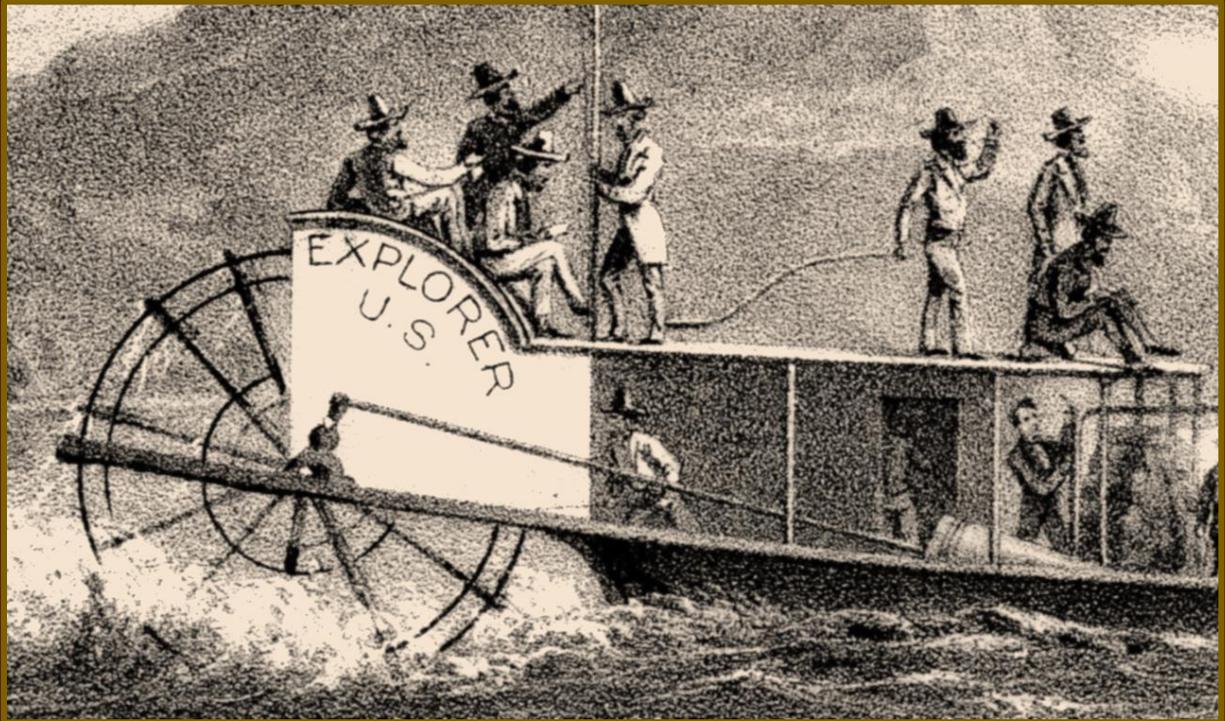


EXPLORER



Andrew J. Carroll
on the Colorado River
1857-1858

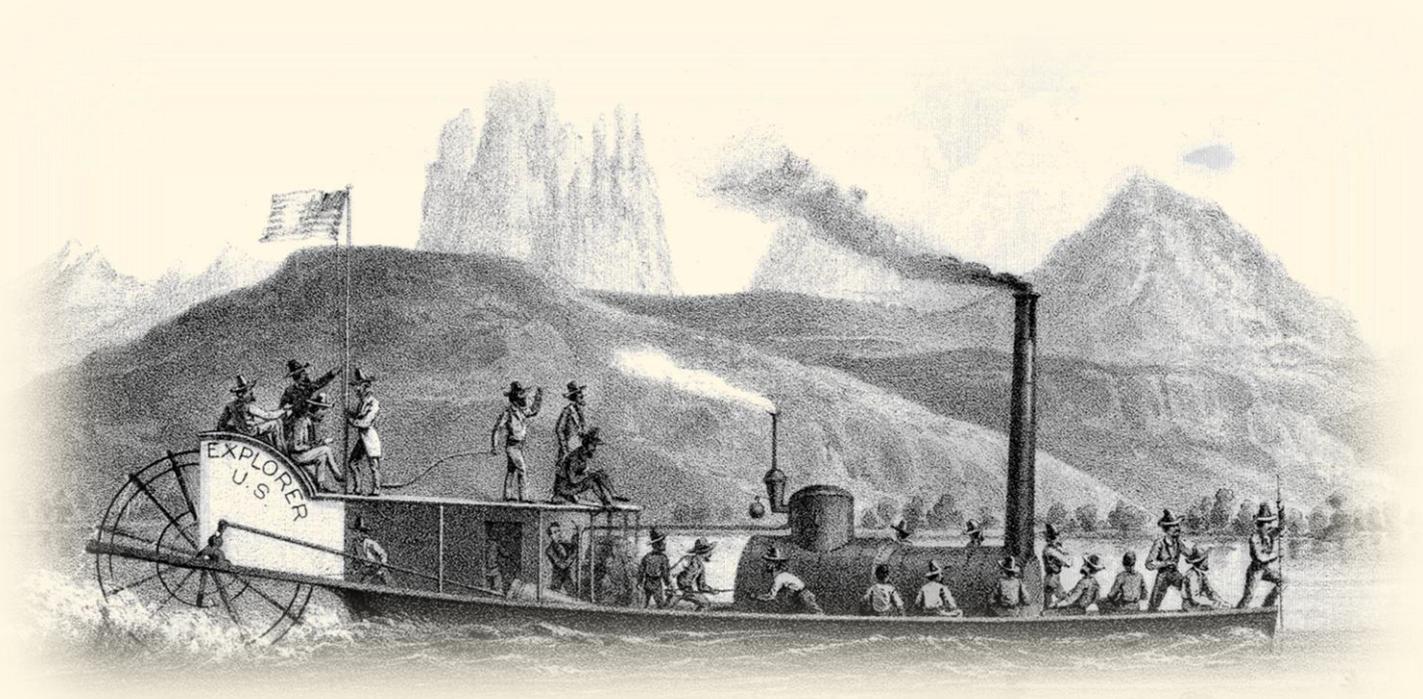
Earle E. Spamer

Explorer

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Explorer

Andrew J. Carroll
on the Colorado River, 1857–1858

including

Transcriptions from the “General Report” of
Lt. Joseph C. Ives’ *Report Upon the Colorado River of the West* (1861)

Translations from Balduin Möllhausen’s
*Reisen in die Felsengebirge Nord-Amerikas bis zum
Hoch-Plateau von Neu-Mexico* (1861)

Earle E. Spamer



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COVER ILLUSTRATION and FRONTISPIECE. Details from "Chimney Peak," lithograph by J. J. Young after original artwork by H. B. Möllhausen, *frontispiece* in J. C. Ives, *Report Upon the Colorado River of the West* (U.S. Government Printing Office, Washington, 1861; 36th Congress, 1st Session, House Executive Document 89, and concurrently as an unnumbered Senate Executive Document).

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To Mr. Carroll, the engineer and constructor of the steamer, and to the pilot, Captain Robinson, are due, in great measure, the successful ascent of the Colorado. The report shows how large a share they had in the accomplishment of the work.

— Joseph C. Ives, *Report*, p. 6

The two central figures of the Explorer were engineer Carroll[1] and Captain Robinson, for it was due to them alone that the virgin craft, in spite of the thousandfold obstacles and dangers by which it was constantly surrounded, reached the end of the Colorado's navigability intact, and returned safely to Fort Yuma.

—Balduin Möllhausen, *Reisen*, Vol. 1, pp. 151–152
[in translation]

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Preface

The story of Lieutenant Joseph C. Ives' expedition up the Colorado River in 1857–1858 with the steamboat *Explorer* is well known, well told, and, well, old news. What this book brings to light, however, is Andrew Carroll. He was the engineer who ran the boat's engine; he also put its parts together in an improvised dry dock dug into the clay of the Colorado River delta, and he may well have helped build the thing in Philadelphia. Ives had occasional things to say about Carroll in his "General Report," the first part of the 1861 government publication about the expedition. So did fellow voyager Balduin Möllhausen, who wrote his own book about the expedition, in German and published commercially in Leipzig, also in 1861, which has been largely hidden from readers of English. Their sparse remarks about Carroll are dispersed within long texts, and although lots of things have been written about *Explorer's* expedition, the engineer has been ignored, save once in a while for his name, who until now did not even have a given name to go along with his surname. He was sketched by Möllhausen, and those little pencil drawings, still owned by family members in Germany, were fortuitously included in a 1995 book about Möllhausen's artwork from the Colorado River expedition. So while we have an idea of what Carroll looked like, we have lacked a united story about him.

This book does not presume to retell the Ives expedition, so meticulously told by Ives and Möllhausen and recast by historians, professional and avocational alike. It is instead a *précis* of Carroll's perspective of things; a story never gathered. On the Colorado, we rely wholly on Ives and Möllhausen since Carroll never wrote about his adventures. His prescribed, foreshortened existence in print, as "Mr. Carroll," was a reflection of contemporary politeness and Ives' military style of address by surname only (though once he freed up Carroll's initials—"A. J."). Möllhausen followed suit; throughout his book he refers to and misspells the man only as "Mr. Carrol." Ives kept to the factual details of duty in writing about Carroll. Möllhausen wrote more personally and at greater length, but his rendition has never come down to us in English, except for excerpts, and those were not about the engineer. It's a shame, because

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Carroll's Colorado River story is a remarkable one, brief as it is. Here was a young man, an Irish immigrant in his mid-twenties, sent with a boat kit from Philadelphia to the mudflats of the Colorado River delta (by way of Cuba, Panama, and California ports), where he had to get the sea-weathered pieces into shape (literally), put the kit together with its three-ton boiler and engine running, and then handle its controls under the orders of the hired captain—orders that changed frequently because of the fickleness of the untamed Colorado's currents, shallow bottom, and obstructions. For a man used to Philadelphia's gently tidal, unrocky Delaware River, this was something altogether different. Carroll, according to Ives, thought the Colorado was "the queerest river to run a steamboat upon."

Except by luck, the engineer might have been put suddenly out of work on the far frontier when *Explorer* crashed headlong into a submerged rock in Black Canyon, not far from where today Hoover Dam blocks the river. No one had seen it, but the christened "Explorers Rock" defined the practical extent of navigability on the Colorado River at low water; a label that then appeared on maps for decades. By good fortune, the iron boat had held together. Its apparatus, though, was damaged when the shock wrenched the engine and boiler out of place. This took Carroll several days to repair, but *Explorer* was run safely back down the river.

Without his expertise the expedition could not have continued with its planned landward venture that took Ives and part of his command to the Grand Canyon. So even though Carroll never got to see the canyon, he made it possible for the first exploratory expedition to reach it—and more importantly, to publicize it through word and art. True, others would have gotten to the canyon, eventually, but Carroll served as a shipwright and engineer and followed the hails of the pilot above his head. He delivered in one piece to their embarkation point at Beale's Crossing the international group of Lt. Ives, Dr. Newberry, Herren Möllhausen and Egloffstein, and the soldiers of the land expedition.

Specifically to place *Explorer* and its engineer in the light of historical acknowledgment, both Ives' and Möllhausen's writings are here specially brought together for the first time. My own contribution has been to learn about the man and the firm that made *Explorer*. This book celebrates Andrew J. Carroll and his new-found part in the history of the Southwest and of Philadelphia. ●

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Introduction

Colorado River historians and aficionados are familiar with *Explorer*, the little U.S. Army steamboat that ventured upriver from Fort Yuma in 1858 under the command of Lieutenant Joseph Christmas Ives, Army Corps of Engineers. Ives' official report of the expedition is composed of engaging narratives and delightful scenic, ethnographic, and scientific lithographs and maps. They take the reader from the order for construction of *Explorer* in Philadelphia through the boat's tedious reassembly at the mouth of the Colorado and its upriver run, pausing at Fort Yuma to collect men and supplies, then finishes with the explorers' overland journey across New Mexico Territory to the Grand Canyon, the Hopi mesas, and Fort Defiance.¹ Accompanying Ives was the German adventurer, artist, and writer Balduin Möllhausen, who served as illustrator and an assistant to the expedition's physician and geologist-naturalist, John Strong Newberry. Balduin had traveled with Ives on an earlier expedition across New Mexico in 1853–1854, under the command of Lt. Amiel Weeks Whipple, surveying the potential route for a railroad to the Pacific coast. Möllhausen wrote a book about that trip; and he would write another one, in two volumes, about his experiences with the Ives expedition.²

¹ J. C. Ives, *Report upon the Colorado River of the West, explored in 1857 and 1858* (Washington, 1861), one volume comprising five separately authored and paginated parts. This was produced by order of Congress, as both House and Senate Executive Documents with two maps, differing in that the Senate version added two geological maps. Ives' engaging narrative, "General Report," is Part I of the complete 1861 *Report*. One should read it for a wealth of additional information. J. S. Newberry's "Geological Report" (Part III) similarly contains quite a lot of narration in addition to the science. The volume was, incidentally, Ives' last official production, submitted to the Secretary of War on May 1, 1860, but by the time of its publication he had left Washington, having defected to the army of the Confederate States of America.

² Balduin Möllhausen, *Tagebuch einer Reise vom Mississippi nach den Küsten der Südsee* ('Journal of a trip from the Mississippi to the shores of the South Sea') (Hermann Mendelssohn, Leipzig, 1858). Möllhausen, *Reisen in die Felsengebirge Nord-Amerikas bis zum Hoch-Plateau von Neu-Mexico, unternommen als Mitglied der im Auftrage der Regierung der Vereinigten Staaten ausgesandten Colorado-Expedition* ('Travels into the Rocky Mountains of North America to the High Plateau of New Mexico, undertaken as a member of the Colorado Expedition on behalf of the United States Government') (Otto Purfürst, Leipzig, [1860?], and Hermann Costenoble, Leipzig, 1861), 2 volumes under each imprint. [For a the Leipzig printings of the *Reisen*, see Earle E. Spamer, *The Leipzig Imprints of Balduin Möllhausen's Reisen in die Felsengebirge Nord-Amerikas*

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Although Ives, Möllhausen, and Newberry are well known to readers of the *American West*, *Explorer's* engineer is a castaway in history; so too the boat's industrial builder. Until now he was identified only as "Mr. Carroll," and after his run up the Colorado and back no one wondered what had become of him, nor indeed asked who he was. The boat's manufacturer also has been mentioned only by name, in passing—Reaney, Neafie and Company. Yet it was that firm's Carroll who, with difficulty, put *Explorer* together after its long trip west in pieces, and with the pilot handled it upriver nearly to the doorway to the Grand Canyon. And the separate land expedition conducted by Ives from the Colorado River eastward to Fort Defiance, stopping a couple of times at the Grand Canyon, was operatively possible due to Carroll's engineering skill that delivered them safely to the drop-off at Beale's Crossing.

Even the limited records disclosed in this book allow us to finally learn something about *Explorer's* overlooked engineer. Ives' narrative is an excellent witness to the competence and resourcefulness of this young man, but the lieutenant's observations have before now been only brief, edited remarks in southwestern historians' work because no one has advocated for Carroll's essential role in the expedition. Möllhausen's own narrative, itself largely overlooked because it is delivered in two volumes of wearying German Fraktur, fortunately gives further insights into Carroll's role and demeanor during the upstream run. And the two—Ives and Möllhausen—have not until now been brought together to tell this story.

Carroll and the firm that built *Explorer* receive their due here. We gain an appreciation for why *Explorer* was the kind of boat it was. We see, as best as is presently possible, who Andrew Carroll was, what sort of a worker he was, and that his contributions meant success for Ives' mission. It made possible the first geographical, scientific, and artistic descriptions of the Grand Canyon—though Carroll himself never got to see it. Yet despite what is outlined here, the engineer fades into the blurry mists of history; we still find only bits and pieces of his life. His steamboat might be gone forever, too; its isolated grave was found in Sonora in 1930, and today the site is replaced by irrigated farmlands.

bis zum Hoch-Plateau von NeuMexiko (1860, 1861): *Bibliographical Notes* (Raven's Perch Media, Philadelphia, 2022 [PDF], <https://ravensperch.org>).

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Note on the Translations

Even after more than a century and a half, Möllhausen’s account of the expedition commanded by Lt. J. C. Ives is still not available in its entirety in English. While others of Möllhausen’s accounts of American explorations, tendering his image as a rugged trapper, hunter, and adventurer³ have been translated into English, his story of the Colorado River expedition, published in 1861, was only translated into Swedish, and that in 1867. His expedition record is more spirited in contrast to the detailed (and itself engaging) “General Report” of Lt. Ives, also published in 1861, but only bits of his work have appeared in English, over many years, extracted in various publications.⁴ In the present volume, readers of Colorado River literature in English now have access to Möllhausen’s experiences and impressions, such as they revolve around *Explorer’s* engineer, Andrew Carroll.

The translations herein were made by first using Google Translate online. Though it does good work, it is simply a “neural machine translation service” that over time “learns” to construct better and more grammatically correct sentence structure and word selections. For this book, Möllhausen’s texts were hand-typed from a copy of the *Reisen*—no digital copy rendered by optical character recognition (OCR) was available, but it would not have been relied upon anyway. There is no such thing as a rigid, word-for-word translation. Translating is an art form that responds to context and grammatical and other nuances. Far from these translations being a simple transfer of results from Google Translate, they are the product also of judicious editing, first for sense, then when necessary using retractions to avoid awkward synonymies introduced by the artificial translator. Conventional German–English dictionaries have assisted, as also have other translation resources. Möllhausen’s

³ See illustration, p. 55 *herein*.

⁴ His full name is Heinrich Balduin Möllhausen, but most references to him, as well as his own byline, are as Balduin. The many printings of Möllhausen’s *Reisen*, all but the Swedish translation, are in German; and in more recent time the reprintings are facsimile editions. See extensive citations in Earle E. Spamer, *The Grand Canon: A Worldwide Bibliography of the Grand Canyon and Lower Colorado River Regions in the United States and Mexico* (Raven’s Perch Media, Philadelphia, 4th ed., 2022 [<https://ravensperch.org>]). However, the portion of his narrative that begins Volume 2 of the *Reisen*, regarding the first part of the land expedition between the Colorado River and the Grand Canyon, is recently available in English: *Balduin Möllhausen’s Grand Canyon* (Earle E. Spamer, ed.), Raven’s Perch Media, 2022 (PDF at https://ravensperch.org/wp-content/uploads/2022/10/MOLLHAUSEN_.pdf), which volume thus is a sequel to the present one.

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sentences sometimes impart a Germanically rambling feel to the translations, too, which emphasizes the fact that more elegant renditions by someone who is fluent in both languages would produce clearer texts for readers in English, though they would likely occlude his rolling, talkative style of narration that goes so far as to produce paragraphs that trundle over several pages. ●

Andrew J. Carroll (1832–1903)

The data presented here about Andrew Carroll have not been known before. For the first time we have his given name, and we learn where he was born and died, and where he lived. Limited information about his newly found family is also recovered.

Until now, Lieutenant Ives had been our sole source about *Explorer's* origin and its engineer. All we knew was that the boat was made by “Reaney, Neafie & Co., of Philadelphia,” and the engineer was “Mr. A. J. Carroll, of Philadelphia.”⁵ The other chronicler of the expedition, Balduin Möllhausen, who also was one of the two artists of the group, occasionally referred to the engineer and even drew graphite sketches of him, but called him only “Mr. Carrol” [*sic*].⁶ Neither Ives nor Möllhausen offered any details about Carroll’s personal history. Accompanying the boat from Philadelphia and operating its machinery on the Colorado, Carroll surely was an employee of the Reaney–Neafie firm, though the connection was never unambiguously stated. This is not much to go on to discover who was “A. J. Carroll, of Philadelphia,” but resources now modernized and accessible on the web provide quite a lot of power to sift through scattered and interminable records to find out, first of all, who was Mr. Carroll.⁷

⁵ Ives, *Report*, 21.

⁶ Möllhausen, *Reisen*. The sketches mentioned here, and remarks about their publication in the late 20th century, are referred to in more detail later in this book.

⁷ U.S. and Pennsylvania censuses, passenger list records, and some other records used in the research for this book were accessed through queries online at Ancestry.com (<https://ancestry.com>); additional information was found through Find a Grave online (<https://www.findagrave.com>). Whereas, once, detailed citations of tediously accessed microfilm reel and frame numbers may have been necessary to relocate these data, today all one has to do is type basic information into search screens, and sift and analyze from there. It is not always easy, but those who are indoctrinated into the peculiarities of genealogical records and the means by which online records are engaged experience fewer difficulties if the time is taken to browse through and patiently examine promising records, from what sometimes are long lists. Not all of the records are perfectly accurate; they can contain misspellings and misinterpretations introduced by the original recorders and by index transcribers, around which repeat users devise various ways to rediscover the data they seek. The microfilmed records still exist, though they are hardly used as much. The U.S. censuses do not record the same kinds of information from one decade to the next; for example, the relationships of the

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At the start of this study, an assumption was made that Carroll had returned home after he returned *Explorer* to Fort Yuma. Although there was no indication as to whether he had stayed out west after the expedition or had in fact returned home, there was a possibility that he would be recorded in the U.S. Census for 1860, in Philadelphia. Only one promising candidate was found, and the remainder of the information about him was gradually built up with confidence. For quite some time, though, it was unclear what had become of him. After the 1870 census and entries in Philadelphia city directories of that decade, all trace of him ceased, for reasons then undetermined. Only in 2022 were records found that revealed he had moved from the city.

The information here proves that he did return to Philadelphia and continued in his occupation as an engineer. Soon after the death of his mother in June 1878 he moved his family to New York City, and thereafter to Brooklyn. The respective parts of the U.S. census sheets for 1860–1900 are reproduced herein (except of course that one for 1890, which is lost, virtually the entire decadal census having been destroyed, to the dismay of genealogists).

In 1860, in Philadelphia’s 2nd Ward, Andrew Carroll (aged 27, engineer) was living with John Carroll (56, “Gentleman,” his father), Mary (60, his mother), John (24, engineer, Andrew’s brother), Ellen (22, relationship undetermined), Margaret (20, Andrew’s wife), and Charles (1, son).⁸

registrants to the head of the household, and street addresses, were not captured in the earlier censuses. Regretfully, a survey of Philadelphia newspapers in 1857–1858 do not mention Carroll (for example, human-interest items that might have noted his departure for or return from the West, or commercial news about Ives’ contract with the Reaney–Neafie firm).

⁸ References to the wards and other divisions within Philadelphia reflect variously redrawn boundaries and renamed divisions within the northeastern part of today’s South Philadelphia section of the city, which lies south of the historic Old City section and along the Delaware River. See *p. 21* herein for a contemporary map of the area. The specific relationships of the individuals noted in the 1860 census are interpreted from later census records because data about the relationships to the head of household were not recorded in 1860.

Those who work with census and other archival records, especially those who trace genealogies and are more familiar with individual families, often recognize misreported and sometimes grossly misrecorded information about the same person. The spellings of names can vary—even wrong names might be recorded—and stated ages in these registers are not always arithmetically faithful from one census to the next, or between one record type and another. Other data, too, may differ despite perspicacious assurances by a researcher that they record the same person. As noted from the various sources cited herein, records for Andrew give slightly disparate ages, which is not so great a concern in that we have his baptismal record from 1832. [I vouch for this general statement personally. Among other particular examples, I found an inattentively

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Moving ahead in time, a Pennsylvania septennial census (by name, age, and occupation only) taken in Philadelphia's 1st Ward in 1863 lists Andrew Carroll (34, engineer). No other unambiguous record has been found for Andrew during the Civil War period.

In the 1870 U.S. census for the city's 1st Ward, 3rd Division, Andrew (37, "Superintendent Steam Ship line") is now head of household with Margaret (31, wife), Charles (11), Kate (9), Mary (6), and Mary (71, his mother). It is not clear whether "Superintendent" refers to a firm's administrative position or, more likely, a job such as the shop superintendent of a steamship line's engineering department. By this time he was reasonably comfortable, with a home valued at \$5,000 and \$1,200 in assets (the basic dollar valuations are in 2022 equivalent to about \$109,000 and \$26,000, respectively⁹, which of course do not adequately reflect modern real estate values).

Residential addresses and occupations were corroboratively garnered from published Philadelphia city directories. These include:

1861, engineer, 1147 South 7th St. (also at this address is his father, John P. Carroll, gentleman¹⁰) [*see map on next page*]

1862, engineer, and 1864, machinist, 541 Pierce St.

1867, 1872, 1874, and 1876, engineer, 1705 South 6th St.

All of these residences are within a few city blocks of each other in what then was a working class, row-house neighborhood populated largely by immigrant families (today it is mostly the same, though more generations along, but whether or not any of the structures are the same as those when the Carrolls lived there is undetermined). It was an easy commute of some four miles to Reaney, Neafie and Co. (*see maps on pp. 20, 21*); and though we know not where he worked after he left the firm in the 1860s, the addresses are still close to the Delaware waterfront.

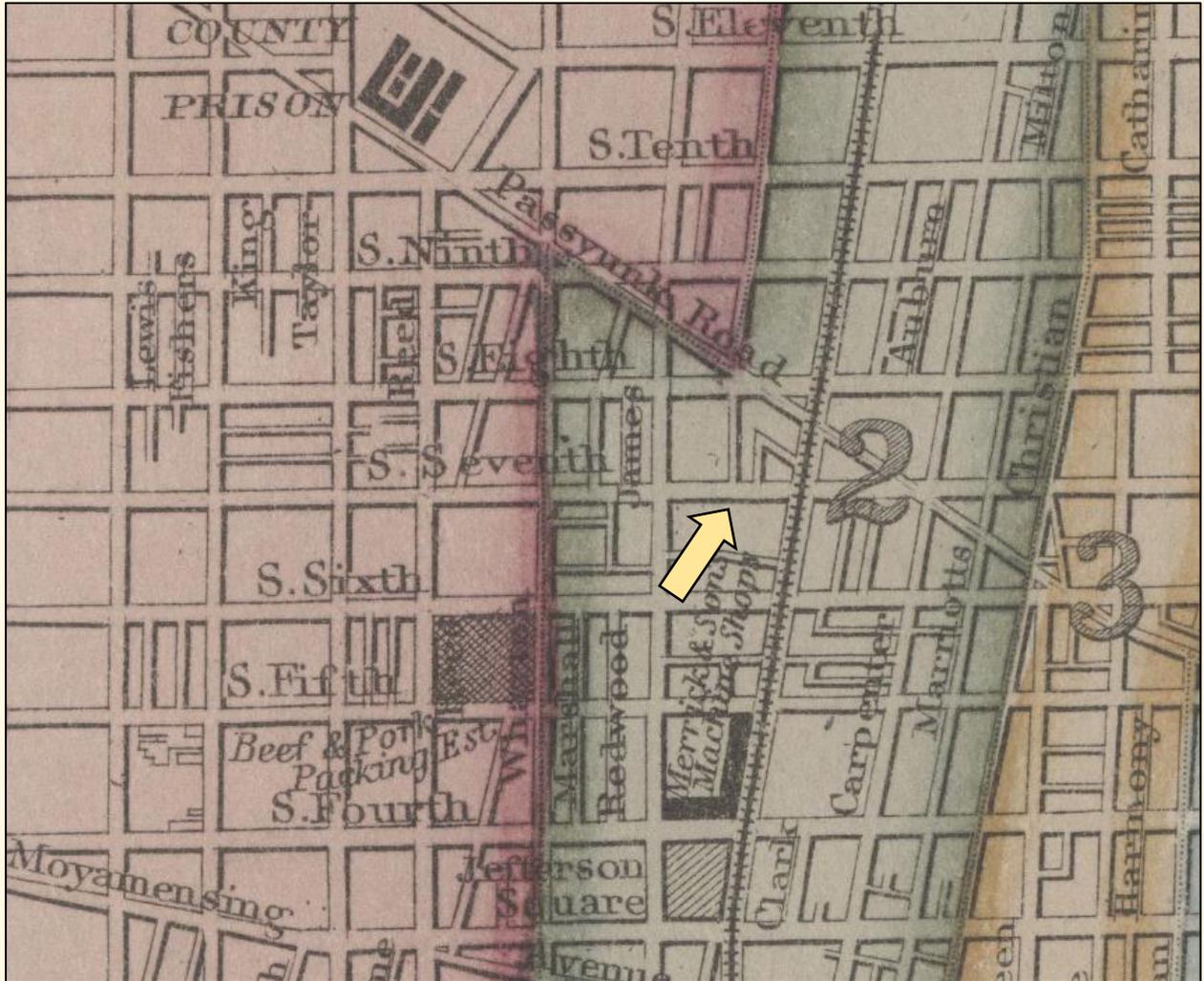
Once this basic information about Carroll and his family was revealed, some further investigations were then made possible, using the extensive resources that are now easily accessed online, but nonetheless still have to be carefully explored.

misrecorded name of a great uncle, dam engineer Earle Covington Smith, listed in the 1930 U.S. census inexplicably as Earl E. Covington. —*E.E.S.*]

⁹ <https://www.officialdata.org/us/inflation> (last accessed November 15, 2022).

¹⁰ It is unknown why John Carroll was listed in the 1860 census and here as "Gentleman," which usually is a polite form to indicate "well off" or "unemployed," as circumstances warrant. However, a clue might be had in his death certificate, from 1868, which gives the cause of death as "Softening of Brain," or senility.

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The arrow points to the location of **1147 South 7th Street**, the Carroll residence in 1861, hence probably also Andrew's home when he went west with *Explorer* in 1857.

(*Plan of Philadelphia*, S. Augustus Mitchell Jr., Philadelphia, 1860. North is to the right. See p. 21 for the full map.)

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1832	Baptizati	Parentes	Patrimo
21	Catherine	Christ Ward & Bath Coleman	John Fitzsimmons & Mary Coleman
24	Matthew	John Keegan & Elizabeth Rogers	Michael James & Cath Herbert
25	Andrew	John Carroll & Mary Anne Fea	Christ Mulvan & Mary Farrell
"	Francis	John Boyne & Mary Ann Connell	Pet Dolan & Mary Anne Carr
"	Elizabeth	Edward Butler & Mary Kelly	Pet Farrell & Cath Butler
"	Rose	Pet Arnold & Mary Neill	Pet Garvey & Rose Evans

Andrew Carroll's baptismal record, Diocese of Dublin, Howth Parish

Andrew Carroll was likely born in November 1832, in Dublin, Ireland. The Catholic parish register for the Howth Parish in the Diocese of Dublin records his baptism on November 25, as Andrew, son of John Carroll and Mary Anne Fea.¹¹

Some bare information has been gleaned about the family of the difficult-to-follow Andrew Carroll.

An informational page online also reports that the family had immigrated from Ireland, via Liverpool, arriving in Philadelphia aboard the *Caroline Nesmith* (year not indicated). However, this record has not been relocated for the present study, thus it is not corroborated. The 1900 U.S. Census records that Andrew had immigrated in 1852 and was a naturalized U.S. citizen; his occupation is given as “Machinist” and had not been employed for eight months. His wife, Margaret, immigrated in 1858 (thus the two may have met upon Andrew’s arrival back from the Colorado, although this differs from the 1841 recorded in the 1910 census [see below]); she was not naturalized. A marriage record for Andrew and Margaret has thus far not been located, though presumably the marriage took place in Philadelphia.

Andrew’s father, John P. Carroll (1803–1868), died in Philadelphia on February 9, 1868. Interment was on February 13 in the Cathedral Cemetery.¹² His mother,

¹¹ Ancestry.com, “Ireland, Catholic Parish Registers.” The 1900 U.S. Census lists his birth as December 1837; the discrepancy is not disconcerting given the frequency of misreported and misrecorded data in the censuses. Mary Anne’s maiden name has also been seen as Fahy, which could be correct; “Fea,” as recorded in the baptismal record, could be a phonetic misunderstanding of the Irish accent.

¹² The Cathedral Cemetery, now sometimes referred to as the Old Cathedral Cemetery, is on North 48th St. near the intersection of Lancaster Ave. and West Girard Ave., in the West Philadelphia section of the city. The Carroll family plot is in Section G, Range 7, Lot 43.

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Mary Anne (Fea) Carroll (1799–1878) died in this city on June 27, 1878, and was interred in the same cemetery.

He had siblings James (1826–1863), John C. (1835–1895, who was an engineer in the 1860 census in Philadelphia and was occupied as a mill operator when he died in Newburyport, Massachusetts), and Maria Carroll Kelly (1835–1908).¹³

Andrew and Margaret (1839–after 1910) Carroll had three children: Charles Henry Carroll (1859–1909), Catherine “Kate” (Carroll) Millner (1861–1906), and Mary Elizabeth (Carroll) McClelland (1863–1956). The 1910 U.S. Census for Queens Ward 2, Borough of Queens, New York City, lists Andrew’s widow, Margaret, living at 90 Cook Ave. with the family of her daughter, Mary McClelland; that record reports that Margaret had immigrated in 1841 (which differs from the 1858 recorded in the 1900 census; *see above*).¹⁴

It seems that Andrew had found new employment in New York City by the beginning of 1878. The *New York City Record*, the city’s “Official Journal,” records Andrew J. Carroll, engineer, working for and residing at the New York City Asylum for Insane, which was sited on what then was Blackwell’s Island (today, Roosevelt Island) in the East River. His salary was \$800 per year (or about \$23,800 in 2022). A year later he was in the same circumstances but in the employ of the “Workhouse” that also was a part of the Blackwell’s Island institutions.¹⁵ The *City Record* also notes with Blackwell’s Island institutions a boat captain and firemen, thus he seems still to have been a maritime engineer, likely working aboard the island ferry.

Sometime in 1879 he moved his family to New York, inasmuch as the *City Record* for the beginning of 1880 records him still in the “Workhouse” employment but residing now at 300 E. 57th St., and still with the \$800 salary. At the time of the

¹³ James and Maria are both buried in the Carroll family plot in Cathedral Cemetery, Philadelphia. John is buried in St. Mary’s Cemetery, Newburyport, Lot 934.

¹⁴ See below for information on Charles. Catherine Carroll Millner is buried in St. Raymond’s Cemetery, Bronx, New York. Elizabeth Carroll McClelland is buried in St. John Cemetery, Middle Village, Queens, New York. This and further information offers evidence that the Carroll family, originally from Philadelphia, finds most of its descendants in the New York City area.

¹⁵ “Officers and Subordinates in the Departments of the City and County Government, with Their Salaries and Residences,” *The City Record* (New York), no. 1,411 (January 31, 1878), 164; no. 1,717 (January 31, 1879), 162. The ancillary employees such as the boat captain and firemen are not identified by name and residence, only by salary; and from year to year different ones of these employees are listed as working under different Blackwell’s Island institutions, suggesting that their salaries were allocated from different budgets and appropriations for the several institutions.

EXPLORER

1880 U.S. Census the Carroll family resided in an apartment house the address of which was given only as 300 57th St., but the ward number points to East 57th St. He was listed as “Engineer” in that census.¹⁶ After 1880 he is no longer in the employ of New York City.

In the 1900 U.S. census, Andrew, his wife and daughter, Mary, were one of three families living (possibly in an apartment) at 11 Wyckoff St., in the borough of Brooklyn. His occupation was “Machinist”; Mary was a dressmaker.

Andrew Carroll died April 18, 1903, at the home of his son, Charles, 1493 Nostrand Ave, Brooklyn.¹⁷ Interment was on April 21 in Holy Cross Cemetery, in the East Flatbush section of the borough. His death certificate lists his occupation as “Engineer.” ●

¹⁶ “Officers and Subordinates in the Departments of the City and County Government, with Their Salaries and Residences,” *The City Record* (New York), no. 2,023 (January 31, 1880), 188.

¹⁷ <https://www.findagrave.com>, Find a Grave Memorial ID 167050617 (last accessed November 15, 2022). Andrew Carroll is buried in the St. Michael section (southeastern part of the cemetery), Row 41, Plot 194 (cemetery map online at <https://www.ccbklyn.org/our-cemeteries/holy-cross-cemetery/>, last accessed November 15, 2022). Also noted is a very brief death notice in *The Brooklyn Daily Eagle*, April 20, 1903, p. 5. Charles Carroll is also buried in Holy Cross Cemetery, St. Ambrose section, Row 31, Plot 72.

EXPLORER

1880 U.S. Census, New York City
Enumeration District 564, 19th Ward

43	Carroll, Edward	M. M. 26	Father	1	Enginuer	"	Ireland	Ireland
"	"	M. F. 16	Wife	1	Housekeeper	"	Ireland	"
"	"	M. W. 20	Son	1	Mac hinders	"	Philadelphia	Baltimore
"	"	M. F. 18	Daughter	1	At. Home.	"	"	"
"	"	M. F. 16	Daughter	1	At. Home.	"	"	"

43	Carroll, Edward	M. M. 26	Father	1	Enginuer			
"	"	M. F. 16	Wife	1	Housekeeper			
"	"	M. W. 20	Son	1	Mac hinders			
"	"	M. F. 18	Daughter	1	At. Home.			
"	"	M. F. 16	Daughter	1	At. Home.			

	Ireland	Ireland	Ireland
	Ireland	"	"
	Philadelphia	Baltimore	Baltimore
	"	"	"
	"	"	"

"Edward" Carroll is listed as the head of household ("father"). This error does not disqualify the record as being that of Andrew Carroll and family, inasmuch as genealogists often encounter outright errors in names, ages, and facts. All associated data correlate correctly for the family. (The ditto marks at far left repeat the street and house-number data for 300 [East] 57th St. The number "43" counts the 43rd sequentially enumerated family for this district. Today the area is part of the exclusive "Upper East Side," though in Carroll's day neighbors in his building were clerks, a hat maker, and a dry-goods salesman.)

EXPLORER

1900 U.S. Census, New York City
Borough of Brooklyn, 10th Ward

3	Carroll, Mary E	Head	W	M	Dec	1837	62-11-39	Ireland	1855	44	1149	W	Mac	10-1-11	8
	Margaret	Wife	W	F	June	1839	61-11-39	Ireland	1857	42					
	Mary E	Daughter	W	F	Nov	1853	46	Pennsylvania							

↑

3	Carroll, Mary E	Head	W	M	Dec	1837	62-11-39	Ireland	1855	44	1149	W	Mac	10-1-11	8
	Margaret	Wife	W	F	June	1839	61-11-39	Ireland	1857	42					
	Mary E	Daughter	W	F	Nov	1853	46	Pennsylvania							

↑

Engineer Carroll and Reaney, Neafie and Company

Although we know nothing of Andrew Carroll's education and training, it seems clear that his experience was gained on the job, working his way up, perhaps with the help of the other technical men of the family. If he had not been in Philadelphia in 1857, it would have been someone else, but opportunity knocked on *his* door; and he must have been a very proficient understudy for being sent west with *Explorer* at the age of 25. That year, Lt. Ives was ordered to the Colorado River of the West to ascertain the river's navigable reach. No one knew with certainty how far boats could travel up from the Gulf of California. No seafaring vessels could pass the river's mouth, so supplies and passengers were reloaded onto one of a few river boats that operated out of Fort Yuma, California (*see illustration, p. 43*), which was on a site that overlooks today's city of Yuma, Arizona. The only other option was a fairly miserable and tedious drive across the mountains and deserts of southern California, between San Diego and the Colorado, over which materials were transported with difficulty and expense. The long cruise all the way around the Baja peninsula was often the lesser of two evils. The Colorado steamers also traveled upstream from the fort, for the most part only as far as the economies of servicing mining ventures required.¹⁸ The course of the Colorado between Utah and the confluence of the Virgin River was postulated, at best rationalized—vast canyons were known to be there, but that was all. The lower Colorado River country, though, was not unknown to Ives. In 1854 he had reached the river as part of a westbound exploration across the northern tier of today's New Mexico and Arizona, commanded by Lt. Amiel Weeks Whipple, which was a survey for a 35th parallel railroad route.¹⁹

¹⁸ The army's Camp Colorado, later Fort Mohave, on the Arizona shore just north of today's Needles, California, did not yet exist; it was established in 1859.

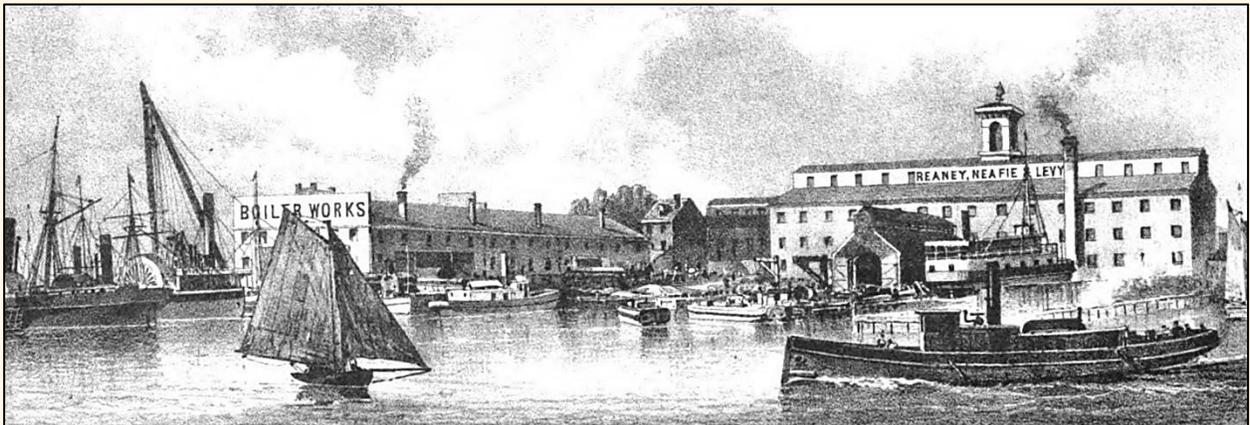
¹⁹ The narrative of the Whipple expedition can be found in A. W. Whipple, with J. C. Ives, "Report of Explorations for a Railway Route, Near the Thirty-fifth Parallel of North Latitude, from the Mississippi River to the Pacific Ocean," in *Reports of Explorations and Surveys, to Ascertain the Most Practicable and Economic*

EXPLORER

Naturally, Ives needed a steamboat for his assignment, but the three steamers then already on the river at Fort Yuma were considered imprudent hires.

The company employed in carrying freight from the head of the Gulf to Fort Yuma were unable to spare a boat for the use of the expedition, excepting for a compensation beyond the limits of the appropriation. A boat of suitable construction had, therefore, to be built on the Atlantic coast and transported to San Francisco, and thence to the mouth of the river. In order that the survey should be made at the worst and lowest stage of the water, I had been directed to commence operations at the mouth of the Colorado on the 1st of December. This left little time for preparation, considering that it was necessary to build a steamer and carry the parts to so great a distance.

In the latter part of June I ordered of Reaney, Neafie & Co., of Philadelphia, an iron steamer, fifty feet long, to be built in sections, and the parts to be so arranged that they could be transported by railroad, as the shortness of time required that it should be sent to California, *via* the Isthmus of Panama.²⁰



Reaney, Neafie and Co. at about the time that *Explorer* was built here. This lithograph by W. H. Rease of Philadelphia illustrated an advertisement for the firm, which was appended to the commemorative volume titled, *The Hibernia Fire Engine Company, No. 1* (Philadelphia, 1859). The “Reaney, Neafie & Levy” sign may have been customized for this lithograph—compare another, earlier lithographic view on the *facing page*. For location see the detail map on *p. 20*.

Route for a Railroad from the Mississippi River to the Pacific Ocean. Volume III (Washington, 1856) (33rd Congress, 2nd Session, House Executive Document 91).

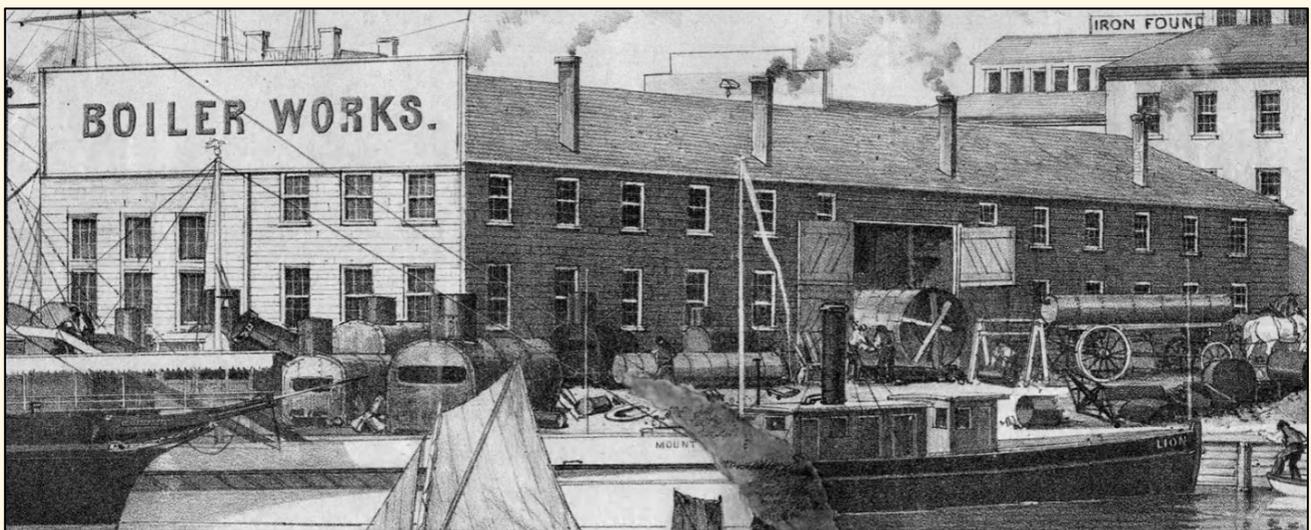
²⁰ Ives, *Report*, 21. Regarding the history of travel across the Isthmus of Panama see John Haskell Kemble, *The Panama Route, 1848-1869* (University of California Press, Berkeley, 1943).

EXPLORER



Another, more industrially informative lithographic view, ca. 1854, of the “**Penn Steam Engine and Boiler Works . . . Reaney, Neafie & Co.**” The name is the same as that noted by Ives. (“On stone by W. H. Rease, No. 17, So. 5th St. Phila.” “Brett’s Lith. Press.”) The various signs are probably promotional elements rather than actual markers; those that are less legible here are the main building (“Machine Shop”) and the smaller building right of center (“Black Smith Shop”). The lithograph is somewhat damaged. In the *detail below*, of particular interest is the variety of boilers on the pier.

(Library Company of Philadelphia,
<https://digital.librarycompany.org/islandora/object/digitool:36224>, last accessed November 15, 2022)



EXPLORER



Here *Explorer* first ran a river. This 200° panoramic view of the Delaware River waterfront is from Penn Treaty Park in Philadelphia, looking from Pennsylvania toward New Jersey and downstream (*right*) to the Ben Franklin Bridge. At *left* is the former site of Reaney, Neafie and Co., now occupied by the decommissioned coal-fired Delaware Generating Station. (Various plans have been made to renovate the building for other uses [<https://phillyimby.com/2021/01/permits-issued-for-massive-development-at-1325-beach-street.html>, last accessed November 15, 2022, with an aerial view therein]). The waterway was a far busier place when *Explorer* was taken out for its “shakedown cruise”; dozens of ships arrived and departed daily, as noted in the maritime news of local newspapers. (*Photo collage by the author, July 30, 2012.*)

Explorer's manufacturer has until now been known only by name, although scattered government records testify that the firm was for years patronized by the U.S. military. The advertising blurb that illustrated the 1859 lithograph, quoted below, enlivens what before had been just a plain name mentioned by Ives. The firm, no longer extant, was located beside the Delaware River in the Kensington section of the city; today the site is occupied by a decommissioned coal-fired power plant, adjacent to the north side of Penn Treaty Park. Confusing the ability to research this firm is the fact that soon it became “Neafie and Levy” after Thomas Reaney established “Reaney, Son, and Archbold,” and that before and afterward the firms were known by other names and worked with affiliate firms, such as also intimated in the two lithographs illustrated here. It is not known whether Andrew Carroll stayed with the Neafie–Levy firm or might have joined the Reaney–Son–Archbold firm in Chester, Pennsylvania, about 20 river miles farther downstream, which did a brisk business for the military during the Civil War.²¹ In any case, as noted by the record in the 1870 census, by then he had left the manufacturing business and was involved with a steamship company.

²¹ Ulysses Grant Duffield, *The Neafie & Levy Ship and Engine Building Company: Penn Works, Philadelphia* (New York and Philadelphia, 1896), a “souvenir” publication; Harry Kyriakodis, *Philadelphia's Lost Waterfront* (Charleston, 2011). For a briefer, more accessible history, refer to Wikipedia online, “Neafie & Levy,” https://en.wikipedia.org/wiki/Neafie_%26_Levy (last accessed November 15, 2022).

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The advertising blurb that accompanied the 1859 lithograph tells us how Reaney, Neafie, and Co. promoted itself around the time of Carroll's engagement there, which is also key to understanding why *Explorer* was the type of boat it was:²²

Penn Steam Engine & Boiler Works

Foot of Palmer Street Kensington, Philadelphia. Reaney, Neafie & Co. Engineers Machinists Boiler Makers Black Smiths & Founders Manufacturers of high & low-pressure, Marine & Stationary Engines, Boilers of all descriptions, propellers, Iron Boats, Water Tanks, heavy & light Forgings, Iron & Brass Castings, Copper Smithing, Pattern Making & an extensive assortment of Patterns of all kinds always on hand. Having Extensive Wharf & Dockroom, are always prepared to build & repair Engines & Steamers at the shortest notice. Every facility offered for lifting heavy and light weights. Thomas Reaney Jacob G. Neafie John P. Levey [*sic*].

The firm of Reaney, Neafie & Co., is composed of Thomas Reaney, Jacob G. Neafie, and John P. Levey. The Messrs. Reaney & Neafie have each had a long and practical experience in machine shops—the latter having served his apprenticeship with Mr. [Thomas] Holloway, the first marine engine builder in Philadelphia; while Captain Levey, the financial partner, is a practical seaman and shipwright, possessing a familiar knowledge of the rules, rigging, and engines of steamers. The result of this union, is that the firm are prepared to build any description of steam vessel outright, and owners have but one contract to make, and that with a very responsible firm. In the construction of iron boats of all classes, both side wheels and propellers, this firm do a large business. They also make all kinds of engines and boilers, high and low pressure, heavy and light forgings, and iron and brass castings of all sizes and patterns—the stock of patterns is very large.

Their establishment, which commenced operation in 1845, and since that time has gone on increasing rapidly, and is now one of the largest in the country, is situated on the river Delaware, contiguous to the spot of ground where William Penn made his famous treaty with the Indians. The works throughout, consist of several docks and wharves along four hundred feet of river front of deep water; a marine railway for hauling out vessels for repairs; a boat yard occupied for building iron steamers; a large and commodious boiler shop; a substantial and spacious brick Smith shop, containing two steam hammers, besides the various smaller forges; a large and well ventilated three story brick machine shop, abundantly supplied with tools for doing all kinds of work, from the smallest fire engines up to the heaviest marine or stationary engines.

(text continues on p. 22)

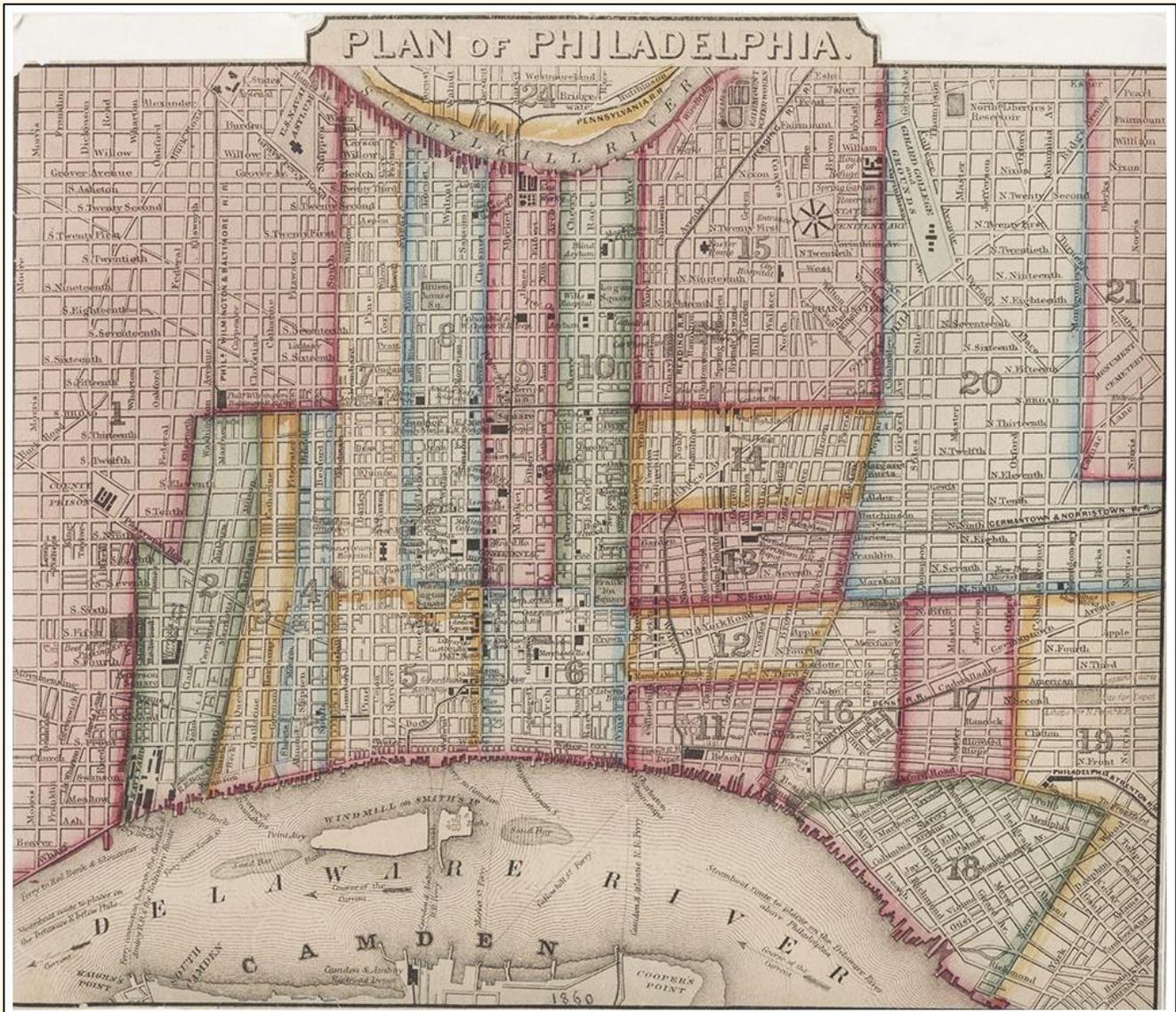
²² *The Hibernia Fire Engine Company, No. 1* (Philadelphia, 1859), unnumbered leaf following p. 108. Punctuation, capitalizations and spellings thus.

EXPLORER



Detail from *Plan of Philadelphia*, (S. Augustus Mitchell, Jr., Philadelphia, 1860; the full map is illustrated on the *facing page*; north is to the right). No. 18 is the Kensington section of the city. The wide arrow  points to the location of the wharfs of Reaney, Neafie and Co. The narrow arrow  points to Penn Treaty Park, mentioned in the company's promotional blurb (*see p. 19*); the park is slightly enlarged today.

EXPLORER



Plan of Philadelphia (S. Augustus Mitchell, Jr., Philadelphia, 1860)

North is to the *right*; no scale shown

A detail on the *previous page* indicates the location of Reaney, Neafie and Co. in the Kensington section of the city (No. 18, *lower right*). A detail map locating the 1861 Carroll residence on South 7th Street (*see p. 8*) places that house just to the left of the large number “2” on the *left side* of this map. The waterfront area along the length of the map has been greatly altered since 1860, largely through the filling in of long sections that created broader wharf areas and roadways along the river. The islands shown in the river were dredged out in the 1890s. The present-day Ben Franklin Bridge (*seen in the panoramic photo on p. 18*) crosses the river where the initial “R” of “RIVER” is printed.

(Free Library of Philadelphia, <https://libwww.freelibrary.org/digital/item/52375>; last accessed November 15, 2022)

EXPLORER

The Hibernia Company volume was a souvenir produced by what was one of many “subscription” fire-fighting companies in the city, to commemorate its November 1858 tour of cities in the Northeast U.S. when it exhibited its new “first class steam fire engine,” which had been built by the Reaney–Neafie firm. The advertisement text misspells the firm’s financial partner as John P. Levey, whose name appears correctly as “Levy” on the sign in the lithograph. Contemporary advertisements for the firm, such as those in local newspapers, also spell his name as “Levy.” Though he has not been located in the 1860 U.S. census, in the 1863 Pennsylvania septennial census he is listed as John P. Levy, machinist.

The pointed references to propellers are Neafie’s novel, curved propellers. One propeller can be spotted on the left side of the pier in the detail view of the ca. 1854 lithograph (*p. 17*). And further, his ornate family plot in Philadelphia’s Woodland Cemetery is emblazoned with his propellers carved in stone relief.

The commemorative volume also includes notes in passing (pp. 14, 15 therein) of the “Carroll Hose Company,” another independent fire-fighting company in Philadelphia at that time, which also appears in records throughout the mid- to late-1800s. Although there are many Carrolls in Philadelphia at the time, coincidental names only, it is enticing to consider a possible Andrew Carroll familial connection to the hose company, in that it was located in the general area of the city as that of interest here. ●

Off to the Río Colorado

In 1857, the Colorado River's course from the Rocky Mountains to the Gulf of California was known only in stretches; its middle ground through the canyonlands of Utah and New Mexico Territories was unmapped. There were unrealistic ideas to link transportation from the Gulf of Mexico to the Gulf of California by first ascending the Rio Grande, then passing (wishfully) down the Colorado.²³ Regardless, if one was traveling to the West Coast in those days, it usually was best to sail around the Americas, threading through the treacherous Strait of Magellan, or take advantage of the rude short-cut by trail across the Isthmus of Panama, a passage made easier when a rail line was completed in 1855.²⁴ Andrew Carroll followed the Panama route, accompanying his steamboat kit; so too would other expedition members following behind on other vessels from New York.²⁵

Balduin Möllhausen, who had arrived in New York from Europe on September 1st, soon met Lt. Ives who briefed him on the arrangements. Balduin mentioned simply that "A small iron river steamer, specially built in Philadelphia for navigating the Colorado, had been dismantled and shipped piecemeal to California earlier," and that Ives was hurrying ahead by himself to San Francisco in order to oversee the arrival of *Explorer* and its transfer to the schooner that would take it (with Ives, Carroll, and a small crew of "mechanics and laborers") around Baja's Cabo San Lucas and up to the mouth of the Colorado River. Ives left New York on September 5th. The remainder of the expedition's civilian contingent, en route also to San Francisco, followed soon afterward, carrying some of their expedition supplies, but, as Möllhausen remarked, "[i]n what various ways our divided company was to meet on

²³ One of the earliest records that suggests a commercial connection between the Gulf of Mexico and the Gulf of California is an anonymous item, "Opening Between the Pacific and Atlantic," *New Monthly Magazine and Literary Journal* (London), Part 3, Historical Register (May 1, 1825), p. 214, which simply stated, ". . . it might be possible to ascend the Rio del Norte [Rio Grande] from the Gulf of Mexico, and then cross the mountains to the source of the Rio Colorado, which flows into the Gulf of California."

²⁴ John Haskell Kemble, *The Panama Route, 1848-1869* (University of California Press, Berkeley, 1943).

²⁵ No steamboat passenger records have thus far been found that note Carroll or anyone else of the expedition who were en route to California, nor with whom else they might have traveled.

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the Colorado could only be determined more closely in California, as it was uncertain from which military post of that state we could obtain a sufficient number of mules for our purposes.”²⁶ They would take the overland route from the west coast to Fort Yuma.

Ives’ first mention of the engineer includes what we once knew as the sum total of his personal information:

About the middle of August the boat was finished, tried upon the Delaware, and found satisfactory, subject to a few alterations only. It was then taken apart, sent to New York, and shipped on board of the California steamer which sailed on the 20th of August for Aspinwall. Mr. A. J. Carroll, of Philadelphia, who had engaged to accompany the expedition as steamboat engineer, went out in charge of the boat.²⁷

This may also indicate that Carroll had had an active role in the rapid construction of *Explorer*, a suggestion that can be supported, as we shall see, by Ives’ testimonials to Andrew’s particular familiarity with the boat when it was reassembled at the mouth of the Colorado River; and further in support of this, Ives’ remark that the maiden cruise on the Delaware would require “a few alterations only” turned out to be quite an understatement.

With most of his practice likely gained on the tidewater Delaware, Carroll departed on what might have been his first long sea voyage, during which he would celebrate his 26th birthday, through and to landscapes quite unlike that of the Delaware Valley. What an experience it must have been! He sailed to Aspinwall (today this is Colón), Panama, with a port of call in Havana en route, then crossed the Isthmus of Panama on the recently built railroad and transferred to a Pacific steamer for the voyage to San Francisco, then by schooner around Baja to the mouth of the Colorado.

²⁶ Möllhausen, *Reisen*, 9-10. (Except where indicated otherwise, all page references to Möllhausen’s *Reisen* are to Volume 1.)

He continues with an interesting side-trip (10-11): “So Lieutenant Ives left New York on September 5th. I went to Washington for a few days, where I found opportunity to be introduced to President [James] Buchanan and to the Secretary of War, Governor [John] Floyd. I was encouraged by both gentlemen for the forthcoming work in a way that revealed the general interest in the Colorado expedition in the United States, and the eagerness awaited for the results. Time in Washington flew by quickly; I returned visits that had been made to me by local residents in my homeland; I was pleased to see the Smithsonian Institution; I smiled at the sight of the still unfinished Washington Monument; I made a grave face at the exaggerated bills of the innkeepers, and then finally found myself back in New York on September 17th to look after all the little things that are almost indispensable to finish preparations for a sea voyage.”

²⁷ Ives, *Report*, 21.

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Although we have no personal accounts of Carroll's experiences, or the names of the ships on which he sailed, Möllhausen recounted his own uncomfortable passage across Panama, one sometimes frenzied, other times worrisome.²⁸ It might serve well to thus imagine Carroll's circumstances were much the same, but to which was added the burden of worrying about his tons of unwieldy iron.

On October 1st we saw the heights of Porto Bello, and a few hours later we found ourselves in front of the bay in which Aspinwall, the landing place of the steamboats, lies almost hidden. It was already completely dark when we approached the harbor, so that our captain had to be shown the direction to be taken by signal fire and rockets. After much to and fro, the *Northern Light* finally lay motionless at the shipyard, and without delay our seamen began to unload the goods, which were received by a number of colored workers and immediately packed onto railway wagons. I used the evening for an excursion to the city, but not knowing the layout, I soon had to give up, because the streets were so muddy, due to the rainy season that had started in those latitudes, that getting through in the dark was out of the question, and the gleam of light that occasionally fell through windows and open doors onto the street served more to dazzle than to illuminate. The thick after-rain atmosphere, filled with noxious fumes, which seemed to lie low above the marshy ground, also induced me to encamp early on board the *Northern Light*.

The morning fog was still on the mirror-smooth bay when we took our places on the train the following day and the locomotive slowly made its way towards the Pacific Ocean. The day was oppressively hot, even the current of air brought about by the rapid movement of the wagons had nothing refreshing and was more like fiery breath from which one gladly took refuge in a corner. For four hours we rolled along the railway, a railway which can rightly be described as one of the worst and most dangerous; the wreckage of wagons scattered along the way also proved that accidents were not uncommon there. How many human lives were sacrificed on the Isthmus of Panama through greed, speculation and indifference can only be guessed at; because whoever dies in Panama is lost, be it the railroad worker killed by a fierce fever, whose arrears of wages are appropriated by his landlords or, better said, buyers, or be it the traveler who died through irresponsible negligence and whose fare is already gone in the coffers of the steamboat company. [. . .]

When I got out of the carriage in Panama [City], I found myself immediately in a dense throng of passengers who, in the most ruthless manner, rushed towards the shipyard with everyone else. There now lay a tugboat destined to ferry passengers and goods across to the California steamboat, which was anchored a few miles distant

(text continues on p. 29)

²⁸ Möllhausen, *Reisen*, 14–17.



Map of the Isthmus of Panama Representing the Line of the Panama Rail Road As constructed under the Direction of George M. Totten Chief Engineer &c. Reduced and compiled from the Original Surveys by Tho^s Harrison Crown Surveyor Jamaica 1857

Lithographed by Endicott & Co., New York.

The rail line hardly shows at this scale of reproduction of the contemporary map, as it snakes its way from Atlantic to Pacific, northwest to southeast through the Panama mountains, but it is included here to illustrate the terrain through which Andrew Carroll traveled with *Explorer's* pieces, and other members of the expedition at various times soon afterward. The cartographer also delineated rivers, the route of the "Canal proposed by N. Garella," "Mule Tracks," and "Paths." (*See details of the line's terminals on the following pages.*)

At the left side of the map is the elevational profile of the railroad. The original scale is 8000 feet to the inch, with the vertical profile drawn at 80 feet to the inch.

(Library of Congress, <https://www.loc.gov/item/92685992/>, last accessed November 15, 2022)

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Detail of the 1857 Map of the Isthmus of Panama, showing the “City of Aspinwall or Colon” on the northwestern tip of the “Island of Manzanillo.” The meandering solid line departing southward from that island is the start of the Pacific-bound Panama Rail Road that crosses the Isthmus southeastwardly to Panama City. One may appreciate the hidden nature of the city’s port, on Victor Bay, as described by Möllhausen on his arrival there. Note the swampy areas, which no doubt contributed to the unpleasant nature of his nighttime venture into town.

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in the deep, calm waters between a rocky island and the mainland. It would be too much to describe the jostling and pounding to which I was subjected during an hour, and which made me fear more for our barometers than for my own limbs. On the jetty, which reached far into the sea, there was a dense knot of bickering, wailing, and searching people, who at times pushed their way to the sides of the bulwark to open a way for the freight wagons rolling out on the railroad tracks.

Avoiding the throng from the steamboat, I made my way onto one of the shapeless bundles laden with goods and provisions that were taken in tow. I felt pretty well there and had an unobstructed view in all directions, a view which amply compensated for the various inconveniences I had experienced during my brief stay in Panama.

“All aboard!” the captain of the tugboat finally cried; “all aboard!” roared wild voices on the bank. The valve, through which steam screeched its way out, closed, and slowly the vessel, with its heavy load, worked its way into open water.



In San Francisco, the boat’s pieces, Ives, and Carroll united aboard the schooner *Monterey*, joined by eight “mechanics and laborers” hired to help assemble the steamboat at the Río Colorado. After all this heavy handling, engineer Carroll little realized just what precarious condition his boat would be in at its destination.²⁹

The deck of the 120-ton *Monterey* was so stacked with oversized pieces of the steamboat and other equipment, positioned amidst an already loaded consignment of materials bound for Fort Yuma, Ives remarked that it left “an area of only five or six feet square around the helm, and a still smaller space at the bow, unencumbered.” For the men aboard, it was tighter still:

It was of course necessary that a certain number of mechanics and laborers should accompany me to the mouth of the river to put the steamboat together, and take me up to the fort, but Colonel Swords did not feel authorized to encroach upon the already limited accommodations of the captain and crew by quartering nine persons upon them, and I should have been much embarrassed but for the obliging offices of the master of the vessel, Captain Walsh, who, with much trouble, and at the risk of still more discomfort, succeeded in providing places for the party. His own small cabin he shared with Mr. Carroll and myself.³⁰

²⁹ Ives, *Report*, 21.

³⁰ Ives, *Report*, 22. Colonel Swords was Lt. Col. Thomas Swords, chief quartermaster for the army’s Department of the Pacific. Details about vessel captain Walsh are wanting.

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On November 1, they set sail south, with excellent running along the coast of Baja California. But rounding Cabo San Lucas, the tip of Baja, *Monterey* then spent three weeks laboring north against contrary winds to travel again the length of the peninsula, with a favorable wind coming up only near the end of the voyage. But “then it blew a gale, and for twelve hours a sea was running that occasioned, in the deeply laden schooner, considerable apprehension for the safety of the property of the expedition, to say nothing of its members.”³¹

On November 27–28 they approached—slowly again under a “light and uncertain” wind—the mouth of the Río Colorado. Here Ives closed the voyage narrative and diplomatically suggested that Capt. Walsh hoped to be soon rid of them and their weird cargo.

In a vessel loaded almost beyond the limits of safety; with a hampered deck, impossible to be kept in order; a crowded cabin, and an inconvenient number of idlers filling up the circumscribed space, enough of the disagreeable must have occurred during the long passage to render it the most uncomfortable experience of a seafaring life that our captain had probably ever encountered, and we therefore appreciated all the more the unflagging kindness and good humor which contributed so much to our comfort and enjoyment during the thirty days that we were cooped up together on board the schooner *Monterey*.³²

November 30th brought them, at last, to Robinson’s Landing, the “usual anchorage” for ships arriving at the Colorado, which really was just an impromptu shipyard spread out on the mudflats, northwest of Montague Island that fills the mouth of the Colorado. There, materials and passengers usually transferred without much difficulty to shallow-draft river vessels for the journey upstream. Yet despite his hopes, Capt. Walsh’s quandaries renewed. And one may wonder during all of this what engineer Carroll thought of it all—Río Colorado was nothing like the Delaware River! Lt. Ives wrote,

December 1.—This morning Captain Walsh made a careful observation to find a place where it would be possible to land the steamboat material and other stores, but the bank at every point was found to be too shelving to admit of the discharge of freight from the deck of the schooner, excepting at high tide, and then the rapid fall of the water and the swift current would render the operation difficult if not impracticable. The gully near the house [Robinson’s office and quarters (*see illustration on p. 34*)]

³¹ Ives, *Report*, 22–23.

³² Ives, *Report*, 23.

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was again inspected. Near its head the sides are curved and the width and depth are just about sufficient to admit the hull of the *Monterey*, and bring the deck a proper distance above the level of the surrounding surface. At low water and during the neap tides of the coming fortnight she would have to lie, high and dry, fifteen or twenty feet above the river; a position so new for a shipmaster to place his vessel in that it was with great reluctance that Captain Walsh yielded to the necessity of the case and determined, at high water in the evening, to float his schooner in.³³

But the plan did not work, so the *Monterey*

was accordingly anchored near the shore, in the most sheltered place that could be found, and to-night the attempt will again be made to haul her into the gully, and as it will be the tide following the full of the moon, there will be water enough to accomplish our object. Owing to our sheltered position the flow of the ebb about the vessel this evening has been quite moderate.

December 2.—The flood came in last night with a violence even greater than that of that preceding. The *Monterey*, though moored in a place comparatively unexposed, dragged her anchors and was carried a mile up the river; but as high water approached lines were taken out, and necessary preparations made, and, by great exertions on the part of the men, she was floated into position at the head of the gully. This morning, after the water had fallen, she lay snugly encased between the grassy banks, twenty feet above the surface of the river, secure from the effects of tides and storms, but presenting a very odd appearance, and inspiring Captain Walsh with apprehensions lest there should never be another tide that would rise high enough to float her out.

The whole surface of the country was overflowed last night, and the soil, being almost entirely clay, presents an unbroken sheet of soft and tenacious mud, into which one sinks deeply at every step.

The day has been spent in landing the boiler and heavy portions of the steamboat, and it proved a task of no small difficulty to move these unwieldy masses through the saturated surface. As the new moon tides at this season are not so high as those of the full moon, it is not probable that the bank will be again overflowed for a month, and a week's exposure to the warm sun will improve its condition, but a more unpromising place to build a steamboat in could scarcely be imagined. There is no growth of any description. Scattered about in the mud, one or two miles distant, are logs of half decayed driftwood, and from these we have to select the material for building the ways and derricks and to furnish fuel for the camp fires. Some of the men have already commenced this work, and with two or three harnessed to a log and sinking knee

³³ Ives, *Report*, 28.

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deep at almost every step, each stick is hauled through a mile and a half of gulleys and mud into camp.³⁴

In those days, so remote was this area that all these activities were conducted without any express interference, or interest, from the Mexican government, partly because the terms of the 1848 Treaty of Guadalupe Hidalgo stated that the U.S. retained a right to access the Colorado from the gulf,³⁵ though surely the establishment of Robinson's Landing somehow went beyond the agreement. In any case, at this time the Mexican government had its attention on an uprising in Sonora. Capt. Walsh, on finally returning to San Francisco from the Colorado delta on January 29, 1858, conveyed news of the fighting, which was eventually repeated by various newspapers nationwide.³⁶ ●

³⁴ Ives, *Report*, 28–29. See also the foreground of the illustration on p. 34 *herein*.

³⁵ Article VI of the Treaty of Guadalupe Hidalgo, February 2, 1848, states, “The vessels and citizens of the United States shall, in all time, have a free and uninterrupted passage by the Gulf of California, and by the river Colorado below its confluence with the Gila, to and from their possessions situated north of the boundary line defined in the preceding article; it being understood that this passage is to be by navigating the Gulf of California and the river Colorado, and not by land, without the express consent of the Mexican Government.” (Charles I. Bevans, compiler, *Treaties and other International Agreements of the United States of America, 1776-1949, Volume 1* (Washington, 1968); online through the Library of Congress at <https://tile.loc.gov/storage-services/service/l1/lltreaties//lltreaties-ustbv001/lltreaties-ustbv001.pdf> (last accessed November 15, 2022).

³⁶ “Civil War in Sonora—Attack on Guayams [sic],” *The New York Herald*, February 28, 1858, p. 2. This report begins, “Captain Walsh, of the schooner Monterey, which arrived at San Francisco with news from Guaymas to the 29th ult., reported that Sonora is harassed with a civil war, which threatens great disaster to the people of the State.”

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Assembling Explorer

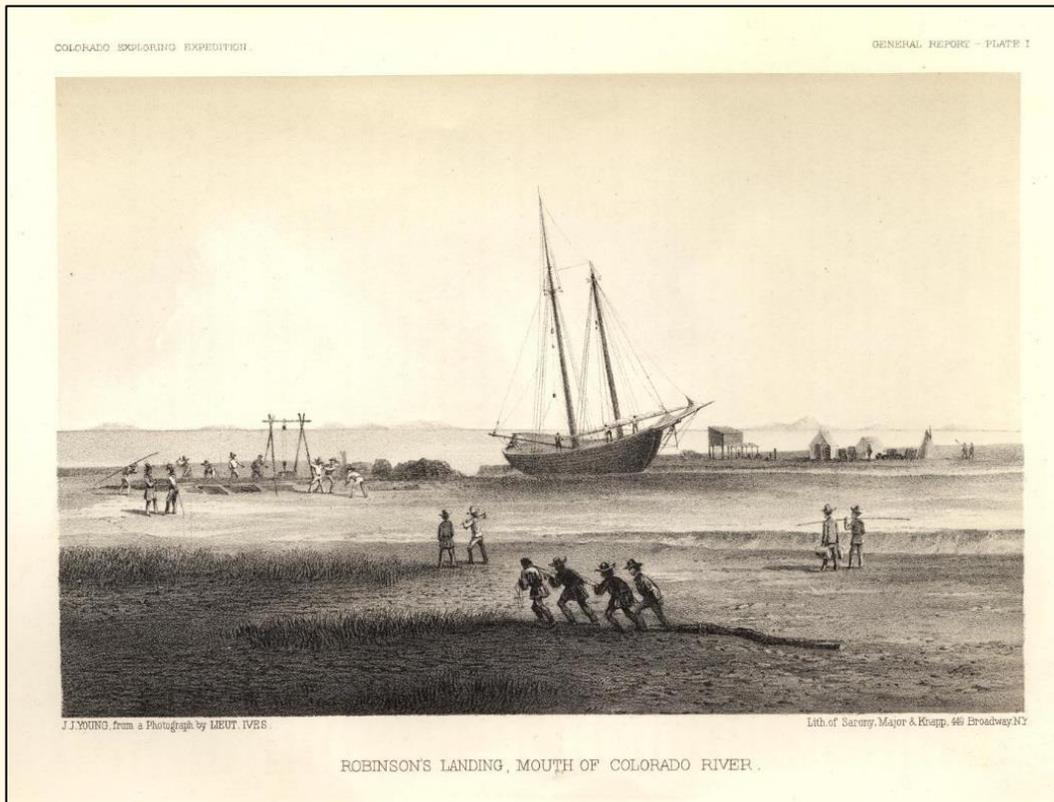
On the Río Colorado's delta, the men dug a pit to serve as a dry dock in which to assemble *Explorer*. "Mr. Carroll, meanwhile, is overhauling the different parts of the boat and machinery, everything of iron being badly rusted by the long sea voyage."³⁷ Eventually, a channel would be excavated through which the next full-moon high tide could flood, allowing the steamer its exit. It was a sorry place, though.

The formation of the ground along the river is badly adapted for launching a boat. As it is level up to the very edge of the precipitous bluff that forms the western face of the channel, and as the water at the next full moon tides will probably not rise more than a foot above the surface, the ways cannot be built above ground, for they must be at least three feet high to admit of persons working under the bottom of the boat, and the upper surface must be as much as two feet below high water to allow the steamboat to be floated off. The only resource therefore is to make an excavation large and deep enough to contain both the ways and the steamer, and to cut a ditch from it to the river to permit the egress of the boat when it is completed. A spot has been accordingly selected near the brink of the channel, and a space marked out fifty feet by fourteen, which will have to be excavated to the depth of four or five feet. It is a troublesome undertaking, for the digging is exceedingly laborious. The wet, heavy, and tough clay adheres to the spades like glue, and nearly every spadeful has to be scraped off with the hand.³⁸

The small crew, under engineer Carroll's supervision, then had to attend to modifications that they knew had to be made to avoid breaking or swamping the boat—the fixes for which there had been no time to make after *Explorer's* shakedown cruise on the Delaware in August. Ives best tells the story of engineer Carroll's sure familiarity with the craft, bringing him to life for us. On December 7 he wrote:

³⁷ Ives, *Report*, 30. During the expedition's trip up the river, Ives nevertheless commented (*Report*, 59), "The iron put into the hull of the Explorer must have been of excellent quality or she would have been sunk long ago by some of the thumps [on rocks] she has experienced [and he noted further that] two or three times, when the water was shoal, we have had the unpleasant sensation of having the bottom of the boat grinding upon the rough edges of the [gravel]."

³⁸ Ives, *Report*, 30.



↑ **“Robinson’s Landing, Mouth of Colorado River.”** Lithograph by J. J. Young, prepared from a photograph taken at Robinson’s Landing, showing the schooner *Monterey* beached for unloading (Ives, *Report*, frontispiece). This had been the only photographic view from the expedition, the camera equipment having been destroyed shortly later in a storm (as recounted by Ives, *Report*, 34): “On the morning of the 18th a northwester set in, and, with the exception of a short lull yesterday, has been raging furiously up to the present time. The river has been overspread with a thick haze, a high sea running, and the spray driven by the gale over the flats. The tents were strongly secured, for the [astrometric] transit was in good adjustment, and I hoped that it would not be disturbed. For one day and night the result was doubtful, but yesterday morning a gust came that settled the business, and put an end to a very unpleasant state of suspense. One rope and tent-peg still held on, forming a fixed centre, about which the tent was whirling and waving like a handkerchief, thumping against the transit stand, and undoing the labor of many a long night. The photographic tent made a clean thing of it, apparatus and all, but that was comparatively of little importance.”

↓ Detail of the improvised dry dock where *Explorer* was being assembled. The original photo may have captured Andrew Carroll, who could be the man wearing a distinctive visored cap, to the left of the derrick (see also text p. 53 regarding his cap).



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The steamboat was built to order in Philadelphia at very short notice, and was put together and tried upon the Delaware river before being taken to pieces for shipment. The trial trip had to be made only three days before the boat was to start for New York [and] the California steamer, and there was no time to remedy a serious defect that had been developed. The boiler had been ordered, for special reasons, to be of unusual dimensions for the size of the boat, and the weight, resting upon the weakest portion of the hull, occasioned, while the steamer was in motion, a vibration and bending that threatened to break her in two amidships. To guard against this disaster, Mr. Carroll proposed to stiffen the hull by bolting four stout pieces of scantling along the bottom—it being impossible to place them inside—and to fasten others athwart, before and behind the boiler. The timber and the bolts for this object were provided in San Francisco, but nearly sixty holes have to be drilled, by hand, through the thick iron sections, for the bolts to pass through. All day long Mr. Carroll and the blacksmith, perched on a little mound of clay, a trifle less damp than the surrounding surface, have been patiently pounding holes, and have half finished the required number.³⁹

The lumber added to the underside of the iron hull would, however, adversely affect its ability to clear obstacles on the river bottom. Later, when preparing to leave Fort Yuma, Ives took note of this:

The load upon the boat is to be made as light as possible. Only six weeks provisions and such arms, ammunition, and luggage as are indispensable, are to be taken along, but it will be impossible to reduce her draught to less than two and a half feet, owing to her small size and heavy boiler and engine. The fore and aft pieces that Mr. Carroll bolted upon the bottom have answered the purpose for which they were intended, in giving the requisite strength and stiffness to the hull, but they add to the difficulty of working over bars and are apt to catch upon snags.⁴⁰

And later in the voyage, in the Mojave Valley, Ives commented,

The timbers fastened to the Explorer's hull are a greater hindrance to her progress in this part of the river than below. They become wedged in the rocks, and render it difficult to extricate the boat.⁴¹

Was the boiler, of “unusual dimensions for the size of the boat,” truly built for “special reasons” as Ives said? He gave no other reason. Given the avowed “very short notice” in which the boat was built, that the firm advertised it would “build at the shortest notice,” and that no time was available to fix flaws recognized during its trial

³⁹ Ives, *Report*, 31.

⁴⁰ Ives, *Report*, 44.

⁴¹ Ives, *Report*, 77.

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run on the Delaware, emphasizes the shortness of time and a probable limited appropriation from the army. Perhaps the boiler was just one that was handily available and used for this boat to meet the deadline. After all, the frill-less vessel was little more than the boiler, an engine, and something to contain them; a steambarge, really. Most of the three dozen men who would ride on it up the Colorado would be crowded around the boiler.

The working party remains near the bow, and the others distribute themselves as best they can over the limited accommodations afforded by the wood piles on either side of the boiler. What little space is left abaft the boiler, when the luggage is all aboard, is taken up by the fireman and by Mr. Carroll.⁴²

The proximity of the men to the boiler, in the desert, might not have been as uncomfortable as it sounds, given that the daily air temperatures recorded during the river portion of the expedition were generally between 40–60° F.⁴³ On the other hand, the boiler's proximity may not have been helpfully warm, such as when Möllhausen observed one January day while on the river, "The rough westerly and northerly winds made staying on the steamboat by no means pleasant, and although we had only been underway for a few days, we often looked longingly across to the shore . . ." ⁴⁴ Möllhausen was riding atop the cabin, of course, and he may have been writing on behalf of his companions up there, who were not around the boiler.

Overall, these conditions seem to support the idea that *Explorer* was a "make-do" purchase. There was the rush to get to the Colorado River in time for winter low water just months away. And then there was the expedition's unadvertised purpose, as we shall see, to gather intelligence that could not be delayed longer. It was the time of the so-called "Utah War" that threatened to boil over into a civil war with the Mormon authorities of that territory, and it was Ives' charge to acquire information about Mormon advances into the region and their objectives there (he was modestly successful). The Colorado River expedition was also to explore the logistical possibility of supplying future federal interests, including military transport, in the continental interior by way of the river.

⁴² Ives, *Report*, 51–52.

⁴³ Ives, *Report*, Appendix C, "Barometrical and Meteorological Observations."

⁴⁴ Möllhausen, *Reisen*, 178.

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On December 14, Ives continued his narrative of the protracted affair of fitting the puzzle together and loading the boiler:

The past week has been a monotonous, but a busy one. The ways having been completed the eight sections of the hull were moved upon them, and the fitting and rivetting together commenced. It was a troublesome operation to carry the heavy and awkwardly [*sic*] shaped masses of iron to the side of the pit and lower them into position, and great was the satisfaction of the men as each in turn was lodged in its place. The difficulty was increased by the necessity of propping the section up to allow room after they should be rivetted together to slide the timbers beneath. The most hazardous undertaking of all will be to lower the boiler into the hull, and this has not yet been commenced. All kinds of rude expedients have had to be resorted to to make up for the small force of men, and the absence of proper timber and appliances, and the ingenuity of our engineer has several times been severely exercised. The rough handling that the pieces had experienced in the course of the trip from New York, particularly during the Isthmus transit, had bent them so badly out of shape that at first Mr. Carroll viewed them with a kind of despair, but patience and labor have gradually overcome these embarrassments, and the pigmy, but prettily modelled boat, begins now to assume somewhat of its future appearance.⁴⁵

Three days later:

The riveting of the sections has been completed, and the joists have been bolted upon the bottom, making the hull, to all appearances, abundantly stiff and strong. The arrangements for lowering the boiler into place were entered upon with some trepidation. A pair of ways had first to be made, conducting to the bottom of the boat, and then the heavy mass hoisted upon the upper end, from whence it could slide down into position. The breaking of a rope, or of one of the half rotten sticks of timber, would have brought the whole concern suddenly upon the hull, which it would have crushed like an eggshell; but nothing gave way, and at noon to-day we had the satisfaction of seeing the task safely finished.⁴⁶

Four days later still:

The shaft was yesterday raised to its place. This was the last heavy piece that had to be handled, and the rest of the work will be attended with little risk. An original defect

⁴⁵ Ives, *Report*, 31–32. The admission of damage contradicts Ives' politely official acknowledgment, which of course was committed to the transit rather than to general care (*Report*, 21), "the kind offices of the agents of the Panama Railroad Company, and of the captains of the steamships on both the Atlantic and Pacific coasts, united to the careful supervision of Mr. Carroll, enabled the awkward mass of freight to reach San Francisco in safety."

⁴⁶ Ives, *Report*, 34.

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in the steamboat, noticed during the trial trip, was that the connecting rods between the piston and crank played in slots cut so deep into the stern that when the boat was in motion the water would rush in. The lower portions of the slots have had therefore to be covered up, and this has raised the connecting rods and thrown the whole engine out of adjustment, occasioning a most perplexing disarrangement, and one that has given Mr. Carroll two or three days of troublesome work to remedy. He thinks now he has succeeded, and that the parts of the engine are fitted so that it will run smoothly.⁴⁷

As we will see, Carroll's modifications would helpfully—unexpectedly—come back to our attention in the 20th century. Just how he directed the heavy labor of modifying *Explorer*, with but a few men to help, can be imagined by engineers and smiths, but Ives gave us no particular details. This was not Philadelphia, where Carroll might have solicited the advice of senior mechanics, not to mention having access to more specialized equipment; he was a newly-experienced 26-year-old engineer on a virtually deserted mudflat, at his own wits and his only help that of a small labor force. It was of some relief that Capt. Walsh had, after the *Monterey* had been settled into its high and dry place, allowed the use of his own small crew, but as the time for departure on the full-moon flood tide approached, those men had to go to prepare the schooner for its escape, which, when the time came, was in the dead of night: “. . . to the delight of all engaged the *Monterey* slid gently out of the bed where she had lain for two weeks, and was restored, with her happy commander, to her proper element.”⁴⁸ Even so, a northwesterly storm set in, which made it difficult to lay in the mud ballast for the schooner. But Walsh wanted desperately to leave.

The current and shoals and the loose bottom made his position a dangerous one. I suppose he found he could not stand it any longer, for he tripped anchor this morning [December 21] and made a precipitate retreat, the *Monterey* looking as though she were being cuffed out into the Gulf, while Captain Walsh, with hair and coat skirts standing out horizontally in the gale, pantomimed farewell to us as we watched, regretfully, the disappearing vessel.⁴⁹

⁴⁷ Ives, *Report*, 35. Regarding the pitman arm that connected the engine to the wheel, Möllhausen's faithful watercolor of *Explorer* (see p. 56 herein) depicts it curved—an unusual configuration. That the problem calling for eliminating the transom slot in which the pitman arm had played was known in advance suggests that Carroll was present aboard *Explorer* on the Delaware and thus familiar with the issue.

⁴⁸ Ives, *Report*, 33.

⁴⁹ Ives, *Report*, 34–35.

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During the final preparations for *Explorer's* journey north, there was the important matter as to who would in fact *pilot* the boat. “. . . I was so fortunate,” Ives wrote, “as to secure the services of Mr. Robinson, who is to accompany me up the Colorado as pilot, for which duty his experience on the river eminently qualifies him.” He added, peculiarly admitting to having had put off such an important consideration, “A great source of anxiety is removed now that I have engaged a capable person for that responsible position.”⁵⁰ Still, they were not out of the woods.

We are straining every nerve to get the steamboat built before the approaching spring tides. But for the delays occasioned by the defects of her original construction she would have been finished two or three days ago.

But at last,

On Christmas day the boiler was filled and steam got up. The engine ran beautifully—a great triumph to Mr. Carroll after the trouble he has had with it. The boat is well modelled, and presents a gay appearance now that she has been painted. [. . .] I imagine few boats have ever been surveyed by their builders with as much admiration and complacency.⁵¹



One aspect of running a steamboat on the Colorado River, which has a direct bearing on the satisfactory operation of the boiler and steam engine, is never mentioned in Joseph Ives' *Report* or in Balduin Möllhausen's *Reisen*, perhaps because it really wasn't such an unusual concern to engineers and boat masters in the day of steam. The Colorado River is notorious for its heavy silt load, which tends to accumulate in the boiler and engineworks; in fact, it is the reason for the river's Spanish name, meaning “colored.” To this one has also to consider the salt content of the water, the result of natural contributions from sources upstream and from tributaries. These lead to the creation of scale in the boiler and piping, with serious effects on the efficiency of the equipment, even threatening to disable it if it is not periodically cleaned out. While this is a “normal” consideration in all steam equipment, the Colorado River exacerbates things. And while Capt. Robinson would have been familiar with the issue, it must have come more of a surprise to engineer Carroll on the wild Colorado, at least for the potential severity of the effects compared to the river waters that he

⁵⁰ Ives, *Report*, 34.

⁵¹ Ives, *Report*, 35, 37.

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was used to; certainly it had to have been a learning point for him. But in fact, the Colorado can offer the surprise of a self-cleaning effect when the Virgin River tributary flows strongly, as testified to by later engineers on the Colorado.

In 1907, W. E. Symons commented from his experience “on the Colorado River some years ago” when he was “chief engineer of a steamer running from Lower California up into the mouth of the Grand Canyon [*sic*].” At certain times of the year snowmelt in Utah caused the “Little Virgin River” (Virgin River) to produce deposits that “were of such a character that made it almost impossible to operate the steamship [*sic*]. [. . . but] The mixture of these waters [with those of the Colorado] resulted in a condition that had the effect of loosening the scale on the boilers formed by the other water and was, in effect, a boiler compound which would result in cleaning them out.” In 1909 he elaborated that this was “some twenty odd years ago when I was acting in the capacity of engineer on a river steamer on the Colorado River.” His remarks were in response to a lecturer’s note of a problem of hard water that caused his locomotive boiler to “foam or prime,” and Symons’ reminiscence of the problematic water quality of high flows of “reddish” water flowing from the “Little Virgin river” that produced the same sort of problem by further hardening the main stream’s water. E. C. Schmidt too noted that when he was “chief engineer of a steamer running from Lower California up into the mouth of the Grand Canyon” he had encountered a rise in flow from the “Little Virgin River”, the waters of which had the effect of cleaning scale from boilers.⁵² ●

⁵² W. E. Symons, [discussion] in E. C. Schmidt, “The heat transmission loss due to boiler scale and its relation to scale thickness,” *Western Railway Club, Official Proceedings*, Volume 19, no. 7 (March 19, 1907), 302-306; Symons, [discussion] in R. B. Dole, “The quality of surface waters in the north-central states,” *Western Railway Club, Official Proceedings*, Vol. 21, no. 6 (February 16, 1909), 182-184; E. C. Schmidt, “The heat transmission loss due to boiler scale and its relation to scale thickness,” *Western Railway Club, Official Proceedings*, Volume 19, no. 7 (March 19, 1907), 303.

The two accounts seem in a fashion to be contradictory, as to which of the two streams, the Virgin and the Colorado, had the debilitating or curing effect on boiler scale—the result regretfully of poor reporting and writing. Regardless, here is an acknowledgment of the problem of scaling and an unexpected resolution of the problem.

Fitting Out the Expedition

Captain Robinson, who had gone up to Fort Yuma, returned to the delta in time to begin his duties. Another boat came down from the fort carrying Casimir Bielawski, the hydrographer who, having been engaged on the west coast had traveled across California to the Colorado along with the other men who would join the expedition.

As the water had risen just high enough during the preceding night [December 29] to float her, we knew that there would be no difficulty in taking her out on the next tide. Steam was gotten up and lines prepared as midnight approached. The water rose almost high enough to overflow the bank. There was enough for our purposes and a foot or two to spare, and the brilliant moonlight enabled the work to be performed as easily as by day. At the instant of high water, before the ebb current could attain much strength, the engine was put into motion, and the little boat backed slowly out into the stream. She was then brought round to the gully and moored securely in a position a little below that which had been occupied by the *Monterey*.⁵³

Andrew Carroll was back in business on a new river. Soon they were off to Fort Yuma where they would take on additional supplies and the remainder of the expedition's crew. Although Ives was in command, the job of piloting the boat was that of Colorado River steamer captain David C. Robinson, whom Ives had hired at the man's eponymous Landing. With Robinson at the exposed tiller perched atop the small aft cabin, *Explorer*—barely a bucket and a boiler—managed its way 150 wiggly miles to Fort Yuma, challenged by the shifting river bottom and deceptive channels.

At Fort Yuma, on the California side of the Colorado and Gila River confluence, *Explorer's* civilian complement added a few men who had first met with Ives in San Francisco then traveled separately over the tedious mountain and desert route from San Diego. Ives' eight "mechanics and laborers" likely returned to the coast by the western desert route, since the *Monterey* had long departed from Robinson's Landing. Also coming aboard was a military escort from the fort under Lt. John Tipton.

Balduin Möllhausen, coming in from the west, recounted the careful progression of the party as it made its way from Los Angeles to Fort Yuma, as counted off by

⁵³ Ives, *Report*, 36.

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the mileposts of the outline at the start of Chapter Six of his *Reisen*: Journey to Pueblo de los Angeles—The stay there—Travel to Fort Yuma—Warner’s Pass—San Felipe—Wallecito—Carizo Creek—Edge of the desert—The desert—Indian Wells—Alamo Mucho—Cook’s Well—and [at last], Arrival at the Colorado. He described the final approach to the river, bringing back memories of his trip west with the Whipple expedition and friend Ives.

Ahead of us lay the Pilot Knob, a detached mountain at the eastern base of which the Colorado flows, and at its southern side the road reaches the river. The mountain is visible from afar in the desert, and because travelers can conveniently use it as a landmark, it has been given the name “Pilot Knob”. The path led to the southern side of a bank, which stretched to Pilot Knob, but whose actual character I was not able to recognize because mounds of shifting sand rested against it and also partially towered over it. In only one place did I notice that it was made up of horizontal layers of clay, sand and coarse gravel. As we neared the Colorado, and were perhaps eight miles distant from it, the clumps of mesquite bushes began to disappear but were replaced by willows and cottonwood trees, which gradually thickened and formed a grove. Two miles from the river we rode past the nearest Indian village; it consisted of a few huts inhabited by Yuma Indians; I also saw small fields there, which had been cultivated with beans, corn and pumpkins. We did not stop, however; our animals, which, guided by instinct, knew the vicinity of the water as well as we do, pressed forward irresistibly, their burdens seemed to lighten, their eyes regained some fire, the sluggish step had disappeared, and through the whole long line was heard a steady snorting, the sign of the mules when they think they are at the end of their labors. At last the winding path opened to a clear view, and before me I beheld the broad mirror of the Colorado, with which I was to become more closely acquainted in the months to come. I wholeheartedly welcomed the proud stream, kneeling down to drink from its floods for the first time in almost four years.⁵⁴

Fort Yuma has a rich history, which is frequently overshadowed by the gloomy notion that it was an insufferable place, a feeling not lost even on Lt. Ives. “Fort Yuma,” he wrote, “is not a place to inspire one with regret at leaving. The barrenness of the surrounding region, the intense heat of its summer climate, and its loneliness and isolation have caused it to be regarded as the Botany Bay of military stations.”⁵⁵ It is the focus of 20th-century novels and films of various genres, all of them in one way or another gritty. And the ferry crossing there is likewise a solid part of South-

⁵⁴ Möllhausen, *Reisen*, 110–111.

⁵⁵ Ives, *Report*, 43.

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“Fort Yuma Colorado Riv: Cal^a.” Lithograph of Fort Yuma, *ca.* 1875. The fort occupies the hill on the California side of the river. Although this northward view is about two decades after Ives’ expedition and Andrew Carroll’s visit there, the scene still likely represents the busy affairs as they existed then at the Colorado River crossing. Note the two boilers “lying about.” (Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Fort_Yuma_California_1875.jpg, last accessed November 15, 2022.)

west history, which also became the site for bridges carrying the Southern Pacific Railroad (1877), U.S. Highway 80 (1915), and Interstate 8 (1979); the first two are in fact huddled side-by-side. Originally established in 1850 not far downstream from the mouth of the Gila River, Fort Yuma was later moved to a hill on the Colorado’s right bank, across the river from present-day Yuma, Arizona. It was occasionally abandoned due to the difficulties of resupplying it, and attendant physical and medical sufferings, but by the time *Explorer* arrived it was a busy place, with several steamers supplying the fort and town from the sea and servicing mining enterprises farther

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upriver. There was as well the through traffic of emigrants to California, and the back and forth flow of occasional stages and mails. The presence of local Indian tribes also made for beneficial and testy interactions both, though never at the scale of hostilities that had been experienced by Natives and locals alike in previous decades and centuries.

Notwithstanding Lt. Ives' likening Fort Yuma to the miserable penal colony at Botany Bay in Australia, Möllhausen, with the group that was to board *Explorer*, was grateful to have arrived.

We reached the Colorado on December 19th, and pitched camp at the place where we first saw the river. Our provisions were exhausted, no grass to be seen near by, so that same day Peacock⁵⁶ rode up to the fort, reported our arrival, and made an arrangement with the commanding officer as to pasture for our flock and provisions for ourselves. [. . .]

Early the next day Peacock rejoined us; we had already prepared ourselves, and therefore started the journey to Fort Yuma without loss of time. There were ten miles to go, and the way led from our camp, close by the Pilot Knob, whose base is washed by the Colorado; behind the Pilot Knob opened a wide valley, which, like the river, made a sharp bend towards the east. The dense mesquite woods, willows, and cottonwood trees almost constantly blocked our view, and it was only as we approached the river that we caught a glimpse of the blue mountain range to the north, distinguished not by their height but by their fantastic forms, to which it also owes the name "Dome Mountains". The dusty road ran past some Indian farms and two larger homesteads of white settlers, and when at last the dense willow forest opened up, we saw the barracks and buildings of the military post Fort Yuma on a bare rocky hill in front of us. In a short time we were at the top; we found the quarters of Dr. Newberry easily, and were warmly welcomed by our companions, who had parted from us at San Pedro.⁵⁷

Although Lt. Ives was still on the Colorado River delta, communications were received from him as to the progress of assembling *Explorer* for its upriver venture. Cables that had arrived for him, which with some newspapers included anxious intelligence pertaining to the Mormons, were forwarded downriver.

⁵⁶ George H. Peacock, a Missourian from California, was a civilian worker at Fort Yuma who regularly conducted supply trips from the west coast. Little is otherwise known about him, although he joined the Ives expedition to convey the mule train up the Colorado River and thence to be in charge of the herd during the land expedition.

⁵⁷ Möllhausen, *Reisen*, 115–116.

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However, before *Explorer* arrived to take on the remainder of its complement at Fort Yuma, steamboat captain George Alonzo Johnson, with his larger, 104-foot side-wheeled steamer *General Jesup*, pushed upriver from the fort on his own, unofficial paramilitary expedition. While Ives' published report says nothing of this, his military correspondence does include information about the *General Jesup's* run and intelligence gleaned from Capt. Johnson when they eventually met him as he was returning downriver.⁵⁸ But Möllhausen was much more forthcoming with the series of events that involved Johnson and his steamboat, both in Yuma and on the river. About the situation in Yuma he recounted:

I must not forget to mention a circumstance which caused a kind of discord in our expedition at the time. A rumor had spread among the Indians that the Mormons had already penetrated to the villages of the Mohave Indians. Under the pretext of investigating the first causes of this news, the owners of the steamships there equipped the boat "Jessup" [*sic* ⁵⁹], which was based in Fort Yuma, with arms and soldiers from the commander of the post, and in the first days of January set out on its journey to explore the upper Colorado. Of course, such a step, which had to be taken in great haste before Lieut. Ives and our own steamboat arrived, aroused resentment and suspicion, for, apart from the fact that we had been sent out by the government and were also to set out only a few days later, we were yet unable to get the first news of the river, however unknown; and we also lost the charm of being able to think for ourselves during the journey that we were moving along a trail which had never before been explored by a European.

Whether the above-mentioned jealousy between the officers of the line [from Fort Yuma] and those of the engineering corps [Ives] gave rise to such behavior, whether the speculative spirit of individuals who hoped to find the El Dorado of the West on the upper Colorado and to be able to claim it for themselves, or the fact that Lieutenant Ives brought a steamboat from Philadelphia and refused the help of the steamers at Fort Yuma, or whether it was the unselfish desire to learn about the difficulties facing our enterprise, I dare not decide. All I know is that the members of the Colorado Expedition watched the "Jessup" with very uneasy feelings as it made its way upstream and just didn't send the best of blessings with it.⁶⁰

So, all the more urgently was Ives' arrival with the *Explorer* awaited.

⁵⁸ See in William P. MacKinnon, ed., *At Sword's Point, Part 2, A Documentary History of the Utah War, 1858-1859* (Norman, Oklahoma, 2016), Chapter 4, "A Channel of Communication with Utah': Rio Colorado."

⁵⁹ Möllhausen consistently referred to (and misspelled) the *General Jesup* just as the "Jessup."

⁶⁰ Möllhausen, *Reisen*, 144-145.

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Our longing for the first sight of our steamboat grew with each passing day. Indeed, we began to be alarmed just by observing the low level of the Colorado, and perceiving the continuing fall of the current. Even the natives there said they had never seen the river so low; and even though there is much to be said for ascertaining the navigability of an as yet unknown river at an unfavorable time of year, we would certainly have been most unpleasantly disappointed if, shortly after the start of our voyage, we had to wait on a sandbar for the river to rise.

Finally, on the evening of January 6th, Lieut. Ives suddenly appeared at Fort Yuma. He had received the news of the departure of the "Jessup", and this, as well as the dispatches from Washington, had induced him to hurry ahead of the steamboat, which was constantly struggling with the sandbars. He had borrowed a horse from a settler who lived a few miles south of Pilot Knob, and thus managed in twelve hours to cover the distance which it took the following steamboat almost three days.⁶¹

At last, *Explorer* puffed its way to a mooring below Fort Yuma on January 9th: The steamboat "Explorer", whose column of smoke we were able to distinguish in the distance on January 8th, finally arrived at Fort Yuma on the morning of the 9th, and immediately everything was set in motion, the cargo, which was not to be carried any further, [was stored] in one of the station's warehouses. The departure of the river expedition was fixed for January 11th, and as the cargo of the Explorer was to be as light as possible, we were all very busy choosing from our things those which we thought we could not spare. We paid the least attention to clothing and footwear, as our absence from Fort Yuma was not to last more than six weeks, for which time even a supply of provisions for the whole crew was calculated and put in.⁶²

Lt. Ives made arrangements with Mr. Peacock first to take his mail on the "formidable ride" to San Diego, having had missed the express that would have conveyed the letters.⁶³ On his return to Fort Yuma, Ives explained, Peacock and the pack-train of mules "will not leave till some time after the departure of the boat, but will overtake us near the head of navigation, wherever that may be, so as to be ready for the land explorations."⁶⁴ And just "wherever that may be" was, it was not mere pondering; the river dictated it.

⁶¹ Möllhausen, *Reisen*, 145-146.

⁶² Möllhausen, *Reisen*, 150.

⁶³ Möllhausen devotes portions of his text to Peacock's own adventures on the trail, which are beyond the scope of the present book.

⁶⁴ Ives, *Report*, 43. Ives (22, 36, 43) had explained in his *Report* that the mules were acquired in San Diego and at Fort Tejon, California, and driven across to Fort Yuma. They had arrived by the time Ives showed up

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The river continues to fall. The Indians say that they have never seen it so low. We shall be able to test the experiment of navigation at as unfavorable a stage of the water as will probably ever be experienced.⁶⁵

They were nearly ready to shove off with the full complement on the journey up the Colorado. All in all, *Explorer's* contingent comprised an unlikely crowd (following Ives' headcount): river captain Robinson; engineer Carroll; Lt. Ives; Lt. Tipton with 25 soldiers; "Captain Jack," an English-speaking Mohave Indian; John Strong Newberry, the mission's physician, geologist, and general naturalist, a veteran of other western expeditions; Casimir Bielawski, a Pole from San Francisco just naturalized as a U.S. citizen, originally a captain of engineers in the Austrian army, who served this expedition as hydrographer; Paul H. Taylor, astronomical assistant from Virginia; fellow Virginian C. K. Booker, meteorological assistant; Friedrich Wilhelm von Egloffstein, a German baron who served as cartographer and illustrator, another veteran of western expeditions; and Balduin Möllhausen, a German draftsman and illustrator, Newberry's field assistant, a third western veteran who, with Ives, had already visited the lower Colorado River on Whipple's railroad route survey and who would independently chronicle this expedition as he had Whipple's. There was a dog, too—"Grizzly"—who in California had joined the party that traveled overland to Fort Yuma.

Möllhausen, though, counted 28 passengers⁶⁶ and added information about Robinson's own crew of four men, who are not mentioned by Ives, but first gives a brief sketch of the captain:

Captain Robinson, who had been living in a cabin at the mouth of the Colorado for some years, was the picture of a staid, quiet seaman. In the many voyages he had made as a pilot on the steamboats between Fort Yuma and the Gulf, he had acquired such a thorough knowledge of the character of this river that he was perfectly able to control the Explorer back and forth along the dangerous road without mishap. He was popular with the whole company, and I do not ask too much when I say that the fortunate success of the river expedition must be attributed chiefly to the calm prudence and energy of the good Captain Robinson. Two boatmen, a blacksmith who was also a stoker, and a carpenter, formed the remaining crew of the steamboat, which was

at the fort but were encamped farther up the Gila River due to insufficient grazing for so many animals nearer to the fort.

⁶⁵ Ives, *Report*, 44.

⁶⁶ Möllhausen, *Reisen*, 150.

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destined to awaken the first echo in the mysterious ravines of the Colorado with the groaning of a steam engine.⁶⁷

Finally, on January 11, 1858, *Explorer* began its way upriver, with Ives taking note of yet even a couple more bodies to be crammed aboard.

It was the intention this morning to make an early start; but the last preparations, as usual, consumed several hours of time, and it was nearly 11 when all of our party were collected at the wharf, everything put aboard, and steam gotten up. Our friends at the garrison came down to see us off, and the sides of the bluff were lined with Indians—men, women, and children—assembled to witness our departure, and, in spite of their distrust, delighted to have something to see and talk about. The urgent request of Lieutenant Winder⁶⁸ to the chief had not failed of its effect, and the latter engaged (though reluctantly) that two Indians should accompany us—an old Diegeno, by the name of Mariano⁶⁹, and a young chief who had signaled himself by escaping unhurt from a recent memorable conflict with the Pimas and Maricopas, and whom it pleased to be called the “Capitan.”⁷⁰ With an eye to theatrical effect, not at all uncommon with their race, my two recruits delayed making their appearance till the latest moment. We had bidden our friends good-bye, the plank was about to be hauled in, and I had begun to believe that the chief had played us a trick, when they came stalking along, and entering the boat, seated themselves on the rail with an air of indifference that did not altogether conceal that they thought they were embarked in a rather doubtful enterprise. Their friends on the shore, being out of the scrape themselves, were naturally delighted at seeing others in it. The men grinned, and the women and children shouted with laughter, which was responded to by a scream from the Explorer’s whistle; and in the midst of the uproar the line was cast off, the engine put in motion, and, gliding away from the wharf, we soon passed through the gorge abreast of the fort and emerged into the open valley above.⁷¹

Möllhausen documented the departure in his usual matchless way:

In the early hours of the following morning, that is, January 11th, all the white and Indian population of Fort Yuma and the surrounding area had assembled at the ferry; black smoke rose from the funnel of the Explorer, its white clouds of steam hissed impatiently from the joints of the closed valves, the big wheel whipped the loamy

⁶⁷ Möllhausen, *Reisen*, 152–153.

⁶⁸ Lt. William A. Winder, the recently arrived Commanding Officer at Fort Yuma.

⁶⁹ Ives’ consistent spelling; Möllhausen consistently spelled the man’s name as Mariando. The man was a Diegueño Indian of California.

⁷⁰ This was the Mohave, “Captain Jack,” mentioned in Ives’ headcount, above.

⁷¹ Ives, *Report*, 45–46.

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flood in short spurts, and the steam whistle cleverly attached to the boiler shrilled: "All aboard." A shaky board formed the connection between the shore and the boat, and over this weak bridge the soldiers and workers of our expedition hastened with their bundles and muskets. We still stood on the bank and exchanged the last words of farewell with our friends, watched the busy activity of the crowded crew, who tried to find the best way to cram their limbs in, and praised the little Explorer, who, like a brave war horse, impatiently tugged at the mooring rope and let its flag, the merry stars and stripes, flutter proudly in the wind. Goodbye, it finally said; the long-bearded Captain Robinson took the helm, shouting the command [*Möllhausen writes in English*]: "All aboard" and: "Loose the rope!" The current carried the craft from the bank to the middle of the river, Mr. Carrol opened the valves of the steam-pipes at the captain's command, the wheel dipped its blades in turn into the water, rolling faster and faster about its axis, white foam formed in front of the boat's sharp prow, and thither we proceeded toward an unknown destination. Hurrah! shouted those gathered on the bank, hurrah! answered the expedition, and thrice the salute was repeated on both sides, ere the Fort Yuma bluff came between us and our former companions.⁷²

Alas, it was an inauspicious start, according to Ives.

The river here spread out over a wide surface, and was, of course, shallow and full of bars and snags. The channel became at each moment more difficult to find, and when we had made but two miles we were brought to a dead stop by a bar. An anchor was put out ahead; but the bed being quicksand, it would not hold. It was necessary to lighten the boat, and finally most of the men got overboard, and having thus further diminished the draught, succeeded, after four hours and a half of hard labor, in forcing the steamer into the deeper water beyond the bar. The delay would have been less annoying if it had occurred a little higher up. We were in plain sight of the fort, and knew that this sudden check to our progress was affording an evening of great entertainment to those in and out of the garrison.⁷³

Möllhausen, on the other hand, cut to the chase, building suspense then giving in to the inevitable:

Our wish to be out of sight of those watching from the fort that evening seemed unfulfilled; for we had not gone two miles when the bosun, who kept dipping the sounding rod into the water, cried out: three and a half feet!—three feet!—two and a half feet,

⁷² Möllhausen, *Reisen*, 154–155.

⁷³ Ives, *Report*, 46.

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and the boat, which had a draft of two and a half feet with its heavy load, immediately afterwards got stuck on a sandbar.⁷⁴

One might be forgiven if it brings to mind the campy 1960 Jack Lemmon film, *The Wackiest Ship in the Army*. ●

⁷⁴ Möllhausen, *Reisen*, 155.

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Explorer

Lieutenant Ives' own description of *Explorer* is rather a nuts and bolts affair: She is fifty-four feet long from the extremity of the bow to the outer rim of the stern wheel. Amidships, the hull is left open, like a skiff, the boiler occupying a third of the vacant space. At the bow is a little deck, on which stands the armament—a four-pound howitzer. In front of the wheel another deck, large enough to accommodate the pilot and a few of the surveying party, forms the roof of a cabin eight feet by seven.⁷⁵

Herr Möllhausen, on the other hand, is far more informative:

The Explorer, a neat little craft, seemed perfectly suited to the purposes for which it had been brought to this point from Philadelphia. The hull was fifty feet long, ten feet wide, and four feet high, and was securely joined by strong iron plates. Of course, a cover could not be put up, and only at the rear was a small wooden partition, which was six feet long and just as wide and high, so that at most three people busy with writing had enough space. We honored this shack with the name cabin. The boiler occupied most of the space in the boat; it was about in the middle and stood completely free, held up only by strong iron supports. Two steam tubes led from the boiler high enough that one could easily walk under them, on either side of the cabin, to the machines that set the single large wheel in motion.⁷⁶ The wheel being at the stern or rear of the vessel gave the whole structure a vague resemblance to a wheelbarrow, but I very soon came to see that this type of steamboat, on shallow and choppy rivers like the Colorado, excelled in the highest degree and deserves preference. The roof of the cabin protruded three feet on all sides, creating a comfortable platform that communicated with the narrow wheelhouse, which in turn served as a bench for people who stayed and worked up there. The tiller, which governed the two simultaneously moving rudders on either side of the wheel, also protruded from the platform; this made the helmsman's job comparatively easy, and his high position gave him an overview of the apparent water surface in the distance, which contained only too many obstacles. The stoker and the engineer shared the space between the boiler and the cabin, and between them the stored equipment and provisions were piled up in a narrow corridor that stretched across the whole width of the boat. In the bow of

⁷⁵ Ives, *Report*, 36.

⁷⁶ This is the only mention by either Ives or Möllhausen that *Explorer* had two engine cylinders.

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the boat stood a light field howitzer.⁷⁷ So all that was left for the fuel was the narrow space on either side of the boiler. At first it seemed to me scarcely possible that our whole party, which amounted to twenty-eight men, could be accommodated, but later it turned out that the vessel was not too crowded to occasionally take along a few curious Indian passengers.⁷⁸

Young Andrew Carroll must have been very proficient to be sent on such a responsible mission at his age. But have we the “right” Carroll, based only on the census information for this man? Möllhausen takes care of this worry at the outset of his frank sketch of Andrew.

Mr. Carrol [*sic* ⁷⁹], a very young man, was recognized as excellent in his trade but was also good company. Of course, being an inveterate American, he was full of crass prejudices, which made for rich entertainment during the many hours we spent on some undesirable sandbar. He denied the possibility that a soul could dwell under a black skin; he proved the unnatural nature of a union of the white with any colored race by handling his machine as well as his flute as if he had been born with both; and when one or the other did not immediately obey his screwing and hammering, he would resort to rude curses, which seemed to have a good effect in his eyes, but earned him from us the nickname “Captain Iron”.⁸⁰ He had, moreover, reached the stage at which one loves to be teased, and a few remarks about the beautiful women of Philadelphia were always enough to calm the anger he vented on inanimate objects. For Philadelphia was his native city; from there he never lost sight of our little Explorer and finally managed to put it together at the mouth of the Colorado.⁸¹

Thanks to the artistic Möllhausen, we also have an idea of Carroll’s physical appearance, whom he sketched with a slight, youthful countenance. Among numerous surviving illustrations by Möllhausen, two graphite sketches on paper are of

⁷⁷ The howitzer is never mentioned during the expedition; it wasn’t needed. Möllhausen omits it from his watercolor, thus it is absent in Young’s lithograph, too. But the watercolor shows an undefined object on legs atop the boiler, which could be the unused artillery piece placed there to keep it out of the way.

⁷⁸ Möllhausen, *Reisen*, 150–151.

⁷⁹ Möllhausen consistently misspelled Carroll’s name in his *Reisen*.

⁸⁰ Möllhausen wrote the epithet in mixed German and English — “„Captain Iron“ (Eisen)” — with the explanatory *Eisen* for his German readers.

⁸¹ Möllhausen, *Reisen*, 152. During the upriver expedition, when ending a campfire story about his experiences in Nebraska, Möllhausen recorded Carroll’s prejudice against the Native American, too (*Reisen*, 197): “‘You were about to be shot to death,’ remarked Captain Robinson, as I concluded my narration. ‘Yes certainly!’ added Mr. Carrol, ‘but I don’t understand what can cause a white man to mingle with the red-skinned rabble just for fun, so I’d rather stay at home with my mother.’ We all laughed at Mr. Carrol’s remark and, one by one, made our way to our tents.”

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special interest here, which though still in private hands have been published in Ben Huseman's *Wild River, Timeless Canyon*. The first, "Seeman mit Pfeife" (sailor with pipe) is a portrait of *Explorer's* engineer holding a long-stemmed tobacco pipe, with his other hand on a steam valve. The second, "Vier Musiker" (four musicians), illustrates an evening concert that includes the comfortably reclined guitarist Möllhausen (a self portrait, with distinctive appearance and hat) and Carroll (in profile, playing a small flute, wearing the same short-crowned, visored cap that he wears in the "sailor" drawing).⁸²

The often-reprinted lithographed frontispiece to Ives' 1861 report, by J. J. Young, depicting *Explorer* underway on the lower Colorado, has been the traditional view of the boat and its crew. Huseman was the first to present a refreshingly different view: Möllhausen's own watercolor painting of that same scene, upon which the lithograph was based.⁸³

Comparing the the two views, we see significant differences between the watercolor and the lithograph (*pp.* 56–59). The relative sizes of the men in each view provide a rough unit of measure, which reveal that Young's version of *Explorer* seems to be longer than its known 54 feet from bow to the outer rim of the sternwheel, with a cabin top that measured eight by seven feet.⁸⁴ Möllhausen's more compact version

⁸² The graphite sketches were reproduced with the permission of the Möllhausen family of Bleicherode, Germany, in Ben W. Huseman, *Wild River, Timeless Canyons: Balduin Möllhausen's Watercolors of the Colorado* (Fort Worth, Texas, 1995). Huseman's volume is a very detailed catalog of 46 "long-lost" watercolors by Möllhausen that were acquired by the Amon Carter Museum of American Art in Fort Worth, Texas. It is essential reading for all historians of the Ives expedition. The watercolors are also on the museum's website, <https://www.cartermuseum.org/artists/heinrich-balduin-mollhausen> (last accessed November 15, 2022).

The "sailor" graphite sketch appears as "Catalog 6B" of Huseman's *Wild River*, 139. The "musicians" sketch is Huseman's "Catalog 8A" (143); it is also the frontispiece in Steven Rowan's *The Baron in the Grand Canyon: Friedrich Wilhelm von Egloffstein in the West* (Columbia, Mo., and London, 2012).

However, the identities of the musicians seems confused. There were five musicians, but of the four illustrated by Möllhausen the one identified by Huseman as Carroll is said by Rowan to be Egloffstein; but given that "sailor" Carroll (in Huseman) is dressed identically to the musician is evidence enough to understand that this is Carroll. The other three musicians, though one face is fairly obscured by hat and instrument, are variously identified as Ives, Möllhausen, Egloffstein, or Newberry—Rowan offered identifications for only three of the four, though he did not say which name belonged to which figure. The confusion arises from Möllhausen not having annotated the drawing and of course the inferences by Huseman and Rowan, but we may be confident in the artist's inclusion of a self-portrait (noted further herein) and, now, Carroll.

⁸³ Huseman, *Wild River*, 90, 138–141 (Cat. No. 6).

⁸⁴ Ives, *Report*, 36.

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and crowded deck seems closer to the truth, but also a bit compressed based on the men's relative sizes. The truth may be somewhere in between, although the watercolor displays details that suggest a greater accuracy: the wooden planking of the wheelhouse and deck cabin, the tapering of the flagstaff, the shape of the funnel and its supporting guy wire, rivets on the boiler, and the unusually curved pitman arm.⁸⁵ A delightful detail of the watercolor is the yellow glow on the stoker coming from the boiler's fire. Overall, Möllhausen's watercolors present more realist documentation than artistic impression.

Noticeable liberties taken by Young in deviating from Möllhausen's original artwork include his insertion of two Native Americans on shore and rearranging and revising the group of men who appear atop the cabin. Capt. Robinson stands casually erect in lithography, but Möllhausen in watercolor shows him ergonomically if not awkwardly astride the tiller. The pilot's stance, which Möllhausen obviously captures with honesty, tells us that it was a way to control the rudders against the current and to anticipate any event that they or the hull should strike something (keep in mind the unsatisfactory deep draft of *Explorer* as a result of Carroll's mudflat mends). It may have been simply more comfortable some of the time, too. Robinson appears to be speaking with the artist himself, who is cleaning a rifle. Möllhausen's inclusion of himself, as shown, should be expected because he enjoyed promoting a burly frontiersman image, such as in the posed illustration here (*p. 55*). Young chose to refigure the peculiarly different Möllhausen, probably not knowing that this was the artist, showing him as just another man who pensively looks ahead on the river, more uniformly attired like the others in the "Officer's Country" of the cabin top. Some men probably had their preferred spots. To this end, Möllhausen once noted during the expedition,

Egloffstein and Bielawski were enthroned, as usual, on the wheelhouse, Robinson swept almost the entire roof of the cabin with his tiller, and Dr. Newberry, Lieut. Ives and I perched on crates close to the edge of the platform so as to keep an unobstructed view of the scenery in front of us while at the same time not hindering the captain in his important work.⁸⁶

(*text continues on p. 60*)

⁸⁵ Regarding the pitman arm, see *note 47* herein and associated text, *p. 38*.

⁸⁶ Möllhausen, *Reisen*, 367. (Ives, *Report*, 51, also noted a usual seating arrangement: ". . . Mr. Bielauski [*sic*] and Mr. Egloffstein . . . sit on the wheel-house with their note-books delineating the river and the surrounding country.") (*see note 47* herein and associated text, *p. 38*)

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“Balduin Möllhausen als Trapper”

(Balduin Möllhausen as a trapper)

Engraving from the article, “Die nordamerikanischen Trapper,” by “Ein Freitrapper” (The North American trapper, by A Free Trapper) published in *Die Gartenlaub* (Leipzig, Jahrgang 1862, No. 29, p. 453). Engraved by X.A. v. W.A. Richter, after a photographic portrait.

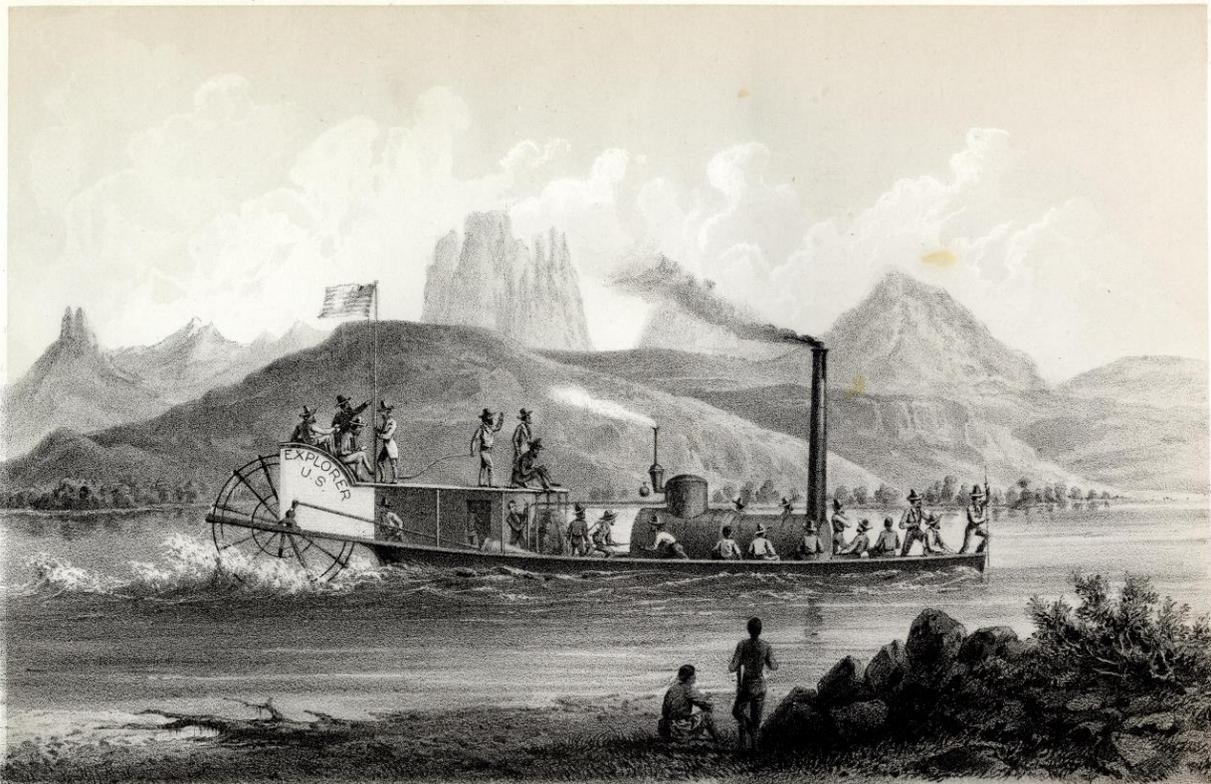
Die Gartenlaub editor’s credit (*translated here*): “To the goodness of a friend we entrust the above portrait of the well-known traveler Möllhausen, whose voyages and adventures are now read with so much interest. Möllhausen was a trapper himself for a while and allowed himself to be photographed in this capacity.”



Amon Carter Museum of American Art

COLORADO EXPLORING EXPEDITION .

FRONTISPIECE .



J.J. YOUNG, from a sketch by H.B. MOLLHAUSEN .

Lith. of Sarony, Major & Knapp, 449 Broadway, N.Y.

CHIMNEY PEAK .

EXPLORER

← **Möllhausen's original artwork depicting *Explorer* on the Colorado River in 1858.** Andrew Carroll stands beneath the overhang, at the controls of the steam engine. The painting measures $8\frac{1}{8} \times 11\frac{3}{8}$ inches.

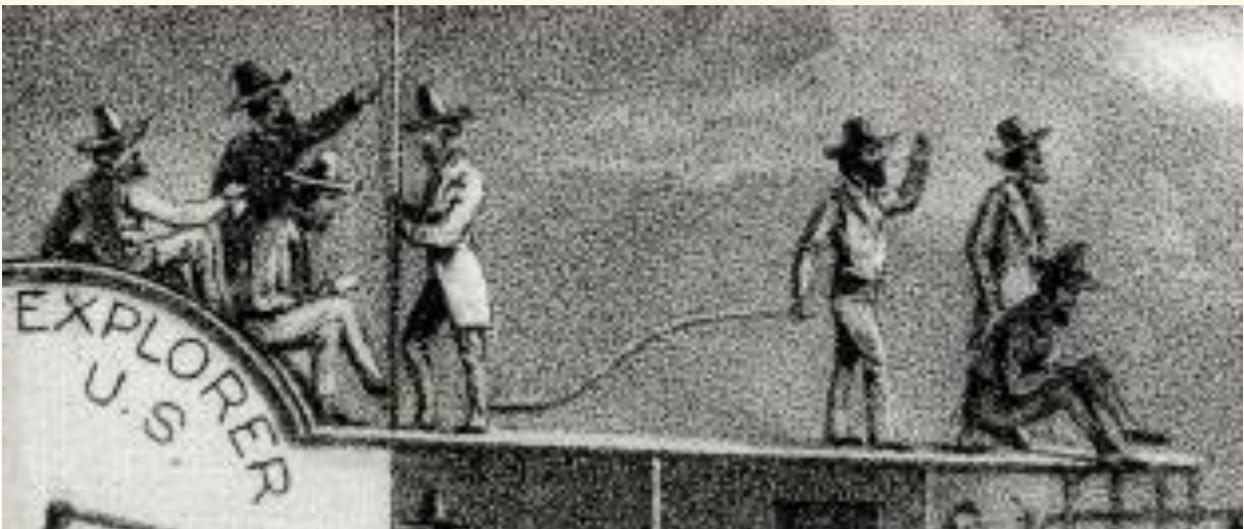
Reproduced with permission; specified credit:

Heinrich Balduin Möllhausen (1825-1905); "Steamboat 'Explorer' (Chimney Peak)" [from "Original Sketches for U.S. Survey of the Territories"]; 1858; transparent and opaque watercolor on paper; Amon Carter Museum of American Art, Fort Worth, Texas; 1988.1.1.

← **"Chimney Peak."** Frontispiece in J. C. Ives, *Report Upon the Colorado River of the West* (Washington, 1861); lithograph by J. J. Young after Möllhausen's original artwork, printed by Sarony, Major & Knapp, New York. Until Möllhausen's watercolor was rediscovered, this was the only known view of *Explorer*.

➔ *Following page:* Comparative details from Möllhausen's watercolor and Young's lithograph. (Cropped enlargements from the watercolor produced with permission.)

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↑ The artist's perspective is a bit elevated, while the lithographer brings things more to level sight. On the cabin top (which in the watercolor, though a bit foreshortened port to starboard, appears more like the 8 × 7-foot space mentioned by Ives but is more spacious in the lithograph), Möllhausen, bolstering his "trapper" persona in self-portrait (*compare p. 55*) cleans a rifle while facing Capt. Robinson, who is ergonomically astride the tiller. In the lithograph, Möllhausen is refigured as a neatly jacketed anonymous man, Robinson is trim and erect, and Ives, in officer's frock, obviously stands in the way of the tiller's sweep. Möllhausen's watercolor shows Ives more realistically standing out of the way, on the step (omitted from the lithograph) that covered the tiller's connection with the rudders. The writer seated atop the cabin's forward overhang is more or less comfortably positioned on a large bundle, which is reduced to a small pad in the lithograph. The group seated on the wheelhouse is more crowded in the watercolor.

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↑ Standing beneath the cabin's overhang (*left*) is the subject of this book—Andrew Carroll. In both views he is at his station on the “business end” of a steam pipe coming from the boiler, where it feeds the piston cylinder at his side. In striking contrast to Young’s portrayal of him as a stiff, Lincolnesque figure, Möllhausen features Carroll confidently at ease, hand on the steam valve, holding in his right hand his distinctively long, apparently ever present, tobacco pipe (that is illustrated clearly in Möllhausen’s “sailor” sketch, mentioned in the text, *p.* 53). In the lithograph he is more sternly attentive to his duties, using both hands. Möllhausen takes care to illustrate some of the intricate piping and the controls on the engine; Young shows none of this. Möllhausen paints a warm, yellow glow from the boiler fire reflecting off the stoker. In the lithograph, the stoker has a more open working area, the crewman delivering a piece from the wood piles (which according to Möllhausen were along the sides of the boiler) hands off rather than collects, and a man walking past is added. According to Möllhausen, the bundles behind the stoker and to the left of Carroll are stores and provisions.

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Möllhausen seemingly wanted to focus on Carroll even more than, say, the expedition's commander, Lt. Ives, who is likely the figure on the foreside of the flag-staff in an officer's frock. Carroll's is the only face to exhibit any real detail among the 25 people painted by Möllhausen, whereas Young chose to animate the scene by filling in clearer faces on a few more of the 24 people he places aboard the vessel. Carroll is also the only man who appears to be clean-shaven, as he is in Möllhausen's "sailor" and "musicians" graphite sketches (*mentioned on p. 53*), although his depiction in the watercolor may betray a short beard unlike the beards on most of the other men.

Explorer actually was more crowded than as suggested by either illustration, with 36 men aboard as summed up by the roster mentioned when the boat left Fort Yuma. And then there were a few more still—Capt. Robinson's own crew, a couple of Native Americans, and a dog. Möllhausen, although he does not show Indians on shore in his watercolor, may portray one of the two American Indians who accompanied the boat upriver: he may be the figure seated by the center of the boiler, facing aft, who has longer hair, darker complexion, is beardless, and is in different dress than the others. In Young's lithograph this person is more slight, effectively Anglicized, and faces away from the viewer. He is also the only one who, other than Carroll, is hatless in Möllhausen's painting (Young portrays three hatless men)—although in the watercolor Carroll could be wearing the short-crowned, visored cap that he is seen wearing in Möllhausen's "sailor" and "musicians" sketches, and which is possibly seen in the lithographic reproduction of the only photograph of the expedition, taken at Robinson's Landing (*see p. 34*), but this is uncertain given the scale and the artist's style. ●

Up the Colorado

Chapter III of Lieutenant Ives' *Report* is a long rendition of *Explorer's* travels from Fort Yuma to Mojave Canyon, filled with details of scenery, sandbars, sandstorms, and Indians, and the difficult labor of getting the steamer over the bars by "carrying out the anchors and lines, heaving upon the windlass, handling the boat poles, and lightening the boat of the cargo by carrying it ashore in the skiffs."⁸⁷ It was the blowing sand, though, that was particularly annoying. During one such storm Ives remarked, "While the gale lasted we were nearly blinded and choked by drifts of fine sand, that darkened the air and penetrated into the luggage, bedding, provisions, fire-arms, and the very pores of one's skin."⁸⁸ And in another storm, "We ate, drank, breathed, and saw little but sand for twenty-four hours, and the gale was so violent that the Explorer was dragged from her anchorage and driven upon the rocks."⁸⁹ Travelers today on the Colorado River can also testify to the fact that the fine sand gets into everything, including sensitive equipment like cameras; and surely, it got into everything at engineer Carroll's work station, though such is never mentioned.

On the run up the river, Ives also related that Carroll was

incessantly occupied in responding to the hails of the pilot from the deck overhead to go slower or faster, or to stop, or to back, or to go ahead, and thinks the Colorado the queerest river to run a steamboat upon that he has ever met with in his experience as an engineer.⁹⁰

Carroll was observant, too. While traveling upriver, a gathering crowd of Indians on the banks suggested their hope for amusement, having heard of earlier

⁸⁷ Ives, *Report*, 51.

⁸⁸ Ives, *Report*, 59. Möllhausen must have been even more particularly annoyed, or impressed, taking note in his *Reisen* of five such episodes during the river expedition. Storms introduced additional problems, as when in one case "the gale being felt principally upon the cabin and after deck, it was impossible to steer the boat," significantly delaying their progress (*Report*, 62).

⁸⁹ Ives, *Report*, 76.

⁹⁰ Ives, *Report*, 52. Möllhausen (*Reisen*, 178) recites the captain's repertoire as "turn her back!", "stop her!", "go ahead!", and "slow!"—all in English, with a footnote giving the commands in German.

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setbacks as *Explorer* reached difficult parts of the river. Ives recounted, “the coincidence between their presence and a bad bar is so unfailing that Mr. Carroll considers it sufficient reason to slow down the engine when he sees them collected upon the bank.”⁹¹

Frequently—very frequently—our narrators, Ives and Möllhausen, mention sandbars and rapids. One might wonder how the little steamboat managed its way. Möllhausen provides us here with but one example of many encounters that he describes, one which broke the crew’s monotony. This took place in the Topock Gorge, downstream from today’s Needles, California, just as Möllhausen was settling in to sketch “the whimsically shaped spires and crests of the Needles [that] lay close ahead.”

In quiet admiration and waiting for the things I would get to know, I stretched out on the small platform and drew, and only too quickly did I hear the captain’s command: “Get off the boat!”

It was not without effort that we got over the rapids; our whole crew disembarked, a rope was passed to them from the steamer’s bow, and slowly the Explorer slipped into the current. The engine worked at full steam, the waves rose high in front of the vessel’s sharp bow and threw white foam hissing onto the boiler; but the men held the boat on course by means of the rope, and panting like an impatient runner, the Explorer pushed inch by inch through the wildly choppy water, and, having finally reached the smooth pool above, shot along at double the speed. The men jumped back on board, and as it was scarcely three o’clock in the afternoon, the passage through the canyon was made that day.⁹²

Unusually different from the customarily talkative Möllhausen, Ives recalled this passage as being much more of a technical feat, which of course kept the engineer on his toes.

Entering the foot hills of the Mojave range, the channel was again tortuous, and after traversing a narrow pass the Needles came into view, directly in front. As we approached the mouth of the cañon through the Mojave mountains, a roaring noise ahead gave notice that we were coming to a rapid, and soon we reached the foot of a pebbly island, along either side of which the water was rushing, enveloped in a sheet of foam.

⁹¹ Ives, *Report*, 53.

⁹² Möllhausen, *Reisen*, 255–256.

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After ascending a few yards a harsh grating noise warned us that we were upon a rocky shoal, and Captain Robinson at once backed the Explorer out and went up in a skiff to reconnoitre. He found good water, excepting for a short distance at the lower end, where the depth was three feet, and the bottom sprinkled with rocks. There was danger that the after part of the boat in passing might catch upon a rock, and the bow be swung around by the rapid current against another with such violence as to knock a hole in the bottom. An anchor was carried to a point some distance up stream, and a line taken from it to the bow. This line was kept taut, while, with a high pressure of steam, the Explorer was forced up the rapids, once or twice trembling from stem to stern as she grazed upon a rock, but reaching the still water above without sustaining damage.⁹³

This sort of thing became routine—"the Explorer received some hard knocks, to which she has become lately quite accustomed"⁹⁴—although at one concerning place, Deep Rapid, which was at first thought to signal the head of navigation, "Captain Robinson had the boat lightened and Mr. Carroll put on a head of steam that made the stern wheel spin around like a top, and a line being taken out ahead, the summit of the rapid was quickly attained."⁹⁵ But in another rapid a day's work was undone in an instant when at the top of the rapid "the line broke and the Explorer drifted down, bumping upon the rocks, and was in imminent danger of having her hull stove."⁹⁶

Still, the wonder of it all was not lost on storyteller and artist Möllhausen. On moving through Mohave Canyon, part of the Topock Gorge, he mused,

I will never forget that evening. The hard-working machine groaned loudly and regularly louder still, and the echo in the chasms and tributaries answered a hundred times in the same way, and yet how small and insignificant the Explorer appeared, with all its strength and crew, compared to such a majestic natural environment!⁹⁷

And yet, the captain was of a different mind. When they reached camp, Möllhausen posed the scene to him:

"What do you say about the canyon?" I asked Captain Robinson, as I took up my rifle for a walk to the nearby mountain. "The canyon?" he asked back, "I only saw water

⁹³ Ives, *Report*, 63.

⁹⁴ Ives, *Report*, 75.

⁹⁵ Ives, *Report*, 76. "Deep Rapid" was also called "Jesup's Halt" (see later herein the section on "*General Jesup vs. Explorer*").

⁹⁶ Ives, *Report*, 76.

⁹⁷ Möllhausen, *Reisen*, 259. See also illustration inside the back cover of the present volume.

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and dangerous eddies, and count myself lucky to have found the way up to here without the Explorer banging its nose on some invisible rock.”⁹⁸

Robinson’s worry was prescient.

Ives’ Chapter IV, another long one, devoted to the travels through the Mojave Valley to the mouth of Black Canyon, is turned over mostly to discussions of the Mohave Indians, guides from whose tribe would be important for the continuation of the land expedition to Grand Canyon. In this region they were also expecting that they were “approaching a locality where it is supposed that the famous ‘Big Cañon’ of the Colorado commences.” As they approached Black Canyon Ives wondrously observed, “Whether this is the ‘Big Cañon’ or not it is certainly of far grander proportions than any which we have thus far traversed.”⁹⁹ The Mohave Indian guide, Ireteba, insisted that it would be impossible for *Explorer* to travel through Black Canyon. They also were in communication with Lt. Tipton, via letters carried by Mohave couriers, regarding his arrival with Mr. Peacock’s pack train from Fort Yuma, which was worryingly delayed.

Entertainment

Five of the men of the expedition had brought musical instruments with them, Carroll included. Their impromptu evening concerts lent a good measure of cheer to the routines of camp duties and fighting sandbars in the Colorado.¹⁰⁰ But the festivities did not wait for monotonous evenings in camp, having begun before they left Fort Yuma, as Möllhausen recalled:

So the last two days in Fort Yuma were days of work for us. Nobody wanted to weigh themselves down with unnecessary things, but they also did not want to leave anything behind that could have been of importance on the trip. Things were packed, repacked again, some put back, some added, and dusk crept in before one noticed it. We spent the evening in merry social gatherings, on which occasion there was a little more than usual drinking, which I write solely on account of the sandstorms, which literally withered the palate during the day and made the tongue almost useless for conversation and even more so for singing. Yes, they sang, too, melancholic homeland songs that drew tears into one’s eye, but also in praise of Rhine wine, which pushed

⁹⁸ Möllhausen, *Reisen*, 260.

⁹⁹ Ives, *Report*, 78–79.

¹⁰⁰ Take note again of the “Vier Musiker” (four musicians) graphite sketch by Möllhausen, mentioned in the previous chapter, p. 53.

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far away the thought of the thousands of miles that separated us from home. Egloffstein and Carrol accompanied the singing on their flutes, Dr. Newberry on the violin, and Lieutenant Ives and I on guitars, all instruments which we still managed to fit on the Explorer and which gave us many a cheerful evening later in the lifeless wilderness. The songs were followed by dances, and what dances! Bearded men annoyingly hit each other with fists and stomped their heavy heels to our indelicate music, the eternal Yankee Doodle and Scottish hornpipe.¹⁰¹

But not all was as unbridled as this. Möllhausen observed a more sedate social in camp on January 14th.

The evening was mild and pleasant, and well into the night we sat together and practiced easy pieces of music on our instruments. There was a peculiar attraction for us in this occupation, which we pursued with so much zeal. We were the first to bring orderly music into this wilderness, and for the first time chose the silent desert and the silent river to witness the outpourings of a happy mood. Homey sounds at home are beautiful, but in distant, foreign lands they penetrate to the heart, and every chord touches the long-resonating harmony of memory. Even our rough soldiers seemed not entirely impervious to the music in such an environment, for when the flames of our fire rose high they illuminated more than one fierce, bearded figure stretched out listening on the parched grass behind us.¹⁰²

Farther upriver, after having spent the better part of February 7th in battling their way through another rapid,

A party of Chimehwhuebes [Chemehuevi Indians] received us as we disembarked from the steamboat, and they openly showed their kindness in lending a helping hand in fetching dry driftwood. The innocuous manner in which these natives associated with us in camp, and lined up about our fires, caused us to also wish to make a good impression on them. So we fetched our instruments, began a concert as well as we could, and enjoyed not a little the spectacle which the Indians presented to us their astonishment. At the first sound they heard, they put their hands on their mouths in astonishment and uttered long, drawn-out sounds, but when they had become somewhat accustomed to the music and then learned to sing, they expressed their satisfaction in various ways. A few beat time with small sticks, others nodded their heads, and still others tried to join their voices quietly to ours. We repeatedly asked them to let their voices ring out, but our efforts were in vain; we only received negative signs, as if they didn't know how to sing; at the same time they asked us not to stop with our music, which sounded so beautiful to their ears. I think we would have found these

¹⁰¹ Möllhausen, *Reisen*, 153.

¹⁰² Möllhausen, *Reisen*, 173.

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natives attentive listeners all night long had we not preferred to put down our instruments about eleven o'clock and seek a restful sleep in our beds.¹⁰³

They could not please everyone, however. At another place upriver, when some Mohave Indians were in camp, they tried to introduce the visitors to the contrasting pleasures of melody and harmony.

There being a few musicians and instruments in the party, the effect of harmony was tried, but they [the Mohave] disapproved of the entertainment, as of everything else [a mariner's compass and daguerreotypes, for example], and when the sounds died away, appointed two or three of their own musicians to show ours how the thing ought to be done."¹⁰⁴

The "music hour" was often one of impulse, especially after a long day on the water. Möllhausen wrote of one such repose that took their minds away to distant places and days.

The thought of having traveled sixteen miles, the beautiful roast crane, which, by the way, was a test of patience for our teeth, the lavishly fueled campfires, all these served to create a cheerful mood; Mr. Carrol therefore climbed down the steep mudbank in the dark and soon afterwards returned with our instruments, and the concert began. We played music late into the night, and sang of good old Rhine wine, and champagne too, wetting our palates with sandy Colorado water.¹⁰⁵

Crash!

March 6th was an eventful day as *Explorer* beat its way into Black Canyon. As they approached the canyon, in which eight decades later Hoover Dam was built, Ives recounted:

A rapid, a hundred yards below the mouth of the cañon, created a short detention, and a strong head of steam was put on to make the ascent. After passing the crest the current became slack, the soundings were unusually favorable, and we were shooting swiftly past the entrance, eagerly gazing into the mysterious depths beyond, when the Explorer, with a stunning crash, brought up abruptly and instantaneously against a sunken rock. For a second the impression was that the cañon had fallen in. The concussion was so violent that the men near the bow were thrown overboard; the doctor [Newberry], Mr. Mollhausen, and myself, having been seated in front of the upper

¹⁰³ Möllhausen, *Reisen*, 249–250.

¹⁰⁴ Ives, *Report*, 72.

¹⁰⁵ Möllhausen, *Reisen*, 205.

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deck, were precipitated head foremost into the bottom of the boat; the fireman, who was pitching a log into the fire, went half-way in with it; the boiler was thrown out of place; the steam pipe doubled up; the wheel-house torn away; and it was expected that the boat would fill and sink instantly by all, but [except for] Mr. Carroll, who was looking for an explosion from the injured steam pipes. Finding, after a few moments had passed, that she still floated, Captain Robinson had a line taken into the skiff, and the steamer was towed alongside of a gravelly spit a little below; it was then ascertained that the stem of the boat, where the iron flanges of the two bow sections were joined, had struck fair upon the rock, and that, although the flanges were torn away, no hole had been made, and the hull was uninjured. The other damages were such as a day or two of labor could repair.

After making these unexpected and welcome discoveries, the captain and myself went out in the skiff and examined the rock. It stands in the centre of the channel; has steep sides and a conical shape. The summit, which comes almost to a point, is about four inches below the surface of the water; and if the boat had struck half an inch to one side or the other of the flanges, the sheet of iron that forms the bow would have been torn open as though it had been a strip of pasteboard.¹⁰⁶

As usual, the story-telling Möllhausen's record of events is more engaging and attentive to details—and once again, "Captain Iron" to the rescue.

After the wood was loaded, we took our seats with high hopes. Egloffstein and Bielawski were enthroned, as usual, on the wheelhouse, Robinson swept almost the entire roof of the cabin with his tiller, and Dr. Newberry, Lieut. Ives and I perched on crates close to the edge of the platform so as to keep an unobstructed view of the scenery in front of us while at the same time not hindering the captain in his important work. The sun was still shining brightly on us; a cool, damp breeze flowed towards us from the shadowy gorge and rippled the waters, which had taken on a dark color from the reflection of the black rock walls. More and more dry wood was pushed into the furnace, the steam hissed and with full force it rolled the wheel, which sprayed the yellow foam high up in the fight against the violent current. We finally reached the gateway; a rapid there stopped the Explorer's course, but, squirming back and forth in the deep places, aided by the combined strength of our people on the shallows, it happily overcame this obstacle, and presently we heard the words of the man with the sounding rod: "No bottom!" "Bravo!" it was said from all sides; the boat glided on. "No bottom!" was sounded again; the shadows of the high cliff covered us, we could see the surface of the river for a long distance and wishing for us luck on the journey through the canyon, we watched with firm trust the man who was standing on the edge of the boat and constantly examining the depth of the water. "No bottom!"

¹⁰⁶ Ives, *Report*, 81-82.

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was called again, but scarcely had the last word died away when a terrible jolt shook the steamboat, with cracking in all its joints, and at the same time the most boundless confusion followed.

I didn't see anything of what happened in the next few moments, and I'm only going to tell you what I gleaned from what each individual said. The boat had hit a hidden rock with full force, and the man with the sounding rod had been thrown overboard by the blow. The people next to the steam cylinder had been thrown over one another by the shock, along with the firewood; the fireman, just about to stoke the embers, had put his head in the furnace hole; Dr. Newberry, Lieutenant Ives, and I, sitting side by side, had altered our position so that we found ourselves in similar order as above, but with our heads down and the crates on top of us at the bottom of the vessel; Egloffstein and Bielawski had been thrown from the wheelhouse onto the platform, and in their midst also lay Captain Robinson.

"Save yourself who can!" was called out, because individual parts of the machine had buckled, hot steam was escaping from the open joints, threatening to burst the damaged pipes, [which would have risked] completely and horribly scalding everyone in the vicinity. We three, who had fallen from above, lay just at the most dangerous places; but as quick as a thought we sprang out from under boxes and crates, clambered about the outside of the boat, and scarcely five seconds after the blow we were back on the platform trying to salvage as much of our things as we could, because we expected at any moment to see the craft sink. Captain Robinson, however, had not lost his composure, and, having assured himself by a glance that the boat would not sink at once, attempted to steer it over to a sandbar about twenty-five paces distant, which communicated with the rocky shore. The machinery was meanwhile in disarray, for when Carrol opened the hissing steam-pipes the wheel, which had been thrown from its position, made the whole cabin threaten to come apart. The steam was hastily vented, and all attention was turned to the skiff, in which, at the captain's command, part of the crew had rushed to shore with ropes, to, if possible, hastily move the steamboat to safety. Slowly the Explorer followed the combined efforts of the men, and while the little boat flew back and forth between the shore and the steamer, in order to rescue the swimming men first, we quickly made arrangements on the platform to prevent the total loss of our collections. We tied fishing lines with one end to the filled chests and provided the other end with a piece of wood that floated easily, in order to have means at hand of being able to find any objects that might sink. We fastened diaries and drawings to our bodies, some ammunition was shoved under our hats, and rifle in hand we stood on the edge of the platform, ready to flee at the crucial moment. But the Explorer stayed afloat; inch by inch it neared the shore, and with a certain delight we finally heard the sand crunch under the iron planking. Though the boat might be rendered useless for the distant voyage, we had

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suffered no loss of life or our collections, and with provisions still in hand, we were able to await the [pack] train's arrival. It would have been different for us if the boat had sunk in 16 to 20 feet of water, or if the accident had happened to us deeper in the gorge, where there would scarcely have been a sand bank to rescue us. For the moment we only had to mourn the Doctor, who had fallen on his chest onto the steam tube and feared severe internal injury. Fortunately our apprehensions were not confirmed, and in a few days we had the joy of seeing our doctor relieved of the painful consequences of the fall.

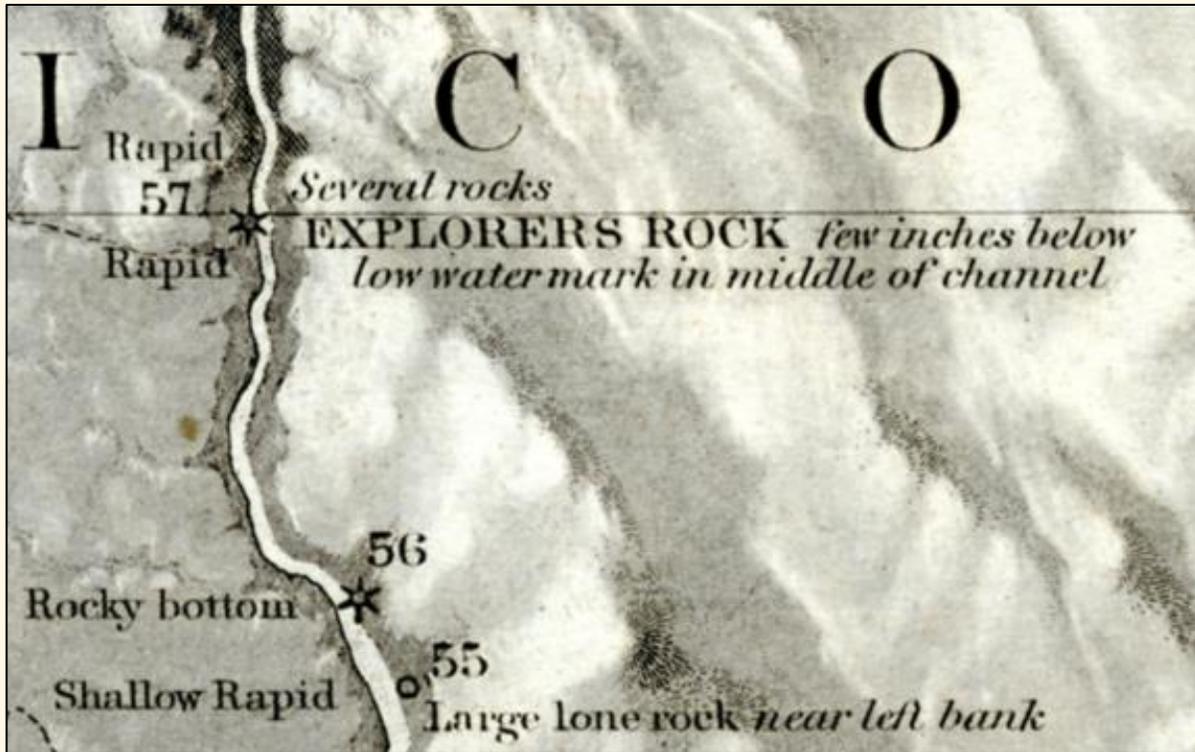
We were, then, on a sandy expanse which filled an angle in the tangled masses of rock on the right bank. It was a desolate place that chance had given us, for where deep sand did not hamper our steps, there lay sharp volcanic rubble, and where firmer ground would have made walking somewhat easier, there thorny mesquite trees grew rampant. There was no firewood at all, and we were lucky to have laid in a supply of it before entering the gorge, which now came in handy. Our onward journey was now cut off for the time being, and so we had to be satisfied with everything as it was offered to us and content ourselves with the hope of better times.

Scarcely had the Explorer been lying on the sandy shore, and scarcely had the initial excitement subsided, than sprightly work was begun to understand for the time being the actual extent of our misfortune. Above all, Captain Robinson had the entire cargo and all loose objects removed from the steamboat, and after a thorough examination it turned out that some joints had opened up to the water, but that, incomprehensibly, the hull was not so damaged that it could not have been easily repaired. It was different with the machine, for it required all of Carroll's skill to put it back into serviceable condition.¹⁰⁷

While Carroll conducted *Explorer's* repairs during the next few days (surely with more fretting, bending, and cussing, and now without benefit of the mechanics who had been present on the river delta in December), Ives with Capt. Robinson and his unnamed "mate" ventured some 20 miles or more farther upriver in a skiff. Raising "an apology for a sail" and using sculls to row "with considerable vigor" (one of them soon broke) they traveled all the way through Black Canyon, which is the subject of Ives' Chapter VI.

¹⁰⁷ Möllhausen, *Reisen*, 367–370. The writer does not elaborate on Carroll's efforts.

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Detail from F. W. von Egloffstein's "Map No. 1" depicting his labeling of Explorers Rock. (Map from J. C. Ives' *Report Upon the Colorado River of the West*, 1861.)

Looking for the Virgin River

After the collision with "Explorers Rock,"¹⁰⁸ Ives counted his blessings:

I have thought it would be imprudent, after this experience of sunken rocks, to attempt the passage of the cañon without making a preliminary reconnaissance in the skiff. A second escape of the boat, in the event of a similar encounter with a rock, would be too much to hope for; and should she be sunk in the cañon, and there be nothing to swim to but perpendicular walls five hundred or a thousand feet high, the individuals on board would be likely to share the fate of the steamer.¹⁰⁹

In the skiff, the three men went beyond the upper portal of Black Canyon to where they thought they may have reached the Virgin River. From there, overland connections via the "Mormon road" might be made with Utah and other interior

¹⁰⁸ Although the offending obstruction was in fact underwater, for years afterward it was deemed a significant geographical feature, its location included on many commercially produced maps, which took their cue solely from the "Explorers Rock" label placed by Egloffstein on his map of the lower Colorado (*see above*).

¹⁰⁹ Ives, *Report*, 82-83; his account of the reconnaissance appears on pp. 85-88 therein.

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points (again, with an eye toward Ives' more covert assignment). But Ives did not at first believe they had reached the Virgin.

The appearance of the bed and the banks indicated the existence, during some seasons, of a wide and deep river. It was now but a few inches deep. The water was clear, and had a strong brackish taste. This fact, and its position, led me to suppose that we were at the mouth of the Virgin, but I could scarcely believe that that river could ever present so insignificant an appearance.¹¹⁰

Even though he eventually did adopt the supposition that this was the Virgin (but Egloffstein did not map it so), current historians confidently believe the men had instead reached Las Vegas Wash, which comes to the Colorado just a few miles above the river's entrance into Black Canyon, its confluence now submerged in Lake Mead's Las Vegas Bay. It is the spidery tributary on Egloffstein's map (*p.* 72), which is only a short tributary that heads in today's nearby Las Vegas, Nevada. The confluence of the Virgin actually is much farther upstream and could not have been reached in the amount of time the men were away from *Explorer*.

In order to survey the scene, Ives and Robinson climbed Fortification Rock (*see photo, p.* 73), a hill overlooking the Colorado River near today's Hoover Dam and now partly underwater in Lake Mead—this geographic location is another indication that they had not reached the Virgin River.¹¹¹ From its top the view was partly blocked by another high elevation. They failed to sight any informable geographical landmarks, including the valley of the Virgin River, and decided that it was fruitless to continue their upstream exploration on such low water.

"I now determined not to try to ascend the Colorado any further," Ives wrote discouragedly.

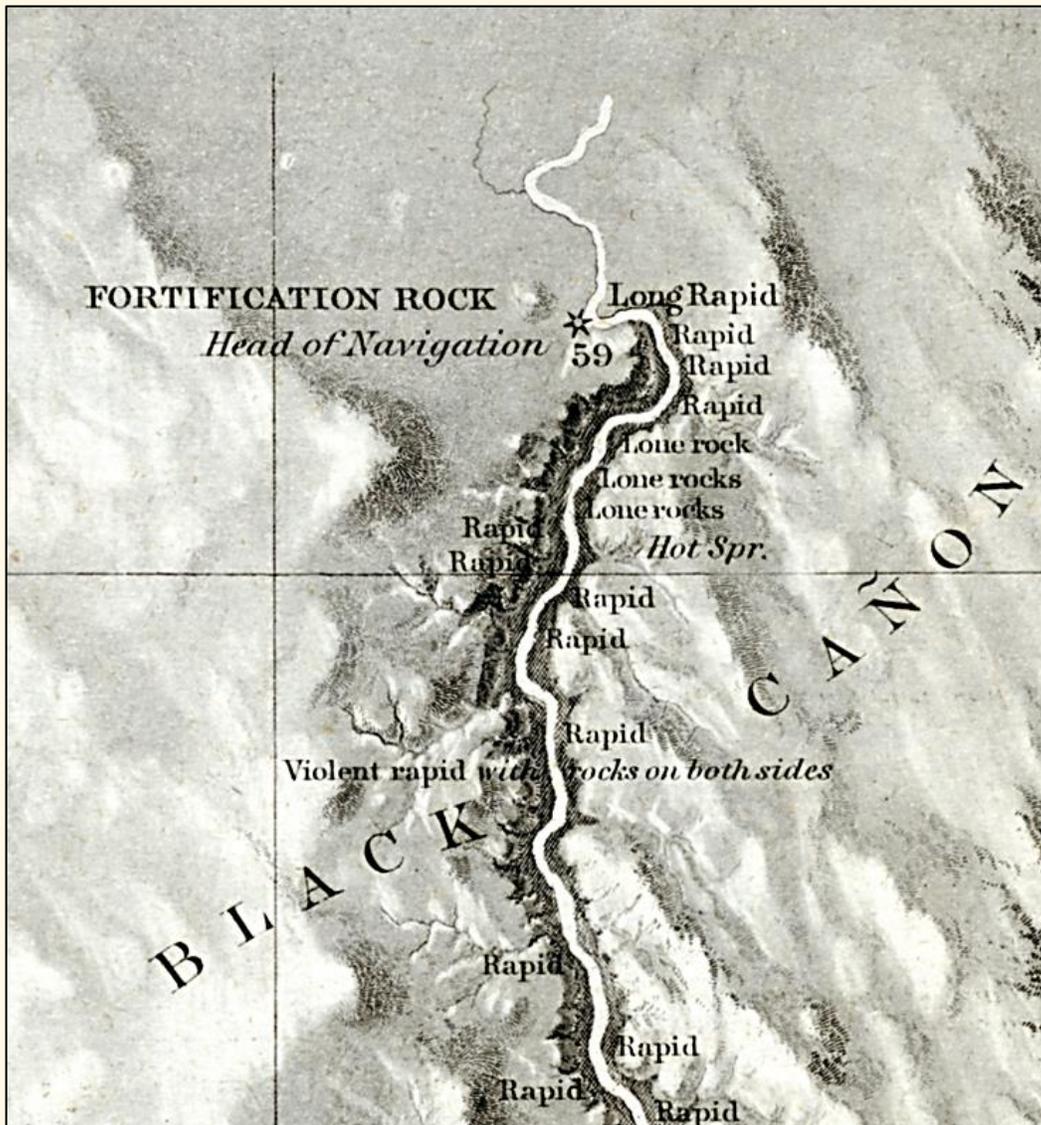
The water above the Black cañon had been shoal, and the current swift. Rapids had occurred in such quick succession as to make navigation almost impossible, and there would be no object in proceeding beyond the Great Bend. The difficulties encountered in the cañon were of a character to prevent a steamboat from attempting to traverse

¹¹⁰ Ives, *Report*, 87.

¹¹¹ Ives named it "Fortification rock," stating that it is "over a thousand feet high." Today this is called Rock Island, the largest and southernmost of the Boulder Islands that lie partly submerged in the deep, downstream limit of Lake Mead. Egloffstein also here marked on his map, "Head of Navigation." It should not be confused with Fortification Hill (elev. 3655 ft), the broad-topped summit on the east side of the river at this place. The skiff explorers did not reach the Great Bend of the Colorado, where the river changes its course from west to south, as one can glean from the map detail on *p.* 72.

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it at low water, and we had seen drift-wood lodged in clefts fifty feet above the river, betokening a condition of things during the summer freshet that would render navigation more hazardous at that season than now.¹¹²



Detail from Egloffstein's "Map No. 1" depicting his labeling of Fortification Rock. Notations of features were as reported by Ives from the skiff trip upstream after the collision at Explorers Rock. (Map from J. C. Ives' *Report Upon the Colorado River of the West*, 1861.)

¹¹² Ives, *Report*, 87.

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“Castellated sand bluffs, Fortification Rock, Colorado River.”

Fortification Rock as seen from the Colorado River, photographed by Timothy H. O’Sullivan, 1871. From a glass negative.

(U.S. National Archives and Records Administration, Record Group 106: Records of the Smithsonian Institution, 1871-1952; <https://catalog.archives.gov/id/524189>, last accessed November 15, 2022.)

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Later, steamboats would in fact venture as far as Callville, a Mormon settlement established on the Great Bend in 1864 (deserted 1869 and later submerged in Lake Mead), but it was never a satisfactory or reliable destination by steamer.¹¹³ The seasonal timing of Ives' expedition was, admittedly, during winter so as to work under what was thought to be a worst-case scenario for determining the navigability of the river (which it was), in consideration of the possible need to use the river to reach interior parts of the continent. One wonders how much farther *Explorer* might have successfully gone on somewhat higher water.

Dividing the Command — Conclusion of the River Expedition — Why a Land Expedition?

The skiff excursion concluded, the patched-up *Explorer* traveled back downstream. With no need to press on upstream, the head of practical navigation satisfactorily identified, one would imagine that this ended Ives' charge to establish that point. But there still was the matter of a landward expedition to the east.

Returning downstream, *Explorer* stopped at Beale's Crossing—named a year earlier when Edward F. Beale had scratched out a wagon route to California (with camels, famously) generally along the path surveyed over the 35th parallel by Whipple's railroad survey.¹¹⁴ Here for the first time they also encountered, on the other side the river from their camp, Mormons, one of whom was recognized, by one of the men who had been in Utah, as a Mormon bishop. Discrepancies in the information conveyed during their conversation, Ives said, "did not argue well for the bishop's sanctity," who departed from their company the next morning.¹¹⁵

¹¹³ Richard E. Lingenfelter, *Steamboats on the Colorado River, 1852-1916* (Tucson, 1978).

¹¹⁴ Möllhausen's watercolors include a view of the Colorado River crossing by the camel corps, which while the geographical view is faithful, his addition of the camels was based only on reports of the event that had taken place the year before; he never saw them himself, although he did see Beale's camels in California prior to his departure for Fort Yuma. His imagination also produced a graphite sketch on paper, "Möllhausen zu Pferd, daneben ein Kamel" (*transl.* Möllhausen on horseback, next to a camel), in which Möllhausen enjoys a good laugh as his frightened mount rears back. This sketch is reproduced in Huseman's *Wild River* with a more appropriate legend, "Möllhausen's Mule Alarmed at the Sight of a Camel" (Huseman, *Wild River*, 110, 174-177; Cat. No. 26).

¹¹⁵ Ives, *Report*, 89.

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Here too they finally met up with the anxiously overdue pack train of mules that had been coming up from Fort Yuma under teamster George H. Peacock. Engineer Carroll had safely nursed his wounded *Explorer* and delivered the overland expedition to its dropping-off place. Ives divided his command, sending *Explorer's* crew and some soldiers back to Fort Yuma.

It was here on March 21st that the last concert was held, and Herr Möllhausen, the adventurer of the American West, was in a pensive mood.

As evening approached, the Indians were ordered to leave camp, a strong guard surrounded the herd, sentinels stood in the impenetrable shadow of the tall, widely branched trees, and thus, safe from surprise, we stretched out leisurely in front of the campfires, and since we could no longer take the instruments with us on the overland journey, and our second flute, Mr. Carroll [*sic* ¹¹⁶], had to part from us, we tried, so to speak at the last moment, to arrange some evening musical entertainment. The picture that lay spread out in front of me that evening will remain fresh in my memory forever. It was not only the constant change of the dark shadows under the dense trees and the light streaming out from the many campfires, but also the figures, which enlivened the whole with the most varied costumes and postures. The shiny weapons rested in the arms of most, or lay at their side; the mahogany-colored features, the gray felt hats, the long beards and the dusty, torn clothes all pointed to long, hard service, and even if some lay about in a deep sleep or gazed lazily into the blazing flames, joy seemed to noticeably rest on their faces. Songs and music rang out deep into the night, and with a feeling of cruelty we finally put aside the instruments we were to part with forever. I say forever, for it is scarcely credible that any of us shall ever return to Fort Yuma, where in some corner the violin and the guitar await their owners. But marvelous are often the ways in which man is led; when I saw the Rocky Mountains for the first time, I sent what I thought at the time would be a final farewell to their proud peaks, and yet since that time I have repeatedly crossed this long chain of mountains from different sides.¹¹⁷

The day finally arrived when Andrew Carroll would leave most of the men he had lived with for the past three months, who were off to the Grand Canyon and beyond; with the rest, in *Explorer*, he went back to Fort Yuma. There the soldiers would resume their duties, Capt. Robinson would go about his business, and young Andrew Carroll would drift away.

¹¹⁶ The only time that the engineer's name is correctly spelled in Möllhausen's *Reisen*—ironically perhaps a typographical error here.

¹¹⁷ Möllhausen, *Reisen*, 412–413.

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The Explorer's whistle finally called all aboard, and soon everyone gathered on the shore to exchange last farewells. It is a peculiar feeling when one parts from old, loyal traveling companions in the middle of the wilderness, and each of them sets out on different, uncertain paths towards a distant destination. More well-intentioned, warmer wishes, albeit cloaked in rough forms, can hardly be exchanged between people who have only known each other for a short time and, in most cases, will part never to be seen again. The explorer's whistle blew for the second and third time, and still there were people on the shore squeezing each other's hands; even the natives crowded in and shook hands, saying: Hau do (How do you do) until the last of the passengers for Fort Yuma, among them our friendly Mariando, jumped on board, and the steamboat slowly glided toward the middle of the stream. The current quickly carried our friends out of range of our voices, the mules were herded into camp, and soon each was busy saddling his allotted mule, and preparing to set out.¹¹⁸

So on March 24, 1858, Ives set out with Lt. Tipton, 20 soldiers, a hundred and fifty mules with Peacock and Mexican packers, the Germans, Newberry, Ireteba (the Mohave who had also guided Whipple, who with three more Native Americans would accompany them as far as the Grand Canyon)¹¹⁹—and “Grizzly.”¹²⁰ They left the Colorado River, bound eventually for Fort Defiance. It was not unknown territory, as both Ives and Möllhausen had come west along parts of the way in 1854 with Whipple.

¹¹⁸ Möllhausen, *Reisen*, 422–423.

¹¹⁹ Ives, *Report*, 93. The first portion of the land expedition, between the Colorado River and the Grand Canyon, is separately recounted in English translation in *Balduin Möllhausen's Grand Canyon* (Earle Spamer, ed., Raven's Perch Media, 2022, <https://ravensperch.org>). Möllhausen's record of this passage covers the period March 23–April 15, 1858, which are encompassed by Chapters 21–25 in Volume 2 of his *Reisen*. The Raven's Perch volume also includes a complete transcription from Ives' “General Report” for the same dates. Ireteba, the Mohave, was indispensable as a guide and for arranging for Hualapai guides as they approached the Grand Canyon.

¹²⁰ Grizzly, peculiarly, was not mentioned at all by Ives, and by Möllhausen only a couple of times. The German makes no reference to him during the river expedition, and during the land expedition only when Grizzly was, to the men's sorrow, lost in the Grand Canyon (*Reisen*, Volume 2, Chapter 23; see also the English translation of the first part of the land expedition as told by Möllhausen [*Balduin Möllhausen's Grand Canyon*, 36, 42–43]). Grizzly had joined Möllhausen's group in Los Angeles, when the dog was but four months old, and together they traveled overland to meet the expedition at Fort Yuma on the Colorado River. Möllhausen (*Reisen*, Volume 1, 126) describes Grizzly, beginning, “Grizzly war ein Hund, halb Dachs- und halb Wolfshund, und zugleich das häßlichste Exemplar seiner Race, welches ich jemals gesehen.” (*transl.* ‘Grizzly was a dog, half dachshund and half wolfhound, and at the same time the ugliest specimen of his race that I have ever seen.’). Huseman (*Wild River*) reproduces Möllhausen's graphite sketches of Grizzly, which are still held by the Möllhausen family in Germany: “Teasing the Dog” (Huseman's fig. 55) and “The Last Days of Grizzly” (fig. 58). Grizzly, like Lewis and Clark's dog, Seaman, may yet have his explorations story told by a talented writer.

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Although the first part of Ives' eastbound travels was to refine a satisfactory approach to the river along which the projected railroad could reach a crossing, one may wonder: if Ives' charge was to ascertain the navigable extent of the Colorado River, and if the Whipple and Beale routes were known factors, why did the entire party just not return to Fort Yuma aboard *Explorer*, and why bother with having arranged for the pack train to meet them?

Ives mentioned only tangentially in his 1861 public report that he also was reconnoitering the extent of expansion of Mormon interests into the region; this under the threat of a potential civil war with Utah. "The establishment of new military posts in New Mexico and Utah made it also desirable to ascertain how far the river was navigable, and whether it might not prove an avenue for the economical transportation of supplies to the newly occupied stations."¹²¹ The so-called "Utah War," which pitted Mormon moralist views against proscribed "American" (federal) values, was a testy conflict already under way but which never realized significant military engagements. Ives did mention in his *Report* that they had met some Mormons and suspected that the party was also being watched by others. Farther east, where they were heading overland, Mormon colonization of the Little Colorado River valley was also of concern, so the need to reconnoiter there as well.

The stops at Grand Canyon—at the mouth of Diamond Creek and an attempt to reach the mouth of Cataract Creek (Havasu Canyon)—were part of the overall topographical and cartographical survey; part of the unsuccessful design to reach the confluence of the Little Colorado River in order to determine astrometrically its geographical coordinates. These probes also could have given some insight into the conditions of navigability of the Colorado in these reaches never before seen by non-Natives (but the river was seen only at Diamond Creek, which Möllhausen depicted in two watercolors and in colored lithographs in his *Reisen*¹²²).

During their time on the lower river they took care to seem oblivious to the Mormon presence, since the survey was ostensibly just to ascertain the head of navigation—and thus perhaps the thin disguise of the disinformational name "Explorer" painted on the wheelhouse. The intelligence might also aid federal interests. During a

¹²¹ Ives, *Report*, 21.

¹²² See the watercolors in Huseman, *Wild River*, and on the Amon Carter Museum website. The colored lithographs are also reproduced in *Balduin Möllhausen's Grand Canyon*.

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major campaign, troops, not just “supplies,” might be brought upriver by steamer to a setting-off point closer to interior objectives.

On the other hand, Möllhausen, in his own book, wrote more about the expedition’s interactions with Mormons; but that being in German and published overseas, most readers were for a long time unaware of this.¹²³

General Jesup vs. Explorer

Ives’ published *Report* omits all mention of the fact that river captain George Alonzo Johnson, with the side-wheeled steamer *General Jesup*, had bolted from Fort Yuma just ahead of *Explorer*, likewise to look into the reports of Mormon activities upriver, and to similarly establish where lay the head of navigation (*see Möllhausen’s comments on pp. 45–46 herein*). Johnson’s expedition was underwritten privately but was a paramilitary one for also carrying a number of troops from Fort Yuma. The Ives party did encounter the *General Jesup* as that larger boat was returning downstream, and they found a stone monument erected by the rivals where they had been forced to turn around. (The monument was not really so much to note the true head of navigation but to catch Ives’ attention. Johnson assumed that the river was the same all the way to the Virgin River and could be followed by smaller vessels.) Ives was in fact keenly

¹²³ Ives’ correspondence with superiors communicated intelligence on the Mormon presence in the region. For a modern review of these perspectives, including liberal quotations from Ives’ personal and military correspondence, see William P. MacKinnon, ed., *At Sword’s Point, Part 2, A Documentary History of the Utah War, 1858–1859* (Norman, Okla., 2016), Chapter 4, “‘A Channel of Communication with Utah’: Rio Colorado.” While on the river, Ives did also write frequently to his beloved wife, Cora (“Coe”), but these letters centered on the challenges and rewards of the expedition and his loneliness without her and their children; although, his personal opinion of the expedition was best summed in a letter from Albuquerque, June 4th, where he referred to (in quotation marks) “the ‘horrid old Colorader.’” (Jerry Snow and Ken Ives, “Letters from the Colorado River Ives Expedition of 1857–1858,” in *Proceedings of the Colorado River Basin History Symposium, 2021* [Grand Canyon Historical Society, Grand Canyon, Arizona, 2022, 54–59].)

As informational as Möllhausen was by including his observations and comments on the Mormon affairs in his *Reisen*, after returning to Germany for the final time at the conclusion of the Ives expedition it was the end of his personal accounts of the great American outdoors. Thereafter he became a very successful writer of adventure novels of the American West (in German), some of which continued to reflect an infatuation with Mormons, such as *Das Mormonenmädchen: eine Erzählung aus der Zeit des Kriegszuges der Vereinigten Staaten gegen die “Heiligen der letzten Tage” im Jahre 1857–1858* (The Mormon Girl: a Story from the Time of the United States’ Campaign Against the “Latter-day Saints” in 1857–1858) (Jena and Leipzig, 1864; six volumes, in which see particularly in Volume 2, “Am Rio Virgin,” 122–154, and throughout Volume 6).

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interested in information gleaned from Johnson's exploit, which he did convey to superiors in his military correspondence.¹²⁴

Ives published not a word about the encounter with the returning *General Jesup*, but Möllhausen did, and it is he upon whom we rely, as we had when the boat was at Fort Yuma, for reports of the side-wheeler's activities on the river.

We had traveled about two miles when, not too far ahead, we saw a column of black smoke approaching us, and soon afterwards we heard a steam whistle, the shrill note of which rang out to us as if in greeting. It was the steamboat Jessup [*sic* ¹²⁵], and scarcely were we certain of it, when Mr. Carrol too blew the Explorer's whistle in such a way that no other sound could be heard over it. The two steamboats approached each other rapidly and met about three miles above where we had camped. Settling on the left bank, a few minutes later the members of the expeditions mingled to quiz one another about the latest experiences.

The Jessup had not advanced far beyond the great Mohave villages, where strong rapids forced it to turn back. The place where it halted had been marked by a heap of stones, and the same was later found by us and astrometrically determined by Lieutenant Ives. The natives had displayed a thoroughly peaceful disposition, although rumors of the Mormon War had reached them, too, and had somewhat alarmed them. About the river itself we received only very unsatisfactory news; the obstacles increased according to the descriptions given to us, and we could therefore brace ourselves for a very long journey. [. . .]

The Jessup was even worse-supplied than the Explorer, and for several days had had only Indian beans and corn on board. In spite of the fact that its company now counted heavily on help from our side, every request for provisions had to be turned down, since we ourselves were facing a very uncertain future, but Jessup could have reached Fort Yuma and its full meat pots after only two weeks. We only communicated for a short time; Lieutenant Tipton left us to board the Jessup conveying necessary instructions; hands, whether known or unknown, were shook in farewell, and luck was also wished for the distant journey. The steam whistles deafened the ears, and the two boats proudly cut the water in opposite directions.¹²⁶

Soon enough, on February 18th, *Explorer* and her crew reached the high point of the *General Jesup's* run up the river, a place that Ives' party called "Jesup's Halt."

¹²⁴ MacKinnon, *At Sword's Point*.

¹²⁵ Möllhausen consistently referred to (and misspelled) the *General Jesup* just as the "Jessup."

¹²⁶ Möllhausen, *Reisen*, 225–226. In one of his watercolors Möllhausen depicted the monument erected by Johnson and his crew; see in Huseman, *Wild River*, Cat. No. 28 (p. 112), "Jessups Rapid (Deep Rapid)"; also see pp. 180–182 therein.

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Möllhausen recounted Capt. Robinson's studied refusal to let these rapids defeat him, as they had Capt. Johnson's bigger boat—and that of course called for Carroll's watchful responses to the captain's orders to deliver all the steam he could. As Möllhausen recounted:

Captain Robinson had wandered to the first rapid in order to become acquainted with the nature of it and, as it were, to lay out his plan of attack. He returned with a satisfied air and declared that unless we encountered more difficult obstacles they would not end the Explorer's journey. He then gave orders to increase the fire under the boiler as much as possible, and then, as the injected steam, screeching loudly, threatened to force its way from every joint, the boat slipped slowly into the middle of the stream, and then pulled just as slowly upwards. As the engine was temporarily working at half power, the steam naturally accumulated more and more in the cylinder, and Mr. Carrol only awaited the signal to quadruple the sluggish revolutions of the wheel.

The first waves finally broke on the Explorer's bow, and Robinson's command rang out, [*Möllhausen writes in English*] "Go ahead strong!" The steam tubes were opened all the way and, trembling with the sudden shock, the boat tumbled into the violent surf with a rush. It heaved and fell as the terrible current threatened to throw its prow about, and swayed as the boatmen, with long poles, nudged it in the direction needed. The foam spattered high under the great blades of the wheel, which barely shifted its load from the spot. It was a splendid spectacle, but the full enjoyment of it was marred by a dreadful feeling one could scarcely resist, at the thought that one hidden ledge, or the tossing of the boat, could sadly end the whole expedition. Apart from the fact that after the loss of food and equipment, the only thing left for us to do would be to throw ourselves into the arms of the natives, for better or for worse.

The fall of the water was about four feet, spread over a distance of ten feet; the fall itself was therefore not of great importance, and only became dangerous because the water, being hemmed in by boulders, also churned through rubble.

The latter, however, lay so low that the keel of the boat did not touch it, and so we gradually got to the middle of the rapid without bumping into anything. There, for a time, it seemed as if the force of the water prevailed, for in spite of the vigorous working of the engine we did not move. The driest logs were picked out and pushed into the crackling embers of the furnace, so that the wild flames roared through the winding flues. The steam increased, the Explorer slowly moved forward, and once the bow was on the upper water level again, the speed also increased. Soon afterwards we were darting along on a calm tide and had successfully overcome the first significant rapid. We also got across the second that same day, but before the third, which was even larger than the first two, we were pushed back by the rush of water. Since

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other precautions were obviously needed here, and evening was not far off, the captain postponed the renewed attempts to the following day and hauled the boat over to the left bank, where it lay safely in calm water behind a ledge while we ourselves chose a suitable place to stay for the night further above. The day's journey was eleven miles, and we had reached the point at which the steamer Jessup had turned back a few weeks earlier. A small pyramid built of rubble, from the top of which a pole protruded, marked the place to which we gave the name Jessup's Halt.

It is easy to explain why we all had the keenest desire to leave Jessup's Halt as far behind us as possible, and this very desire drove most of us, even before dawn, up to the nearest heights from where we could see the river for miles up. [. . .]

Robinson, who watched the fall of the water attentively, studied it and drafted his plan accordingly, began early on February 19th by steering the steamboat with the entire crew and cargo to the right bank. He was prompted to do so by a firm sandbar, suitable for his purposes, and as soon as the vessel was on the bank just below the rapids, he immediately had all the cargo unloaded, except for the firewood, making the boat lose over eight inches of its draft. The greatest possible mass of steam was then generated, the crew hitched to a long rope fastened to the side of the boat, and thus balanced, the Explorer slid into the foaming eddies. The rush of the waves was terrible, but to our great delight the little steamer pushed slowly forward, and after a short but hard struggle, fortunately reached the calm waters above the fall.

It gave us a certain reassurance to be able to say that we had really advanced a little further than the Jessup; even our people expressed their joy at it, and got to work twice as hard when it came to carrying the freight a few hundred paces up the river and soon loading it again.¹²⁷

It would not be the last of the bad, potentially expedition-ending rapids that held up *Explorer's* progress—but they had conquered the *General Jesup*. The river beyond summoned them. The Grand Canyon called.

The *General Jesup* fared worse on its homeward journey. When a communication was received from the approaching pack train,

We were unpleasantly surprised to hear that the steamboat Jessup had struck a rock near Lighthouse Rock and sank. While the same was such that it could later be refloated, the accident had reduced all the crew to the necessity of walking the rest of

¹²⁷ Möllhausen, *Reisen*, 328–331.

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the way to Fort Yuma, which, despite the lesser distance on the mountain trails, posed greater difficulty since the vessel lacked every bit of food.¹²⁸



After visiting the Grand Canyon, the land expedition had considered pressing on southward into the valley of the Verde River, or possibly even reconnoitering northward toward the confluence of the Grand and Green Rivers in Utah. But logistical concerns scrapped what were whimsical plans anyway, and the party continued onward to the east and Fort Defiance (in the eastern part of today's Arizona). Once they passed around the San Francisco Peaks, Ives, Egloffstein, and a few men made a side trip to the Hopi mesas, likely to allow Ives to inquire about Mormon activities in the Little Colorado River valley.

After reaching Fort Defiance, Ives closed his "General Report":

All of the party, excepting myself, continued on towards the east, crossing the plains from Santa Fé to Fort Leavenworth [Kansas], and repairing thence to the seaboard. It was necessary for me to dispose of the steamer and certain property¹²⁹ at Fort Yuma, and to settle the accounts of some members of the expedition who had gone back in the boat, and I accordingly took the stage from Santa Fé to El Paso [Texas], and from that place followed the southern overland mail route to San Diego.

Stopping for a day or two at Fort Yuma, I found Captain Robinson still in charge of the Explorer, and learned from him that the trip down the river had been accomplished without accident or any molestation from the Indians. In order not to run any risk of losing the collections and the field-notes, the descent had been made slowly and with great caution.¹³⁰ Fort Yuma was reached on the 16th of April, twenty-five days from the time of starting.

After disposing of the little boat that had done us such good service to the transportation company at the fort, I bid farewell to Captain Robinson and the Colorado, and proceeding to San Francisco took the first steamer for New York.¹³¹ ●

¹²⁸ Möllhausen, *Reisen*, 342. Lighthouse Rock is a geographical feature on the Arizona side of the Colorado River, 63 miles upriver from Yuma (Lingenfelter, *Steamboats*, 168).

¹²⁹ One may wonder if that included the orphaned violin and guitars that had entertained in the evenings while ascending the river.

¹³⁰ Perhaps so as not to repeat the fate of the *General Jesup*, with the risk of losing the river expedition's notes, maps, and natural history collections.

¹³¹ Ives, *Report*, 131.

Andrew Carroll Homeward Bound

Captain Robinson, Carroll, and personnel not needed on the land expedition returned *Explorer* to Fort Yuma from Beale's Crossing, arriving there on April 16th. Until now, this is the last we could ever have been sure of Andrew Carroll's whereabouts. We never knew even whether he stayed out west or returned home to Philadelphia—if anyone had bothered to wonder in the first place.

The information recovered here shows that he did return home—he after all had family there, and a job; and of course the government footed the bill for the trip. He was recorded in a passenger list (*see next page*) for the S.S. *Star of the West*, a side-wheeler of 1,172 tons, Alfred G. Gray, master, which arrived in New York from Aspinwall, Panama, on June 12, 1858. Aboard was an "A J Carroll," aged "29,"¹³² occupation "Mcht," who was among those passengers who occupied a berth "Between the first and second Decks abaft the wheels." Some 407 names appear on the manifest. And to wile away the time on the long sea voyage, engineer Carroll surely availed himself of the opportunity to be shown the steamer's engine and other apparatus during the voyage.

Lest one figure that this "Merchant" is not our Carroll, one quickly observes on this list that, unless a passenger had a more respectable occupation (like "Judge" or "Physician") *all* the males with occupations berthing in this part of the ship were listed as "Mcht," most of them indicated by ditto marks—conveniently indolent book-keeping for the registrar. (Groupings of passengers were listed according to where they berthed onboard; and elsewhere there were fewer listed as "Mcht" but many who were a "miner" or "laborer" and several who were "seaman.")

The timing is perfect. Andrew would have debarked from *Explorer* soon after April 16th, then crossed the desert and mountains from Fort Yuma to San Francisco's seaport in order to reverse his westbound itinerary, arriving in New York on June 12th; all told, another two months of travel.

(text continues on p. 85)

¹³² Carroll's misrecorded age, 29 (he was 26), is a type of error that is peculiarly not unusual in public records such as this.

District of New York — Port of New York.

I, *Alfred E. Gray* Master of the *S. S. Star of the West* do solemnly, sincerely and truly swear that the following List or Manifest, subscribed by me, and now delivered by me to the Collector of the Customs of the Collection District of New York, is a full and perfect list of all the passengers taken on board of the said *S. S. Star of the West* at *London* from which port said *Steam Ship* has now arrived; and that on said list is fully designated the age, the sex, and the occupation of each of said passengers, the part of the vessel occupied by each during the passage, the country to which each belongs, and also the country of which it is intended by each to become an inhabitant; and that said List or Manifest truly sets forth the number of said passengers who have died on said voyage, and the names and ages of those who died. *So help me God.*

Sworn to this *12 day of June 1858*
 Before me *John H. Wells*
Alfred E. Gray Master of the *S. S. Star of the West*
 List of Manifest of ALL THE PASSENGERS taken on board the *S. S. Star of the West*
 is Master, from *London* burthen *1172 tons.*

NAME	Age	Sex	OCCUPATION	The country to which they severally belong	The country to which they intend to become inhabitants	Died on the voyage	Part of the vessel occupied by each passenger during the voyage
<i>Alfred E. Gray</i>							

Alfred E. Gray
John H. Wells
John H. Wells

Alfred E. Gray
John H. Wells

Immigration record for the *S.S. Star of the West*, June 12, 1858, entering at New York, showing (p. 2 of the manifest) "A J Carroll", age "29", with ditto'd information, sex "Male", occupation "Mcht".

From Ancestry.com online (last accessed November 15, 2022); respective images are:

https://www.ancestry.com/imageviewer/collections/7488/images/NYM237_184-0428?treeid=&personid=&rc=&usePUB=true&pid=1508290

https://www.ancestry.com/imageviewer/collections/7488/images/NYM237_184-0429?treeid=&personid=&rc=&usePUB=true&pid=1508290

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So, after ten months' absence, Andrew Carroll was home, where he began his own family and continued his career.

Unfortunately, we have no personal accounts from Carroll, nor family reminiscences. This may yet be remedied if another researcher finds Andrew's descendants, who, though, could be empty-handed about the life and stories of their greater-grandfather. (But then again . . .) ●

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The Life and Death of *Explorer*

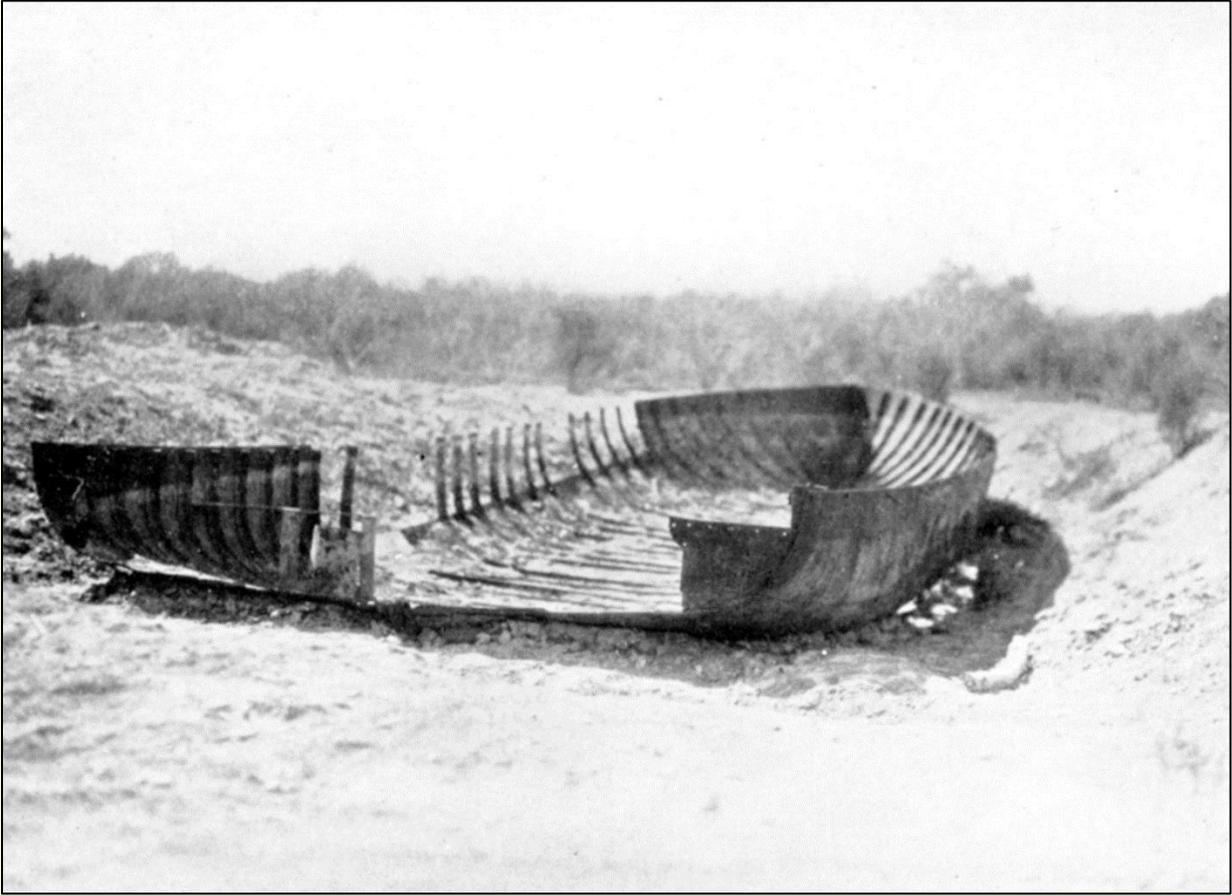
The Philadelphia-built vessel served well on its maiden voyage, even if hobbled by Andrew Carroll's necessary repair work and the whims of an unfamiliar river, surviving even its nearly fatal accident at Explorers Rock. After Lt. Ives discharged the expedition's land contingent at Fort Defiance, he returned to Fort Yuma by the stage route through Tucson and sold the government boat to private interests before continuing to the coast and, eventually, home.¹³³ Carroll already was on his way, having with Capt. Robinson shepherded the boat back to Fort Yuma after the land party left the river at Beale's Crossing in mid-March. Thereafter *Explorer* (or whatever it may have been renamed) seems to have served rather ignoble and local tasks compared to its upriver venture. It may even have been more useful as a barge, its hull-filling boiler and the sternwheel removed and repurposed, as these powerless platforms were often used with steamers on the river. (Take note, too, that the illustration of Fort Yuma on p. 43 shows a couple of boilers lying about, which one might not expect see at this locale except if they had been salvaged or discarded.)

Godfrey Sykes, 20th century engineer and explorer of the Colorado River delta, surmised that it was probably before 1865 when it was reported that the barely eight-year-old *Explorer* broke loose from a hasty mooring during a flood from the Gila River and drifted away toward the sea. Then, during the winter of 1929–30, a survey party discovered a partially buried iron boat hull, which was investigated more closely during the following July (see Sykes' photos on pp. 88, 89). The wreck was found in Sonora, Mexico, about 30 straight-line miles from Yuma, Arizona, far from an active river channel, clearly aground for a long time. It was nothing but a scavenged, partial skeleton of iron ribs and hull panels. Its wooden parts were long gone; when all this was salvaged and by whom is unknown. The skeleton's form and dimensions were close to those described by Ives; but that was not enough to claim that it was *Explorer*.

(text continues on p. 90)

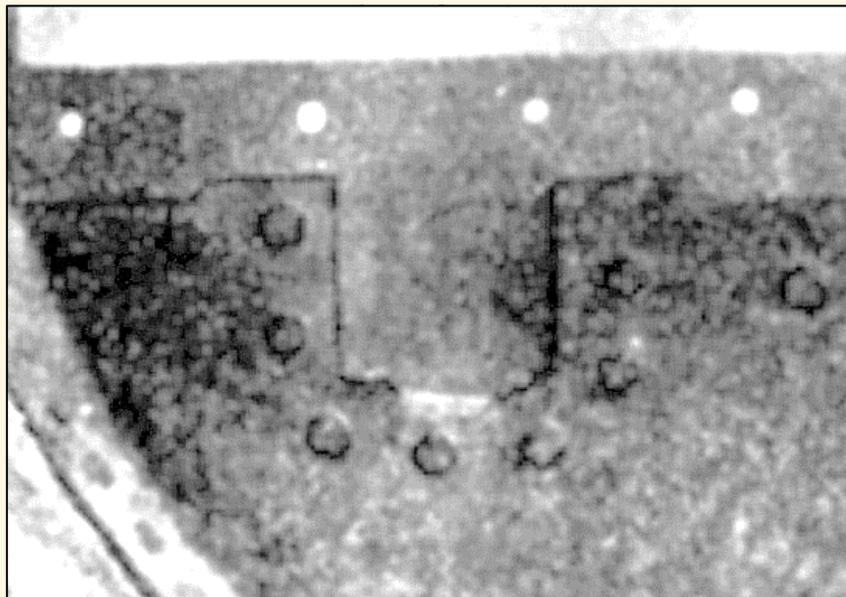
¹³³ No passenger records have been found.

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Sykes (1937), figure 10

“The remains of the hull of the *Explorer*, discovered in 1930 in an open flat surrounded by thickets in the old meander zone of the Colorado, near the abandoned Ockerson levee in about 32°20’S. [*sic*]”



Sykes (1937), figure 11

“Detail of the hull of the *Explorer* showing the iron patch covering the slot in the starboard side of the vessel’s transom that made positive the identification of the hull.”

At top. Digitally enhanced detail of the patch.

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Important identifying elements that did survive were bolts where Mr. Carroll's timbers had been attached when *Explorer* was reassembled in December 1857, which were meant to reinforce the overtaxed hull. An iron patch was found on a surviving portion of the transom, which had eliminated a source of swamping as well as the need for the slot when the pitman arm was raised and bowed. Further corroborating that this was *Explorer*, Sykes continued, "A closer examination showed, however, that the hull had been constructed in eight sections, as Ives had described the *Explorer*, and that these had been rather roughly, and perhaps hurriedly, assembled, suggesting such field conditions as are mentioned in his report."¹³⁴

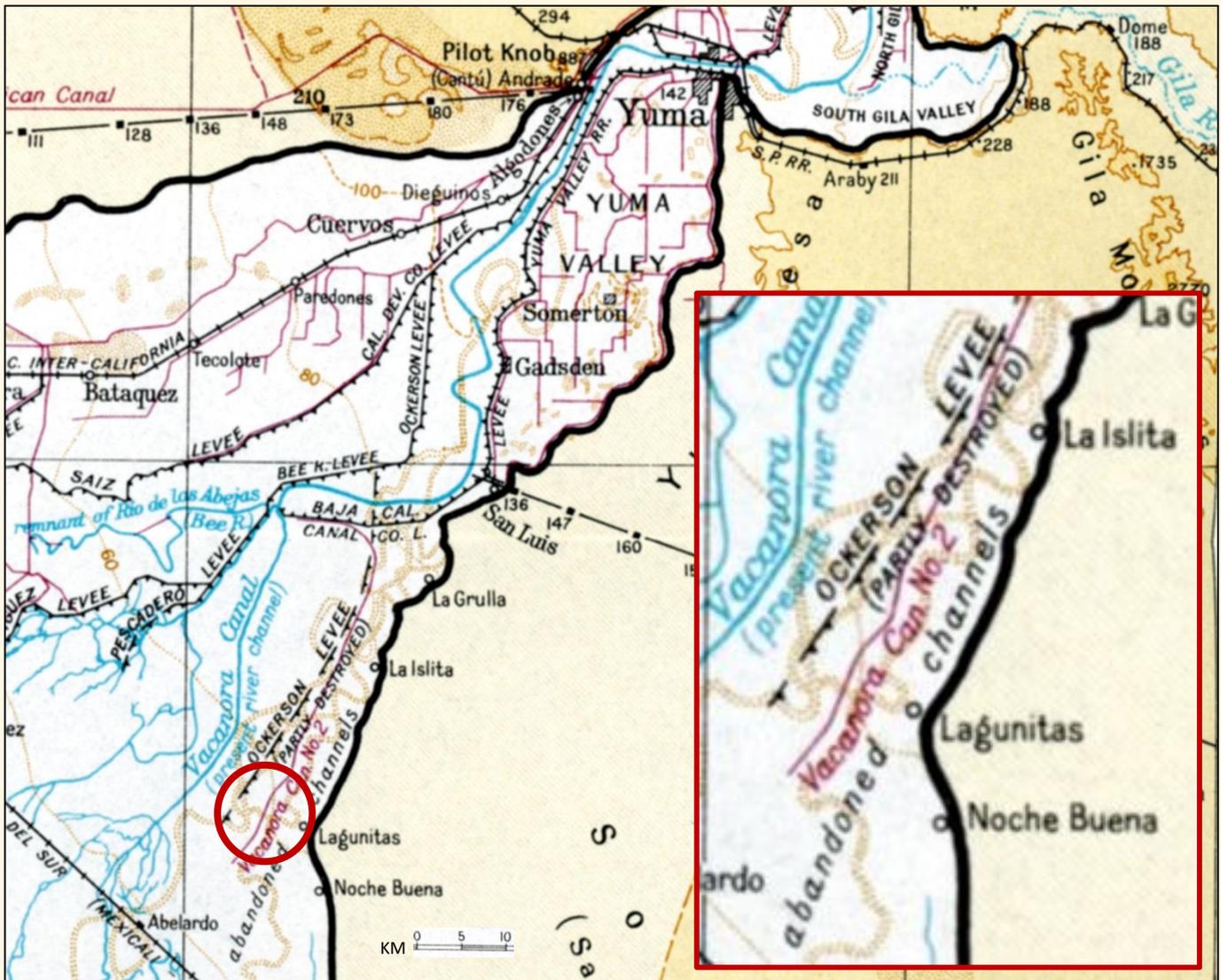
Since 1930, no one reported having had returned to the grave, an unceremonious end to the vessel that set in motion the first organized trip to the Grand Canyon. "She remains," eulogized Sykes, "as she was discovered, in an open flat, surrounded by dense thickets of brush and trees of mature growth, with no evidence in the immediate vicinity of any recent channel or lagoon"—its final stop on the receding waters of the flood six decades earlier, or perhaps its final rest after idling about, untended and undetected, on other freshets in the river between the 1860s and 1930s.

Sykes provided coarse geographical coordinates for the boat's resting place: 32° 20' N, 114° 56' W. This approximate position, as seen on Sykes' map (*p. 91*) and on a current map (*pp. 92, 93*), lies just off the east side of Sonora Route 40 about 1½ km northeast of Laguna del Sultán and 5 km west-northwest of Lagunitas), approximately 15 km southwest of the city of San Luis Río Colorado. Consideration should be given to the fact that the precision of these coordinates is only to the minute, thus the views presented here only approximately point out the location of Explorer's Halt. The satellite (*p. 93*) and ground (*p. 94*) views of the area show the region is a now irrigated farmland. *Explorer's* remains must have been cleared out by the middle of the 20th century.¹³⁵ ●

¹³⁴ Godfrey Sykes, "The Colorado Delta," *Carnegie Institution of Washington Publication 460* (1937), 90-92; Sykes' figures 10 and 11 comprise a plate facing p. 27 therein.

¹³⁵ Sykes, "Colorado Delta," 90. For the present-day map and satellite views refer to Google Maps online, <https://www.google.co.uk/maps/place/32%C2%B020'00.0%22N+114%C2%B056'00.0%22W/@32.3347285,-114.9280625,13.61z>.

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Detail from **Map of the Colorado Delta Region, Approximate Status as of 1933** (Plate I of Godfrey Sykes' *The Colorado Delta*, 1937.)

The red circle (*inserted here*) identifies the locality of Explorer's Halt, marked by the red "push pin" on the Google Maps views on the next two pages, based on Sykes' approximate coordinates where the remains of *Explorer* were found, 32° 20' N, 114° 56' W. That location is about 5 km west-northwest of Lagunitas, near the line on this map that delineates "Ockerson Levee (Partly Destroyed)". In the detailed view (*inset*) note the traces of what are labeled "abandoned channels" denoted by meandering tan stippled bands. (The heavy line on Sykes' map outlines the "approximate limit of the alluvial basin" of the delta.)

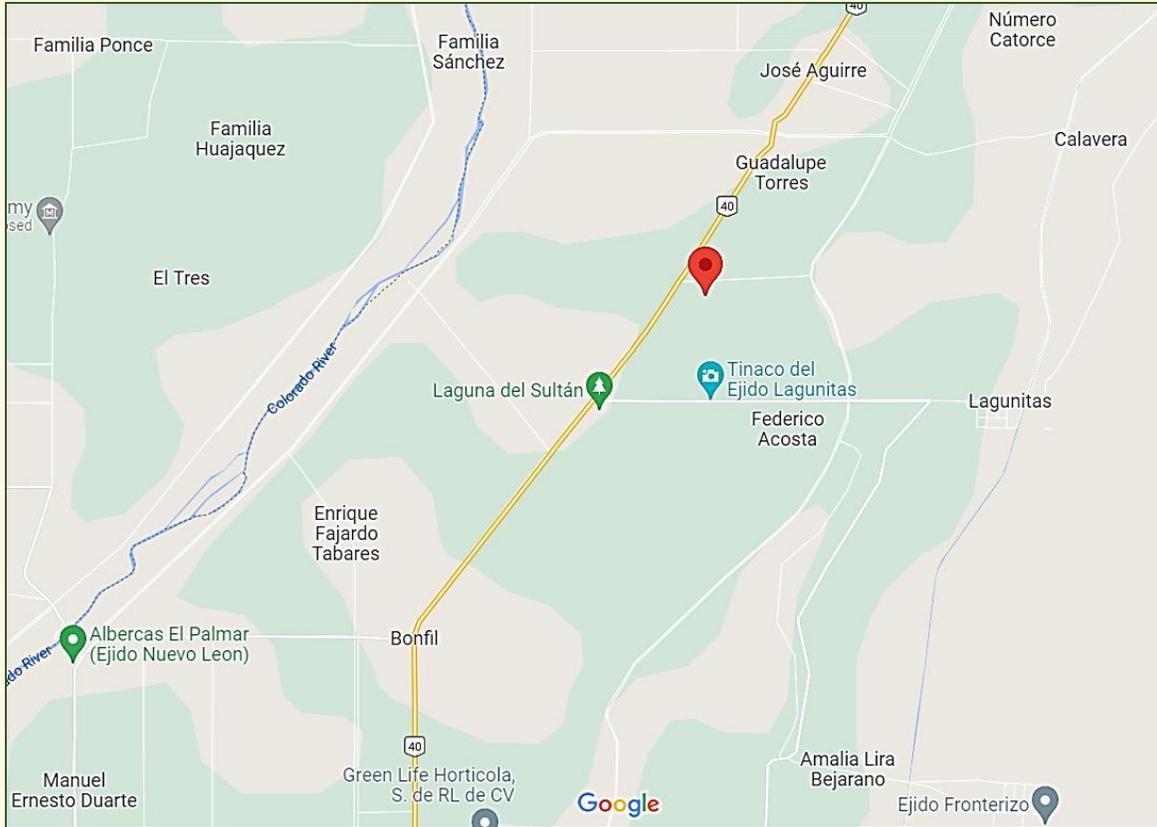
EXPLORER



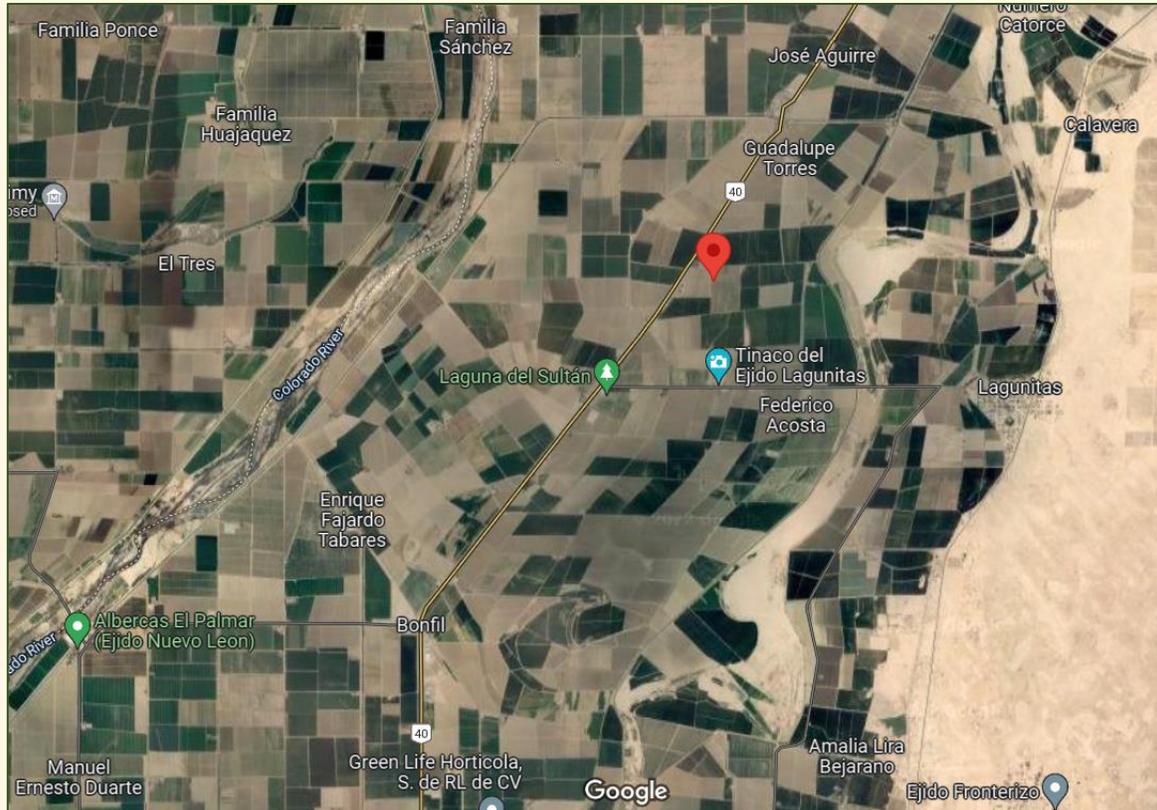
Explorer's Halt

↑ ➔ Google Maps terrain and satellite views generated on the geographical coordinates provided by Godfrey Sykes —  $32^{\circ}20' N, 114^{\circ}56' W$ — that identified the location of the skeletal remains of *Explorer* when discovered in 1930. The locality is on the Sonora side of the Río Colorado along Sonora Route 40 about 17 km southwest from San Luis Río Colorado. The map and satellite views were generated from the Google Maps database October 13, 2022, displaying present-day cultivation. On the satellite view (date of imagery not indicated), note the prominent old meander channel about $1\frac{1}{2}$ km east of the pin marker, now bounded on its west side by an irrigation canal. The abandoned channel may or may not be contemporaneous with *Explorer's* time.

EXPLORER



1 km



EXPLORER



General view of the modern terrain near Explorers Halt, to the east of Sonora Route 40. View faces toward the red “push-pin” geographical marker in the map views on the previous pages, which as noted in the text is only a rough approximation of where the remains of *Explorer* were photographed in 1930. We at least have a general feel for the state of things by comparing Sykes’ photographs and this view from 2022.

Google Street View image, dated July 2022, labeled “SON 40 Familia Hualajaquez, Sonora.” © 2022 Google

<https://www.google.co.uk/maps/@32.3340039,-114.9371141,3a,75y,271.34h,83.54t/data=!3m7!1e1!3m5!1sWA9R-sLZYV2o4SEBYSI5Q!2e0!5s20220701T000000!7i16384!8i8192> (last accessed November 15, 2022)

Andrew Carroll—An Appreciation

Yes, it could have been “any engineer” who was hired to assemble and run *Explorer’s* machinery on the Colorado, but it was Andrew Carroll’s card that was drawn by fate. Without him—just having turned twenty-six years of age, sitting on the clay flats of the Colorado River delta, pounding holes through heavy iron, fretting, rubbing his head, and cussing, and on the river journey tending to a hot, dangerous boiler, busily turning valves, directing the stoker, and staying clear of the exposed, moving pitman arm—Lt. Ives’ land expedition never would have reached its jumping-off place at Beale’s Crossing. His expertise may have helped fashion *Explorer* in Philadelphia, too; it certainly had come into play on the delta. The notion that one man among many made the difference in an expedition’s success is supported by his accomplishments and ingenuity mentioned by the expedition’s chroniclers; not to overlook that both Lt. Ives and Herr Möllhausen both gave to Carroll a large measure of credit for success (*see p. iv herein*, where notably both mention Carroll before the pilot, Capt. Robinson). En route on the river he followed Capt. Robinson’s orders, a voice from overhead—slower! faster! stop! back! ahead!—but crucially, he kept *Explorer* from exploding.

Our engineer’s many efforts were rewarded when “a little stream” entering the Colorado from the west (a rare wet tributary along this desert portion of the river) was named Carroll’s Creek.¹³⁶ The label was, regrettably, forgotten. Today this is Palo Verde Lagoon, heavily refigured by irrigation works drawing water from the Colorado—thus still somewhat of an acknowledgement to engineers, as like also *Explorer’s* crew having conferred on Carroll the honorific, “Captain Iron.”

With the exception of these tributes, we have seen Andrew Carroll only through the eyes of Joseph Ives and Balduin Möllhausen, and in the snapshots provided by census takers, the compilers of city directories, and the registrar of a ship’s passenger manifest. This is disappointing, not to have a better understanding of such

¹³⁶ Ives, *Report*, 53. Carroll’s Creek, about 85 miles upriver from Yuma (Lingenfelter, *Steamboats*, 168).

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a capable and energetic young man, but it is a greater letdown that we have nothing from Carroll himself.

Möllhausen's drawings give us an idea of Carroll's appearance, that he enjoyed a good pipe, joined in impromptu musical concerts on the banks of the Colorado, shaved often, and was confident at his post. Möllhausen, in his *Reisen*, also went on at great lengths, telling campfire tales of experiences he had had on the plains; and he notes on occasion Carroll's interjections with questions and comments, something he reports for no one else. In his watercolor of *Explorer* he puts a face onto the engineer, unlike anyone else in the painting. It seems that Möllhausen admired the man.

We discern that Andrew was agile, intelligent, dedicated, and resourceful; a mechanical wizard with blemishes of cultural prejudices and copious cussing. We know that after he returned to Philadelphia he had a wife and three children, who in turn gave him grandchildren, descendants of whom seem still to be in New York. Would they even know of greater-grandfather Andrew's adventures with *Explorer* and his venture into the canyons of the lower Colorado? He may never have known about Ives' richly illustrated *Report* with Egloffstein's maps,¹³⁷ and more certainly he likely had never heard of Möllhausen's books published in Germany. Or, might there be instead an old notebook in a box, a worn copy of the *Report*, and perhaps some family photos to show us more about the man and his life? These will have to be the pursuits of another, luckier enthusiast with time. Wonderful coincidences in American and family histories have run together before when lost records or distant relations are rediscovered.

Carroll's ten-month trip to the Far West and back was in a whirlwind. And just think, this young Philadelphia engineer had worked and lived with men whose names today are notable in Southwest history—Ives, Robinson, Möllhausen, Egloffstein, Newberry, Ireteba. It is a bit numbing to those of us who gaze into the looking glass of history. He mingled with an international group, military and civilian both, including Americans, Germans, an expatriate Pole, Mexicans (who arrived with Peacock's pack train), and the men and families of several different Native American

¹³⁷ B. P. Poore lists a publication date of June 5, 1860, for Ives' *Report*, which likely is the date ordered to be printed by Congress (Benjamin Perley Poore, *A Descriptive Catalogue of the Government Publications of the United States, September 5, 1774–March 4, 1881* [Washington, D.C.: U.S. Government Printing Office, 1885; 48th Congress, 2nd Session, Senate Miscellaneous Document 67].) By the time the volume reached print, in 1861, Lt. J. C. Ives had defected to the army of the Confederate States of America, and it was unlikely that he ever had the opportunity to send out complimentary copies of his *Report*.

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tribes (Yuma, Chemehuevi, and Mohave at least). There were as well the multi-national throngs he encountered during his sea voyages to and from the west coast and on the rude trans-Panama railroad, and the variety of transients at Fort Yuma. He played with Grizzly, too. All of this was surely an energizing experience for him.

It was Andrew Carroll's expertise that gave life to *Explorer*. Without his skill, "Big Cañon"—the Grand Canyon—would have been unvisited by modern westerners for years more. Written descriptions would have been delayed. Balduin Möllhausen would never have painted the first views of the bottom of the Grand Canyon and of a river rapid there. Dr. Newberry might neither have made the first geological collections there nor depicted the first stratigraphic column of the canyon's famous geology. Baron Egloffstein would not have made his essential Colorado River maps; the same maps that were available to explorer John Wesley Powell in 1869, which were very good for the lower Colorado River (where Powell was not going) but abysmally conjectural for the greater Grand Canyon region. Indeed, it was one of Powell's tasks to astrometrically locate where really lay the confluence of the Little Colorado River and the entrance to the "Great Unknown" of the Grand Canyon, remapping Egloffstein's valiant efforts.¹³⁸

Twelve years after Ives and party arrived at the edge of the Colorado River on Diamond Creek, Powell's crew rowed past that place on August 6, 1869, heading for the mouth of the Virgin River. Neither Powell nor any of his crew who kept "secret" journals mentioned the historical benchmark of the Diamond Creek confluence, though Powell, in a summary look back in his report, made just the most cursory remark:

At the very apex of this bend [in the river], Diamond Creek makes its contribution from the south, and it was here that Lieutenant Ives and Doctor Newberry came down to the depths of the Grand Cañon.¹³⁹

¹³⁸ Lars Bergman and Robert G. Stuart, "Astronomical Observations of the 1869 Powell Expedition Through the Grand Canyon", *Journal of Navigation* 74 (January 2021), 212-233; Robin G. Stuart, "Astronomical Observations of the 1869 Powell Expedition Through Grand Canyon," in *Proceedings of the Colorado River Basin History Symposium 2021 Hosted by The Grand Canyon Historical Society* (Grand Canyon Historical Society, Grand Canyon, Arizona, 2022), 17-21.

¹³⁹ J. W. Powell, *Exploration of the Colorado River of the West and its Tributaries* (U.S. Government Printing Office, Washington, 1875), 196. Powell's own meager, telegraphic manuscript journal from the expedition, and the "secret" journals of a few of the other men, make no mention of Diamond Creek (Michael P. Ghiglieri,

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By 1895, an aging Powell was more reflective upon the monumental effort involved in just getting to see the Grand Canyon. He wrote from his own experiences, from the perspective of his river voyages and mapping the plateaus about the canyon, though hopefully he still held in his memory the efforts of Ives and Newberry, both by then dead.

Were it a valley plain it would make a state. [...] You cannot see the Grand Canyon in one view, as if it were a changeless spectacle from which a curtain might be lifted, but to see it you have to toil from month to month through its labyrinths. It is a region more difficult to traverse than the Alps or the Himalayas, but if strength and courage are sufficient for the task, by a year's toil a concept of sublimity can be obtained never again to be equaled on the hither side of Paradise.¹⁴⁰

The strength and courage needed to investigate the Grand Canyon in the first place, more than a decade before Powell and launching the world's infatuation with the canyon, was borne by men who came in an unlikely steamboat.

WE RAISE OUR OARS TO CAPTAIN IRON, OF PHILADELPHIA, WHO MADE IT POSSIBLE.



First Through Grand Canyon: The Secret Journals and Letters of the 1869 Crew Who Explored the Green and Colorado Rivers, 3rd ed., Flagstaff, Ariz., 2015).

¹⁴⁰ John Wesley Powell, *Canyons of the Colorado* (Flood and Vincent, The Chautauqua-Century Press, Meadville, Pennsylvania, 1895, 397).

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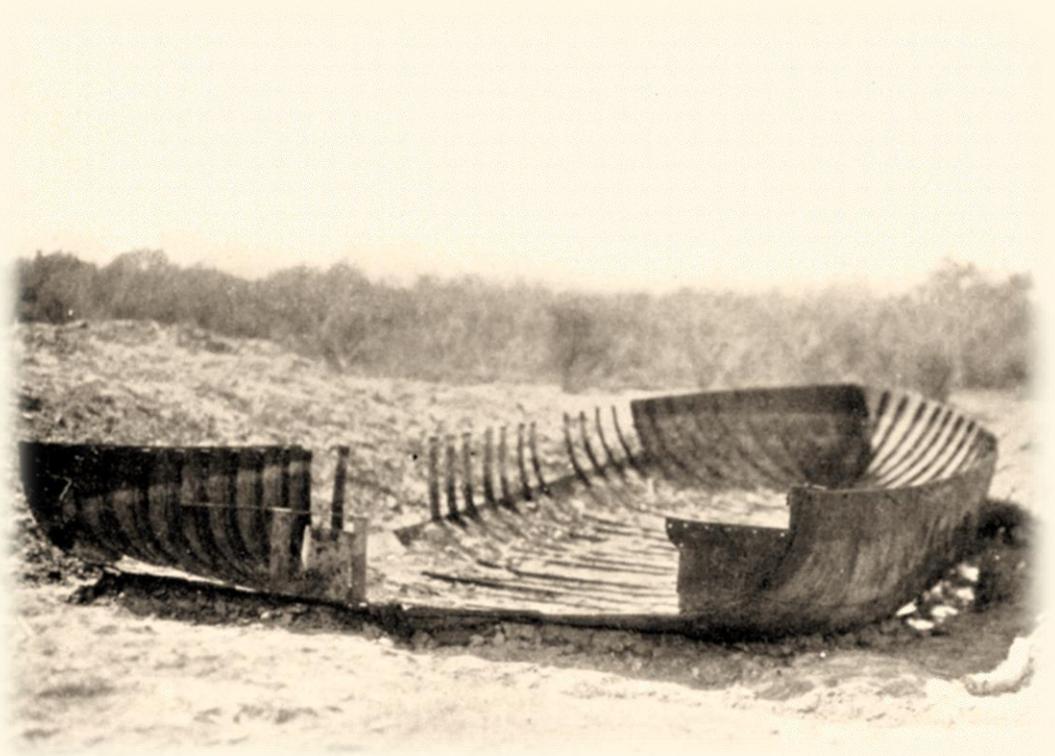
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ABOVE. *Explorer* in the Topock Gorge on the Colorado River. “Mojave Cañon,” lithograph by J. J. Young after original artwork by Balduin Möllhausen. J. C. Ives, *Report Upon the Colorado River of the West*, General Report Plate III.

“I will never forget that evening. The hard-working machine groaned loudly and regularly louder still, and the echo in the chasms and tributaries answered a hundred times in the same way, and yet how small and insignificant the *Explorer* appeared, with all its strength and crew, compared to such a majestic natural environment!” — Balduin Möllhausen, *Reisen in die Felsengebirge Nord-Amerikas bis zum Hoch-Plateau von Neu-Mexico*, Volume 1, p. 260 [in translation].

BACK COVER. Gilt-embossed image of *Explorer* on the front cover of J. C. Ives’ *Report Upon the Colorado River of the West*.

