would be *Whale Factory Ships and Modern Whaling 1881-2016* by Ian Hart (2016). *Red Leviathan*, on the other hand, is a multi-dimensional examination of pelagic whaling by the USSR. Based on deep study and sympathetic interviews of participants in Russia and Ukraine this notable book covers a variety of topics in an invitingly clear and well-organized narrative. This is backstopped by endnotes and an excellent index. A rewarding and authoritative read.

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