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ALF WOLLEBÆK AND THE GALAPAGOS ARCHIPELAGO'S FIRST BIOLOGICAL STATION

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SUMMARY

Much has been written on the human history of Floreana Island, but the story of its oldest standing building, a lava house in Post Office Bay, has remained untold. We determined, and demonstrate with photographs, that the structure, now 90 years old, was once a biological station: the archipelago's first. It was built by the 1925 Norwegian Zoological Expedition to the Galapagos Islands, led by Alf Wollebæk, then director of the Natural History Museum of the University of Oslo. The Galapagos portion of the expedition, which was preceded by short explorations of the West Indies and Colombia, spanned five months and five islands, and resulted in the collection of more than 500 biological specimens, the publication of over 20 articles and books, and the discovery or reclassification of several species, most notably the Galapagos Sealion *Zalophus wollebæki*. Wollebæk's accounts of the expedition were written in Norwegian, and are not well known outside Scandinavia. We provide a brief account of the expedition, a summary of Wollebæk's observations in the Galapagos, and a history of the biological station that Wollebæk and his assistant, Erling Hansen, built.

RESUMEN

Alf Wollebæk y la primera estación biológica en las Islas Galápagos. Mucho se ha escrito sobre la historia humana de la Isla Floreana pero la crónica de su edificio más antiguo aun en pie, una construcción de lava en la Bahía Post Office, permaneció en la oscuridad. Hemos determinado y demostramos con fotografías que esta estructura, que cumple ahora 90 años, fue alguna vez una estación biológica: la primera en el archipiélago. Fue construida por la Expedición Zoológica Noruega a las Islas Galápagos de 1925, bajo la dirección del entonces Director del Museo de Historia Natural de Oslo, Alf Wollebæk. El segmento de la expedición dedicado a Galápagos, que fue precedido por cortas exploraciones del Caribe y Colombia, abarcó cinco meses y cinco islas, resultando en la colección de más de 500 especímenes biológicos, la publicación de más de 20 artículos y libros, y el descubrimiento o reclasificación de varias especies, entre las cuales se destaca la del Lobo marino de Galápagos *Zalophus wollebæki*. Los relatos de Wollebæk acerca de la expedición fueron escritos en noruego y son poco conocidos fuera de Escandinavia. Proporcionamos un breve recuento de la expedición, un resumen de las observaciones de Wollebæk en Galápagos, y una crónica sobre la estación biológica que él y su asistente Erling Hansen construyeron.

INTRODUCTION

Roughly 1 km northeast of the post office barrel in Post Office Bay, Floreana Island, stand the remains of an old lava building. Tucked amongst Palo Santo trees *Bursera graveolens*, about 50 m inland from the shore, the structure is partially visible from the water, at least during the leafless dry season. Although the existence of this lava house is known to many Galapagos residents, its history has remained a mystery. It stands in the dry lowlands on the most arid side of the island, 7 km from the nearest permanent freshwater source: an impractical location for any building. What on earth was its purpose? Who built it, and when?

We photographed the structure in 1996 during a field trip to retrace Charles Darwin's movements on the island (Grant & Estes 2009), and again more recently, when we decided to investigate its origin.

We began with the only other historical building in Post Office Bay, Casa Matriz, the story of which has been elucidated in Hoff's (1985) history of Norwegians in Galapagos, which has recently been translated into English (Hoff *et al.* 2014). Casa Matriz was a large, elaborate, wooden house (complete with generator and electrical lighting) built in 1925 by Norwegian settlers attempting to establish a lucrative fishing, whaling and cattle-ranching enterprise on the island. The building is long gone but eroded remnants of its concrete pilings lie where it once stood, behind the post office barrel.

The lava house is clearly not the remains of Casa Matriz, as neither the building materials nor the location

is correct, but their history is intricately linked. The same yacht (aptly named *Floreana*) that brought ten Norwegian settlers to Floreana (Santa María) Island in August 1925, also transported the Norwegian Zoological Expedition to the Galapagos Archipelago at the same time (Hoff 1985). The expedition members were Alf Wollebæk (1879–1960), Director of the Natural History Museum of the University of Oslo (NHMO), and Erling R. Hansen (1901–53), museum preparator and taxidermist. While the colonists set up camp behind the landing beach at Post Office Bay, Wollebæk and Hansen pitched their tents on a projection of land to the east of the bay, which was dubbed "Peninsula Oslo Museum". They were later joined by John W. Nylander (1869–1949), who moved from the colonists' camp and became their cook. The scientists spent the next five months exploring the island, making biological observations and compiling an extensive collection of specimens for their museum back home. They also built a biological station.

THE BIOLOGICAL STATION

A crude property map of the island drawn by August F. Christensen (instigator of the colonization attempt) and Anton Stub (captain of the *Floreana*), and reproduced by Hoff (1985), places this "Biol. Station" in the same general area as the lava house (Fig. 1). It seemed highly likely that the buildings were one and the same, but given that Casa Matriz was built from timber, there remained the possibility that the biological station had also been a wooden structure, since disappeared. When no further clues could be extracted from Hoff *et al.* (2014), nor from Wollebæk's primary account of the expedition (Wollebæk 1934), we contacted Stein Hoff.



Figure 1. Left: Detail from Christensen and Stub's 1925 map of Floreana showing the location of the "Biol. Station" (approximately in the centre of the map). Numbers indicate property lots. Though not part of the colonization attempt, the scientists were also given land: number 10 was Wollebæk's land and number 4 (by Black Beach on the west of the island, not shown here) was claimed by Hansen. (Photograph courtesy of Stein Hoff). Right: Google image of the same area showing the location of the lava house ($1^{\circ}13'50.8''S$, $90^{\circ}26'34.4''W$), in relation to the post office barrel (indicated by the envelope symbol) and Casa Matriz (just inland from there).



Figure 2. The biological station, photographed by A. Wollebæk in 1925 (left, from copy of Wollebæk's photograph in collection of S. Hoff.) and G.B. Estes in 2015 (right). Note the "Mickey Mouse" configuration of three pale rocks (two large "ears" and one small "face") in the upper left corner of the main wall, in both photographs. The timbers have gone, most likely removed when Casa Matriz was dismantled by the Ecuadorian military and taken in part to Isabela, between late 1937 and early 1938 (Conway & Conway 1947)..

Hoff, it turned out, had looked for the remains of the biological station during a visit to Floreana in 1985, but had lacked the time for a thorough search (S. Hoff pers. comm.). Upon hearing of the lava house he enthusiastically produced copies of three old photographs (glass negative slides) of the building, all taken by Wollebæk, one of them unlabelled (Fig. 2) and the other two labelled "Biolog. Stasjon" (Fig. 3) or "Biolog. St." (abbreviations of Biologisk Stasjon) followed by "Floreana, Nov. 1925. AW." The photograph not reproduced here is similar to that in Fig. 3 but without Hansen. The two labelled photographs are part of a collection of memorabilia documenting Thorolf Østmoen's 1926 journey to Galapagos on board the *Ulva*, and his temporary residence on Santa Cruz Island. Wollebæk could have given Østmoen the photographs shortly after Wollebæk returned to Norway in early 1926, before Østmoen departed for Galapagos in May of the same year, but alternatively they may have changed hands years later, when Østmoen was back in Norway. Østmoen's collection was acquired by Hoff and is now housed in the archives of Drammen, Norway.

Independently, we uncovered a fourth photograph, published by Wollebæk (1926), with a caption reading "Den biologiske stasjon — i Post office Bay, Santa Maria. Stasjonen er bygget av lavablokker ifjor høst." (The biological station — in Post Office Bay, Santa María. The station was built from lava blocks last autumn.). There was our answer. All we needed now was to compare Wollebæk's photographs to our own. The size, shape and placement of individual lava blocks in the lava house and the biological station were a match (Fig. 2).

The building consists of a single room measuring roughly 3 × 4 m on the inside, and currently standing <1.8 m tall. There is a doorway in the middle of the inland-facing wall, and two window holes in the opposite wall, looking northwest towards the sea. A low outer wall runs parallel to this side of the house, and appears to surround

a 2 m wide garden or patio, but actually disguises an L-shaped lava ramp. This ramp begins at ground level on



Figure 3. The biological station, with Erling Hansen (identified by S. Hoff) seated to the left, in November 1925. (Photograph courtesy of Stein Hoff.)

the southwest side of the building and angles up along the northwestern wall, underneath the windows; it may have facilitated construction.

With walls two to three lava blocks thick, the biological station was clearly built to last. Though Wollebæk and Hansen were only on the island for a few months, they intended the biological station to be used after their departure: through Christensen, in a popular, multi-authored book on Galapagos, they extended an open invitation to future visiting scientists to use the building as they wished (Christensen 1926). However, the building may never have been completed. Wollebæk's four photographs (all showing the northwest side of the house) show a skeleton roof, made from wooden planks perhaps left over from Casa Matriz, with plenty of gaps. Rough-hewn timbers comprise the jambs for the windows, which are otherwise open to the air (Fig. 3). With the collapse of the colonization attempt in late 1926, due to economic woes (Hoff 1985), timber to finish the building apparently never came.

ALF WOLLEBÆK'S NORWEGIAN ZOOLOGICAL EXPEDITION

Wollebæk's writings have not been published in English, and as a result his exploits have been under-appreciated in the English-speaking world. He is, however, recognized in the scientific name of the Galapagos Sealion *Zalophus wollebæki*. His collection of two sealions (at the time lumped with Southern Sealion under the name *Otari jubata*) were examined by a specialist and described as a distinct species (Sivertsen 1953). Aside from his Galapagos work, Wollebæk's research on Norwegian fishes, oysters, whales, seals and reindeer, and on North European polychaete worms, made him one of Norway's most respected zoologists, and earned him the King's Medal of Merit in gold in 1959 (Nissen, H. 2009 <https://nbl.sn.no/Alf_Wolleb%C3%A6k>, consulted 5 Mar 2015). His expedition to the Galapagos Islands also took him to the West Indies and South American continent, and resulted in the description of over a dozen new or reclassified species (Bøckman 2009), 15 taxonomic papers (Banks 1931, Curran 1932, Soot-Ryen 1932, Stach 1932, Stitz 1932, Augner 1933, Meise 1933, Sivertsen 1933, 1953, Stejneger 1933, Barber 1934, Esben-Petersen 1934, Hebard 1934, Schulze 1936, Bergenhyn 1937), four geographically-themed articles (Wollebæk 1926, 1927, 1935, 1936) and two books (Wollebæk 1932, 1934).

The expedition's itinerary was as follows. In March 1925, after prearranging a rendezvous with the *Floreana* (and Hansen) in Guayaquil in the middle of that year (Anon 1925), Wollebæk headed from Oslo to Antwerp for passage to the Caribbean (Wollebæk 1932). April was spent exploring Martinique, Puerto Rico, the Dominican Republic and Haiti. In early May he continued south to Baranquilla, Colombia, and in late May detoured east to explore Curaçao (Wollebæk 1934, 1935). At the beginning of June he passed through the Panama Canal (Wollebæk

1935, 1936), and continued his exploration of Colombia in Buenaventura, Cali and the Cauca valley (Wollebæk 1932). He then headed to Ecuador, to take his voyage to Galapagos. The *Floreana* arrived at Guayaquil late, on 10 July, and paperwork delays kept it docked for another two weeks. Finally, on 24 July, Wollebæk, Hansen, Nylander (who intended to study and write about the colonization attempt), Christensen and the colonists departed for Galapagos (Wollebæk 1927, Hoff 1985).

Currents pulled the ship further north than intended, so the first "enchanted isle" Wollebæk laid eyes upon, on 2 August, was Genovesa (Wollebæk 1934). The men did not land, but while circumnavigating the island, a pair of Lava Gulls *Leucophaeus fuliginosus* flew out to the ship, and Wollebæk bagged his first Galapagos specimens. He would later collect nine more Lava Gulls on Floreana, where they were attracted to the fishing activities of the Norwegian colonists, but where they are almost never seen today. The next day was spent on San Cristóbal, as guests of Manuel A. Cobos Jr. On 4 August the *Floreana* proceeded to its island namesake, anchoring at Black Beach. While Wollebæk and Hansen spent the next day exploring the highlands of their new island home, the colonists decided the harbour was too choppy for their fish processing scheme. On 6 August they all continued on to Villamil, on Isabela Island, where, Wollebæk noted, every house contained a small pet tortoise *Chelonoidis* sp. but none could be found in the wild. Their next stop, on 7 August, was Academy Bay, Santa Cruz Island, where the colonists filled their large water tanks with drinking water (and more than a few *Macrobrachium* shrimp) from a brackish well in the area now known as Pelican Bay. There, to the delight of a small party of resident Ecuadorian fishermen, Wollebæk shot four Galapagos Hawks *Buteo galapagoensis* (now extinct as a breeding species on Santa Cruz) which were so infested with itchy "lice" that after preparing the skins, the scientists were forced to strip off their clothes and wash with alcohol. On 8 August they motored around the island to Conway Bay, where Wollebæk collected both Marine Iguanas *Amblyrhynchus cristatus* and Land Iguanas *Conolophus subcristatus*. By 10 August they were back at Floreana, this time at Post Office Bay. Not only was Post Office Bay calmer than Black Beach, but here the colonists could expect a stream of freshwater to flow during the rainy season; or so they hoped. There was certainly a promising river bed at the northeast end of the landing beach, which they christened *Wollebæken*, meaning "the hillside creek". Unfortunately, it would run just once, and then all too fleetingly, during their stay. The colonists claimed the beach for their enterprise and Wollebæk and Hansen moved to the peninsula, their home base until the end of the year. On 28 Dec 1925 the scientists returned to San Cristóbal, in the first downpour of the season, saw in the New Year, and headed home to Norway (Wollebæk 1934).

Wollebæk's account of his experiences on Floreana Island paints an idyllic, if somewhat frontier-flavoured,

time on the island (Wollebæk 1934). The scientists' camp, consisting of several large canvas tents and an open, low-walled lava kitchen partially shaded with saplings (Fig. 4), was situated in a picturesque area behind a beach adorned with "carpets of bright red beach plants" (*Sesuvium edmondstonii*) and overlooking a series of "glorious small islets with groups of tall-stemmed cactus trees, green

on coal black lava rock, surrounded by light, fine sandy beaches with ornate imprints of waves" (all quotes here and below translated from the Norwegian by K.T. Grant, checked by S. Hoff). It was also right next to a thriving sealion colony, which took some getting used to. The first, sleepless, nights were spent listening to thunderous surf accompanied by "the most awful roaring as well



Figure 4. Top left: The scientists' camp at "Peninsula Oslo Museum", with Hansen, Wollebæk and Nylander, most likely photographed by Christensen (photograph courtesy of Hvalfangstmuseet, Sandefjord, Norway). Top right: Nylander drying dishes in the kitchen. Bottom: Wollebæk smoking a pipe of "Garter Mixture" with the kitchen in the background. (Photographs top right and bottom from Wollebæk's collection, courtesy of Stein Hoff.)

as dogs barking and growling, goats bleating, people sighing and retching in terrible seasickness". They even imagined the distorted music of sealions on the reef as the "death rattle from people fighting their last battle against ocean waves". Later, a large male sealion regularly took "night quarters outside the tents and sent his loathsome roar through the tent door, a not exactly pleasant way to be woken". Otherwise Wollebæk found the pinnipeds fascinating, and dedicated many hours to observing their entertaining behaviour: tossing fish in the air, shooting through the water "at lightning speed" before suddenly stopping and spinning around, porpoising after the colonists' small fishing skiff, and rolling back and forth on the beach to cover themselves with wet sand: a trick for evading flies, which the scientists soon learned to mimic (Wollebæk 1934).

In exploring the island, the men frequently came across evidence of past visitors. In Post Office Bay, Wollebæk found a rusty German "mauser rifle", apparently of a type dating from World War I, along with a plethora of cartridges (mostly spent). At the lower spring ("Wolf's Source") above Black Beach, he and the colonists re-discovered a "magnificent fig tree" that Carl Skogman, officer aboard the Swedish frigate *Eugenie*, had found growing there in May 1852, and which now (in 1925) had numerous initials of subsequent visitors cut into its bark (Wollebæk 1934). In the highlands they came across a bamboo hut with a corrugated iron roof, built by the "Chilean" companion of two Norwegian journalists, Per Bang and Jens Aschehaug, who had lived in a nearby cave for four months. In a cliff above this cave Wollebæk found the year of their stay, 1922, carved alongside a much earlier date, "1689" (Wollebæk 1934). Wollebæk guessed this older engraving was the handiwork of pirate captain (Edward) Davis, but if so he misread the last digit, for 1687 was the last year Davis was in Galapagos (Beebe 1924). According to Hoff (1985), colonist Martin Skarass recorded the date of the engraving as 1648, so perhaps Wollebæk or Skarass misread the last two digits. We have been unable to find any such 17th or 20th century engravings near the cave, and suspect they may have been eroded away or covered with vegetation. There is, however, a legible 19th century date in the vicinity, reading 1868, and cut into the overhang above the fresh-water seep, about 50 m from the cave (Fig. 5). This date is preceded by the letters "TL" and was almost certainly engraved by long-term Galapagos resident Thomas Levick, whom Wollebæk knew by his adopted pseudonym "Mr. Johnson from London" (Wollebæk 1934). According to scientist Joseph Hunter (1906), 1868 was the year "Captain Levick" arrived in Galapagos. At the time he may have been captaining a small ship owned by orchilla-hunter José Valdizán (Bognoly & Espinosa 1918). Although Wollebæk did not record seeing Levick's carving, he did meet the legendary man. In August 1925, Levick, then 83 years old and living as retired lighthouse keeper on San Cristóbal, piloted the Norwegian colonists around some of the Galapagos

islands before they settled down on Floreana. During their stop at Academy Bay on 7 August, Wollebæk ventured into the highlands of Santa Cruz by following the remnants of an old "road" that Levick claimed he had built for Manuel Cobos Sr. in 1870, before Cobos established his colony on San Cristóbal. Levick lived with the Norwegians for a short time at Post Office Bay, then returned to San Cristóbal where he died soon after (Wollebæk 1934).

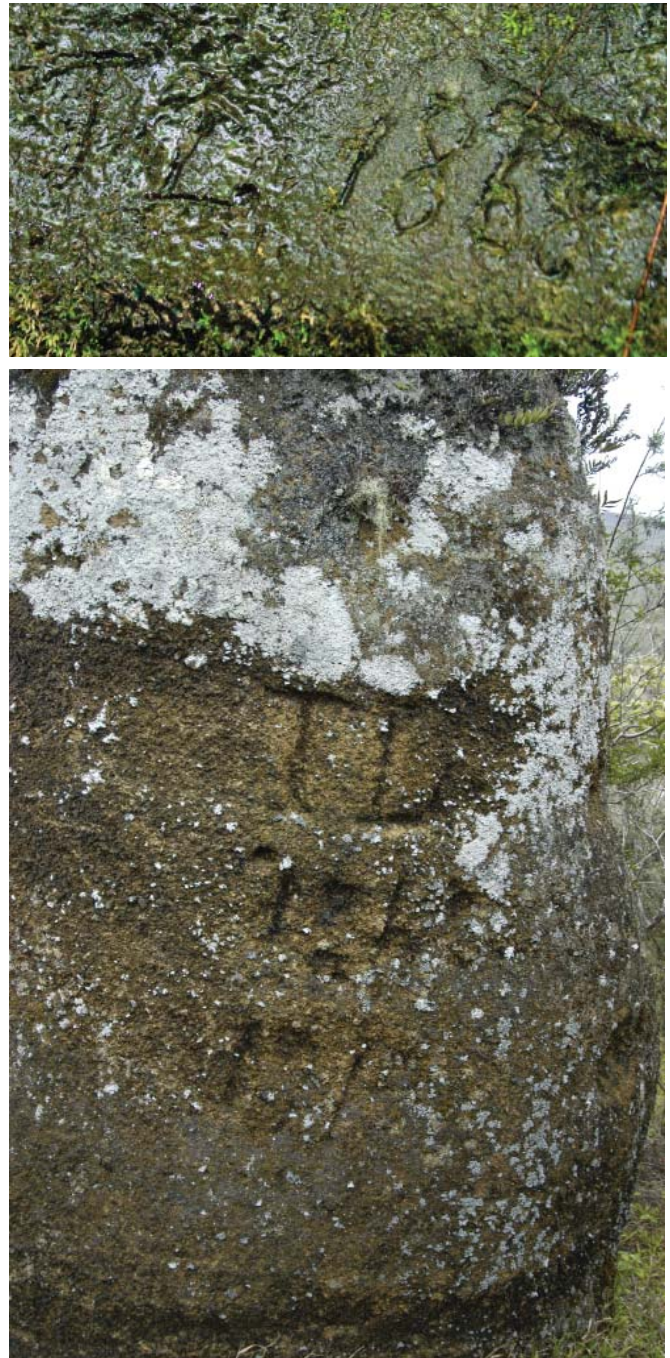


Figure 5. Top: "TL 1868" engraved at the upper spring on Floreana, probably by Thomas Levick (photograph: G.B. Estes). Bottom: the same initials, carved in similar style above some illegible marks, on a nearby cinder outcrop (photograph courtesy of John Woram).

By the time Wollebæk arrived, Floreana's long human history had already seen the endemic tortoise *Chelonoidis nigra* and Floreana Mockingbird *Mimus trifasciatus* become extinct on the island, replaced by a large array of introduced species, many edible. As a result the men were able to live largely off the island. Daily catches of (native) fish were supplemented with introduced oranges and lemons picked from the highlands, and frequent meals of feral beef, pork, goat and even donkey, shot with the same Mauser C96 pistol Wollebæk used to obtain specimens (Wollebæk 1934, Bøckman 2009).

Wollebæk certainly spun a number of "bloody" hunting yarns in his book, but his natural history observations were written in a style befitting both a zoologist and a poet (Wollebæk 1934). There were "radiantly beautiful sunsets" off Daylight Point (the western extremity of Post Office Bay), evenings spent admiring Whimbrels *Numenius phaeopus* descending from the highlands to settle on the flamingo lagoon at Punta Cormorant, dramatic scenes of Blue-footed Boobies *Sula nebouxii*, plunging like vertical harpoons from a height of "40–50 meters" into the water below. There were unusual occurrences, too: a Sperm Whale *Physeter microcephalus* entered the bay for an hour prompting Wollebæk to regret wryly that he had "no implement to take it, nor glass large enough to preserve it". While filling a drinking flask with water from a pool in the highlands, Wollebæk found it teemed with tiny crustaceans. "It is one of the few bitter reminiscences from my sojourn on these islands", he lamented, "that my hunting companion swallowed the whole flask's content in his thirst, forgetting the moment. When we some time later came back to the place, the puddles had disappeared away, dried and overgrown; I brought no *Daphnia* home with me." These crustaceans may have been *Eulimnadia*, as *Daphnia* is not known from Galapagos.

Despite the intriguing wildlife and stunning scenery, island life was not without its discomforts. In the highlands there were feral dogs, dangerous herds of cattle, and in one place where they camped a night, "tiny yellow ants" with burning stings, not collected but descriptive of the fire ant *Wasmannia auropunctata*, which was not otherwise reported from Floreana until 1972, although collected on Santa Cruz in 1905 (Herrera & Causton 2008). In the lowlands, there were relentless clouds of flies (eye, house and horse), and other pesky insects. "A horrid guest came tonight," he wrote in his diary for 16 December, "When I came out this morning, the whole tent roof and walls were covered with termites" (Wollebæk 1934). It was a complete surprise, for nowhere on the island had he found the kind of termite nests that had been so large and prominent in the trees of Curaçao. The enormous bloom of sexually mature adults (not identified but most likely the endemic *Cryptotermes darwini*: Light 1935) writhed about in a confetti of their own discarded wings and, while Wollebæk dusted off the tent in disgust, "tame" finches gorged on the feast. But all this was nothing compared to the mosquitoes. Bivouacking one night at the edge of the

flamingo lagoon, Wollebæk found the only way to survive the incessant onslaught of mosquitoes was to cocoon himself in his sleeping bag, and smoke a pipe of "Garther Mixture" (a Norwegian brand of tobacco), throughout the night. Finally there was the isolation. Despite having a dozen Norwegian neighbours, the men found themselves longing for news from home. They had almost no outside visitors. A letter Wollebæk dropped through the "teeth" of the post office barrel in early August remained there for the duration of his stay.

As for the biological station, not much is known. Despite publishing extensively on the expedition, Wollebæk only mentioned the building once, in the first article he wrote upon his return to Norway (Wollebæk 1926). His assistant Hansen fared worse, for he was never mentioned at all. While we can only speculate as to why Hansen was never acknowledged by Wollebæk, the biological station's omission is easier to understand, for with the collapse of the Norwegian colonization attempt on Floreana, and total abandonment of the island by January 1927 (Hoff *et al.* 2014), all hopes for the biological station's future and continued property rights simply disappeared.

Nevertheless, while the expedition was in progress, the biological station was surely used (or intended to be used) as a laboratory for preparing skins and as a storage facility for Wollebæk and Hansen's specimens. The collection included the hide of an American Crocodile *Crocodylus acutus* caught in Guayaquil and hung to dry on the decks of *Floreana* (Wollebæk 1927). It also included several shrunken human heads from a "Jivaroan" (Shuar) tribe, purchased in Ecuador (Wollebæk 1934), and frogs, snakes, snails, ants, spiders and birds from the West Indies and Colombia (Stitz 1932, Wollebæk 1932, 1935, Stejneger 1933), although these may have been sent home ahead of time. The Galapagos specimens numbered well over 500 by the end of the year, of which a large number were birds: 239 specimens representing 38 species are listed in the ornithological catalogue of the NHMO. There were also 84 reptile specimens: eight young tortoises from Isabela, two Land Iguanas from Santa Cruz, eight Marine Iguanas (six from Santa Cruz, where they were common and two from Floreana, where they were rare), 19 lava lizards (*Microlophus albemarlensis* from Isabela and Santa Cruz, and *M. bivittatus* from San Cristóbal), and 47 geckos *Phyllodactylus baurii* from Floreana (Stejneger 1933, Wollebæk 1934). Then there were Wollebæk's famous sealions: the skull of a male from Floreana (Fig. 6) and the skull and skin of a female from San Cristóbal (Sivertsen 1953). Among the remaining Galapagos specimens were a number of fish (Christensen 1926) and multiple jars of invertebrates: decapod crustaceans (34 species of shrimp, crabs, lobsters) (Sivertsen 1933), molluscs (19 bivalve species and a chiton) (Soot-Ryen 1932, Bergenhyn 1937), myriapods (at least one centipede and one millipede) (Wollebæk 1934), arachnids (21 spiders, one solpugid, and a scorpion *Centruroides exsul* new to science) (Banks 1931, Meise 1933), ants (six species) (Stitz 1932), flies



Figure 6. The holotypic skull of Galapagos Sealion *Zalophus wollebaeki*, collected by Wollebæk, is housed in the NHMO. This replica, crafted by Per K. Thorsland, was presented to the Charles Darwin Research Station on 7 Nov 2014 by Professor Øystein Wiig on behalf of the museum. (Photograph: G.B. Estes.)

(26 species) (Curran 1932), orthopterans (ten species of cockroaches, grasshoppers and crickets, and one praying mantis) (Hebard 1934), neuropterans (an antlion and a lacewing) (Esben-Petersen 1934), apterygotes (two silverfish and a collembolan) (Stach 1932), true bugs (seven species, including a bed bug) (Barber 1934), polychaete worms (eight species) (Augner 1933) and ticks (at least two species) (Schulze 1936).

The Galapagos collection, though from only five islands, was enough to make any museum proud. It was also sufficient to satisfy Wollebæk's curiosity regarding the origin of life on Galapagos. He had been keen to investigate first-hand the validity of George Baur's subsidence theory: that the Galapagos Islands once comprised a single large land mass that had been connected to the mainland (Baur 1891). Wollebæk (1934) concluded that the disharmonic fauna, particularly the absence of amphibians which he searched for on Floreana (and less thoroughly on Santa Cruz and San Cristóbal), negated the idea of a land bridge to the mainland: all ancestral organisms must have arrived by air or sea. He believed, however, (and would leave it to others to invalidate) Baur's claim that Galapagos had been but one island, whose peaks form the archipelago we see today.

FROM BIOLOGICAL STATION TO PIRATE'S LAIR

After Floreana was abandoned by the Norwegian colonists, Casa Matriz became the temporary living quarters or store for a series of famous visitors and settlers. Dore and Friedrich Ritter, arriving in September 1929, used Casa Matriz to store their gear while setting up house at the lower spring above Black Beach (Strauch & Brockman 1936). Captain Paul Edvard Bruun, Knud Arends and Arthur Worm-Müller used it as home base for a short-lived (1930–1) fishing enterprise (Strauch & Brockman 1936, Hoff 1985). Heinz and Margaret Wittmer, who arrived on the island in August 1932 and moved straight to the

highlands, used Casa Matriz as a depot for receiving supplies ordered occasionally from the mainland (Strauch & Brockman 1936, Wittmer & Wittmer 1936). The Baroness Wagner-Bousquet and her escort Robert Philippson lived in Casa Matriz for the first three months (Oct–Dec 1932) of their infamous stay on the island, while their ill-used companion Rudolph Lorenz brought them freshwater from the highlands on a gruelling daily trip (Wittmer & Wittmer 1936). They then joined Lorenz in the highlands to build their "Hacienda Paraiso".

In contrast, we have found no evidence to suggest the biological station was occupied during this same period, except once. In 1934, members of Allan Hancock's third scientific expedition to the Galapagos Islands aboard the *Velero III*, hatched a plan to make a pirate-themed film featuring Floreana's by then notorious colonists, the Baroness "Empress of Galápagos" and Philippson (Palmer 1934). The setting for the farce, which would further fuel the Baroness's reputation, would be a pirate's lair, and for this, they chose "the old stone house", as Heinz Wittmer later referred to it (Wittmer & Wittmer 1936). On 29 Jan 1934 Charles Swett and Emory Johnson headed over, with the protagonists, to what we now know was the biological station, and shot the film in one day (Palmer 1934). The short, silent movie, shown widely by Allan Hancock in the months that followed and reproduced recently in the documentary *The Galápagos Affair: Satan Came to Eden* (Geller & Goldfine 2014), is well known. Many viewers will have assumed that the pirate lair was the Baroness's actual abode on Floreana. This was not the case. Others may have guessed it was a movie set, constructed by Allan Hancock's men, specifically for the film. We now know this was not true either. By matching up the placement and shape of lava rocks in the pirate's lair to those in our photographs of the lava house (this time showing the front of the house), we are able to demonstrate that the building in the film was the biological station (Fig. 7). How the members of the Norwegian Zoological Expedition to Galapagos would have reacted to their edifice of science being used for such gimmickry, we can only imagine.

EPILOGUE

The Charles Darwin Research Station (CDRS) on Santa Cruz Island, established in 1964, is the oldest operating biological station in Galapagos, but it was not the first. Thirty-five years before ground was broken for construction of the CDRS (in 1960) a small biological station was built on Floreana. The year, 1925, was nine decades after Charles Darwin set foot on the same island, and this year, 2015, marks the 90th anniversary of the Norwegian biological station's existence. It may never have been completed, nor perhaps even used much, but the legacy of the scientific work conducted by its architects lives on. Indeed, the international spirit in which it was offered to scientists "of all nations" when Wollebæk and Hansen left the island (Christensen 1926) echoes in the very



Figure 7. The Baroness and Robert Philipsson in pirate costume, at the entrance to the biological station, 29 Jan 1934 (top: photograph courtesy of University of Southern California, on behalf of the USC Libraries Special Collections). The same wall (note the pattern of rocks making up the doorway), photographed by K.T. Grant in 1996 (middle) and G.B. Estes in 2015 (bottom).

foundations of the CDRS. With the building's true identity rediscovered, let's hope it stands for another 90 years.

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