

The Search for Amelia Earhart: Expeditions to Nikumaroro



by

Lew Toulmin, Ph.D., F.R.G.S. and Tom King, Ph.D.

June 2018; Cosmos Club, Washington, DC

GONE!
Top 10

WHO	WHEN	WHERE
Ambrose Bierce, writer	1913	Juarez (?), Mexico
Percy Fawcett, F.R.G.S. explorer	1925	Amazonia, Brazil
Judge Joseph Crater	1930	New York City
Amelia Earhart, aviator	1937	Pacific Ocean
Richard Halliburton, adventurer	1939	North Pacific
Gertrude Tompkins, WW II WASP pilot	1944	California near LAX
Major Glenn Miller, USAAF , band leader	1944	English Channel
Jim Thompson, ex-OSS, CIA asset, "Silk King"	1967	north central Malaysia
D. B. Cooper, air pirate	1971	Washington State, USA
Jimmy Hoffa, labor leader	1975	near Detroit, MI



Today we will cover these topics:

- ✓ The exciting life of Amelia Earhart (AE)
- ✓ The disappearance and search
- ✓ Theories re the disappearance
- ✓ 2017 expedition to Nikumaroro
- ✓ The Niku hypothesis: evidence
- ✓ Conclusions



Flag of the Republic of Kiribati

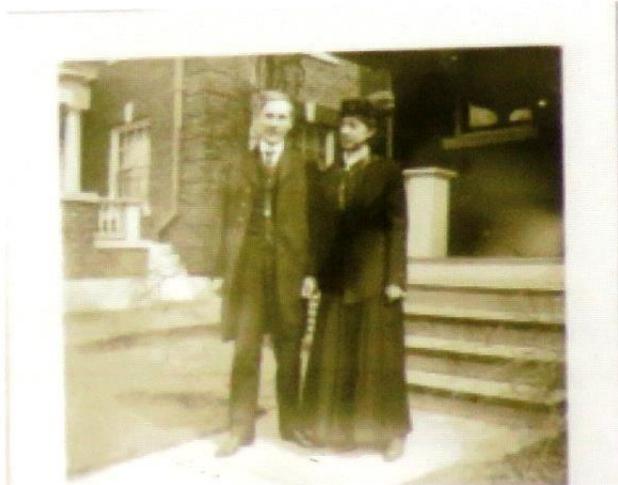
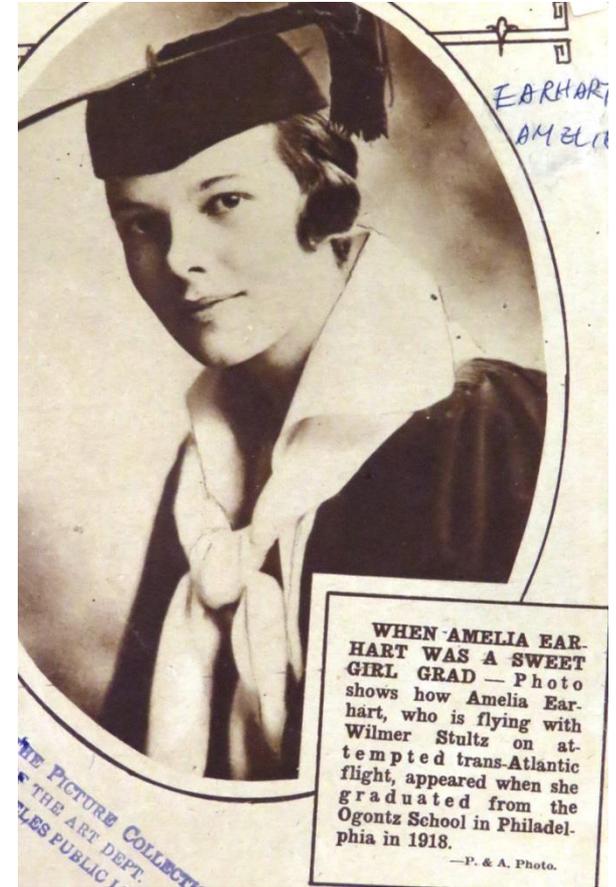


Nikumaroro island, Rep. of Kiribati

The Exciting Life of Amelia Earhart



Tomboy "Milly" born 1897, Atchison, KS...



...schooled in Chicago & Philly



- 1919: Nurse's aide
- 1920: first air ride
- 1921: pilot's license
- 1924: teacher of Syrian immigrant kids
- 1927: Lindbergh trans-Atlantic; woman?
- 1928: AE trans-Atlantic in 3-person crew, 1st woman, lectures, book
- 1931: marries George Putnam
- 1932+: new records, lectures

First woman to fly solo trans-Atlantic, 1932



Gold Medal was presented to Amelia Earhart by President Hoover in Washington on June 21, 1932.

Then – a new plane for the ultimate project



1937

AMELIA

The Disappearance and Search



The Purdue Exponent

Published Daily by Students of Purdue University

VOLUME XLVIII

LAFAYETTE, INDIANA, THURSDAY, MARCH 18, 1937

NUMBER 118

EARHART STARTS ON WORLD FLIGHT



EARHART'S FLIGHT PATH

With departure dates from select cities

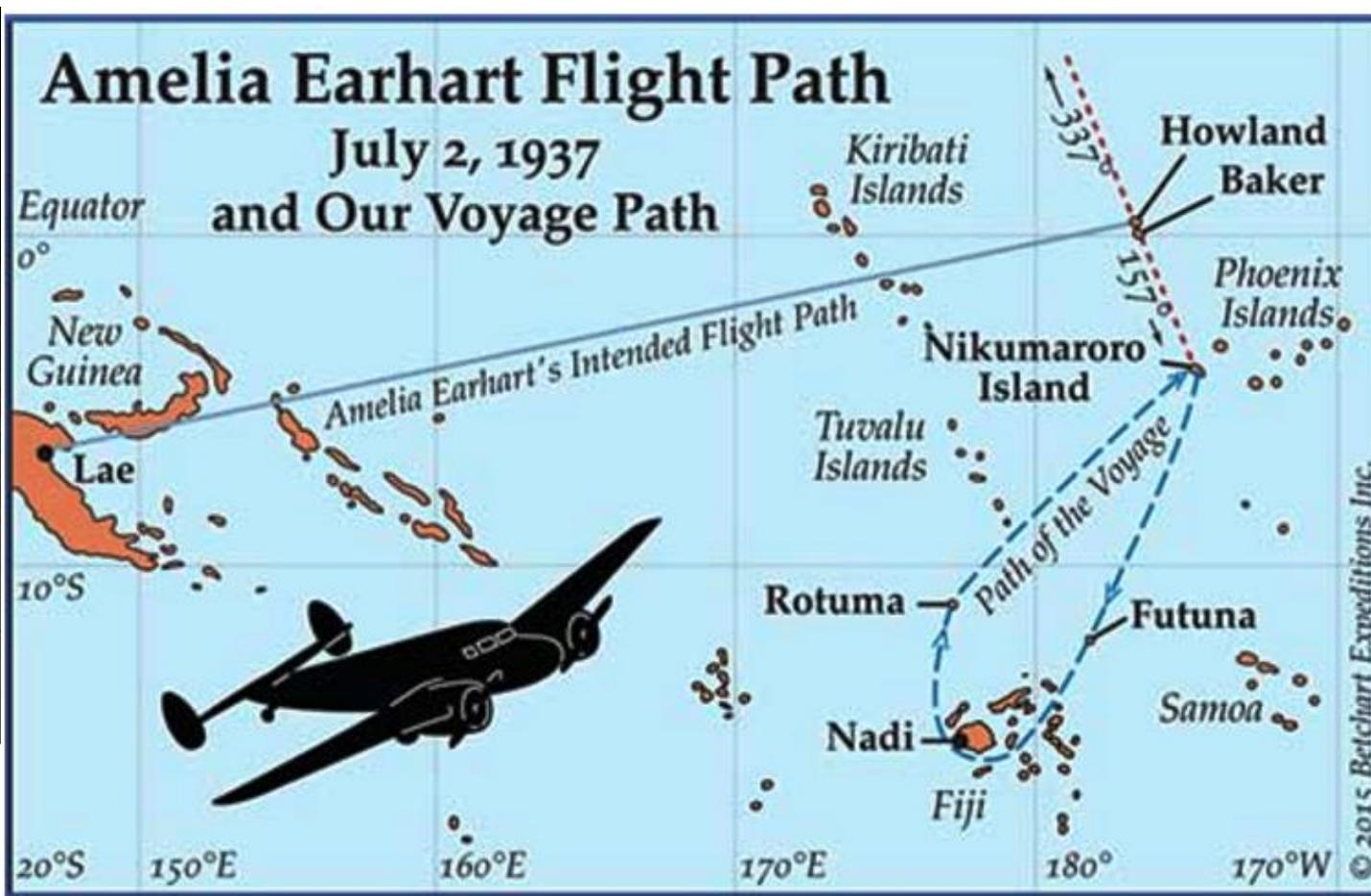
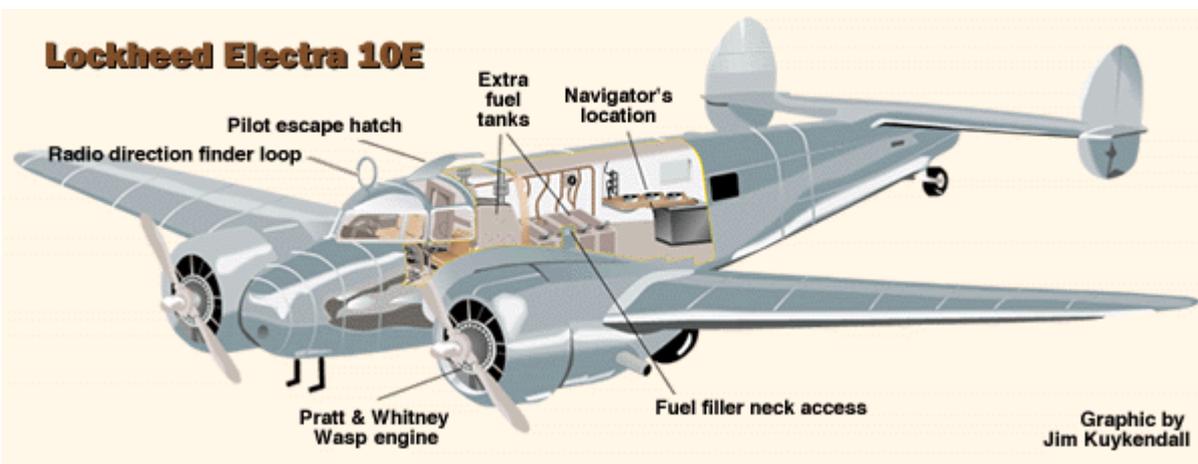


Earhart's Lockheed Electra 10E

The fuselage was specially modified to fit a larger fuel tank.

July 2, 1937

Earhart and her navigator, Fred Noonan, disappear after departing Papua New Guinea





JULY 2, 1937

- 0646: "About 100 miles out..."
- 0741: "We are on you but cannot see you...flying at 1000 feet..."
- 0804: "We cannot hear you..." (AE unable to get RDF directions)
- 0843: "We are on the line 157-337... flying north and south"



Tiny Howland is in this photo, taken at 1000 ft.

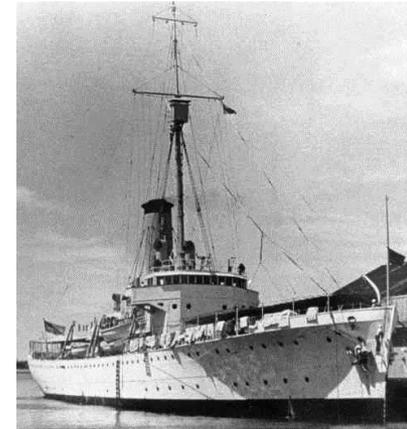


Howland: 1.5 x 0.5 miles, 15 ft. high

Apparent crash
of the Electra
by 1040...



...USCG cutter
Itasca begins
search



DAILY NEWS **FINAL**
NEW YORK, SATURDAY, JULY 3, 1931
Vol. 33, No. 6
22 Pages
New York, Saturday, July 3, 1931
\$1,700,000
Daily - 3,050,000
Sunday - 2,050,000

EARHART PLANE LOST AT SEA

Continued on Page 3



Amelia Earhart Missing on World Flight

Excitedly disembarking their craft, Amelia Earhart and Fred Noonan (left), her navigator, were believed down in the Pacific near Howland Island, an 8,350-mile trip from Los Angeles, Earhart thought they would have for some time. This picture was made at Karachi, India, on the day after they were greeted by Vincent Sikorski (right) on their first stop on a globe-girdling flight.

1937. P P TWO CENTS in New York City. THREE CENTS Elsewhere Except Where Shown. FOUR CENTS Elsewhere Except in 70¢ and 80¢ Postal Zones.

DRAWN. MISS EARHART FORCED DOWN AT SEA, HOWLAND ISLE FEARS; COAST GUARD BEGINS SEARCH

FUEL HAD RUN LOW
Fliers Were Near Goal When Last Reported but Saw No Land

PLANE EQUIPPED TO FLOAT
Has Sealed Gasoline Tanks and a Rubber Lifeboat for Emergency at Sea

RADIO BELIEVED HEARD

ROUTE OF EARHART PLANE IN PACIFIC

UNIVERSAL NEWSREEL

60 PLANES SCAN SEA IN VAIN FOR MISS EARHART

"All the News That's
Fit to Print."

The New York Times.

LATE CITY EDITION

Generally fair, occasional warm to hot. - Following periods cloudy and with scattered shower showers.
Temperature: Yesterday—High, 81; Low, 71.

Copyright, 1937, by The New York Times Company.

VOL. LXXXVI... No. 29,005

Printed at the Times Building, 150 Nassau Street, New York 5, N. Y.

NEW YORK, THURSDAY, JULY 8, 1937.

P. P.

TWO CENTS in New York; THREE CENTS elsewhere; FIVE CENTS in foreign countries.

DDITAIN A DDDAVES DIVISION | WAGNER INDICATES | One Dead, Many Felled in 91° Heat | TWO DEAD, 40 CHOU

THE WEATHER
Generally fair and warmer in day. No and warmer intervals. Occasional showers probably of some character in afternoon.
WIND VELOCITIES:
Direction Force
Sea State
Temperature
Barometer
Humidity
Relative
Dew Point
Wind Chill

BALTIMORE NEWS-POST

The Largest Daily Circulation in the Entire South

CITY RACE SPECIAL

VOL. CXXXI—NO. 52

Entered as second-class matter of August, 1911, Postoffice No. 2701, at Baltimore, Maryland.

SATURDAY EVENING, JULY 3, 1937

PRICE 2 CENTS

NAVY HUNTS AMELIA LOST IN PACIFIC OCEAN

Believed Adrift In Shark-Infested Waters

SEE RECORD GIRL'S DEATH CROWD AT DELAWARE

SUIT NAMES DENHART

Calumet Dik Entered in Inaugural Running of the Brandywine Harborage
By GARY DELAWARE PARK, Del., July 5.—(U. P.)—A record crowd of 10,000 people gathered here today for the inaugural running of the Brandywine Harborage. The race, which was held on the Delaware River, was won by a boat named "Calumet Dik" in a time of 10:00. The race was held in honor of the late Admiral Byrd, who died in a plane crash in Antarctica last year. The race was held in the presence of many dignitaries and officials of the Navy. The race was held in the presence of many dignitaries and officials of the Navy.

Amelia Earhart and Navigator With Her On Missing Plane



OVERSHOT TINY ISLAND, RAN OUT OF FUEL, THEORY; RADIO BELIEVED HEARD

WASHINGTON, July 3.—(A. P.)—Coast Guard headquarters received a report from Hawaii today that at 5:57 A. M., Eastern standard time, radio operators listening for possible signals from Amelia Earhart heard a series of long dashes on 3105 kilocycles. No identifying call was given.

HONOLULU, July 3.—(A. P.)—Distress signals signed with the call letters of Amelia Earhart's monoplane flashed over the Pacific today in the midst of a feverish sea and sky hunt for the famed aviatrix, missing in equatorial waters surrounding tiny Howland Island.

Miss Earhart was on a perilous 2,550-mile trip from New Guinea for Howland Island. A Navy flying boat left Pearl Harbor in July the Coast Guard cutter Itasca and the mine-sweeper Sigsbee is searching for the missing plane.

WARSHIP'S PLANES START SEARCH FOR MISS EARHART; NO DEFINITE SIGNAL HEARD

\$160,000,000 Mortgage Canceled for 50 Cents

ANNAPOLIS, Md., July 3.—(U. P.)—The U. S. Navy today canceled a \$160,000,000 mortgage on the grounds that the mortgage was issued by the Philadelphia & Reading Railway Company and the Philadelphia & Reading Coal and Iron Company in 1913 to the Pennsylvania Company for the financing of lines and operating assets of Philadelphia.

COLORADO IN ACTION

Director of Hunt Says Fliers' Fate Should Be Known Monday

104,000 SQ. MILES COVERED

Itasca, Swan Have Scanned Area North of Howland—Lexington Speeds West

PUTNAM STILL HOPEFUL

Husband of Lost Flier Believes She May Be Found in Area Below Howland Islands

ASK COURT BILL AID AS ACT OF LOYALTY

President's Friends Say He Must Be Supported, That 'New Party' Looms

GUFFEY ATTACKS HUGHES

Declares He Leads Fee-Pennsylvania Yards Floor After Sharp Questioning

By YERNEE CATERINE
Annals of the New York Times
WASHINGTON, July 3.—(U. P.)—A bill to aid the President in his search for Amelia Earhart's missing plane was introduced today in the Senate.

By the Associated Press
BOULDER, Colo., July 3.—(U. P.)—The Colorado National Guard today started a search for Amelia Earhart's missing plane in the area north of Howland Island. The search was led by Major Guffey, who is in command of the guard. The search area covers 104,000 square miles. The guard is using a variety of methods to search for the plane, including the use of searchlights and the use of search planes. The search is being conducted in the presence of many dignitaries and officials of the Navy.

The Colorado, arriving off Howland Island, today will lead the search for the Earhart plane after it took off from Sea, New Guinea, departed the plane at 3:30 P. M., Eastern daylight time (12:05 P. M., local Pacific time). The plane returned at 4:30 P. M. (12:30 A. M., Eastern daylight time).

Mysterious Spanish Conditions
By the Associated Press
HONOLULU, July 3.—(U. P.)—A search for Amelia Earhart's missing plane was reported today by the Coast Guard.

Float planes from USS *Colorado* search to the south

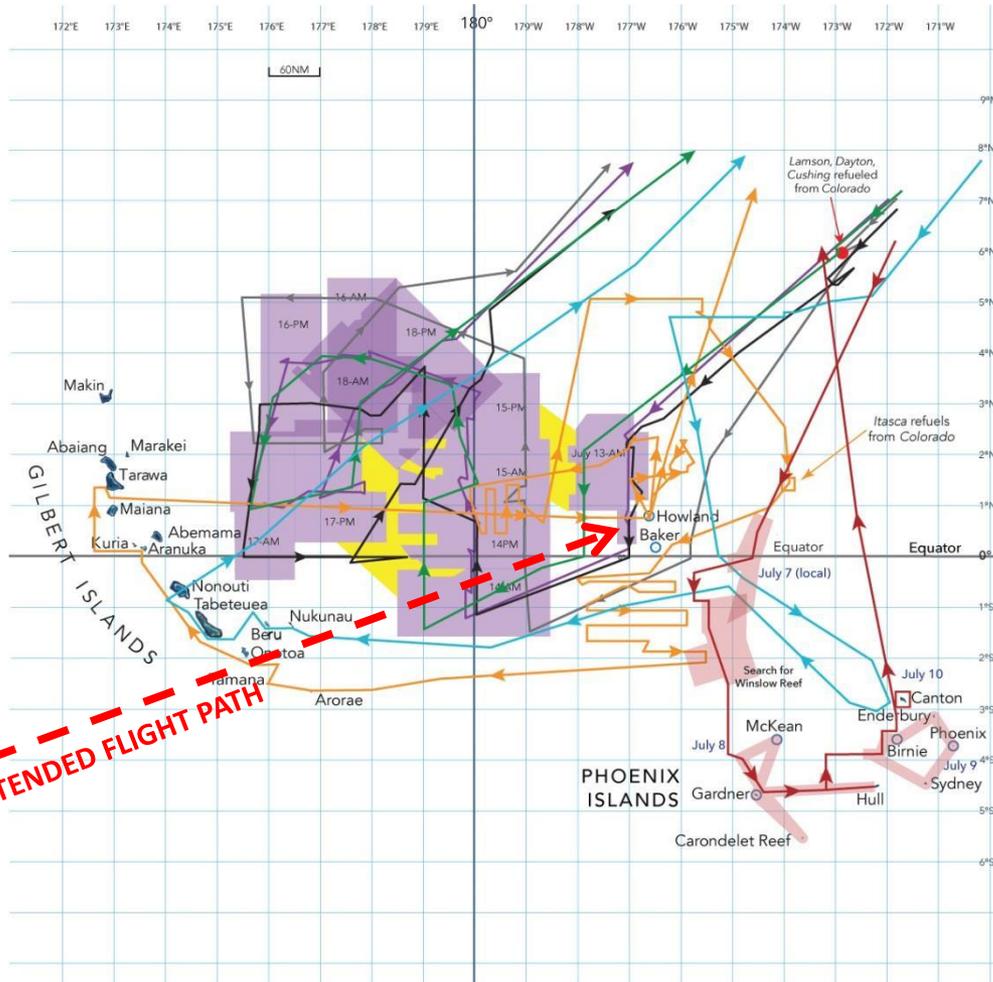
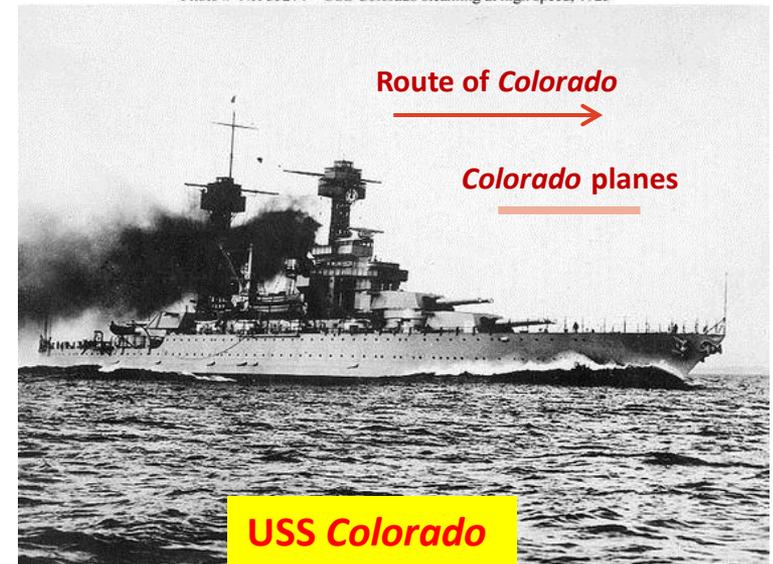


Photo # NH 55274 USS Colorado steaming at high speed, 1923

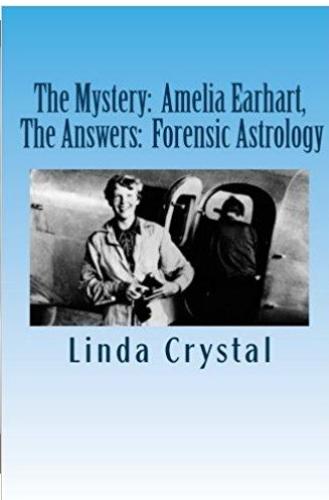
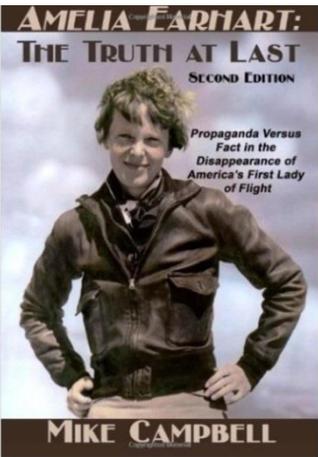
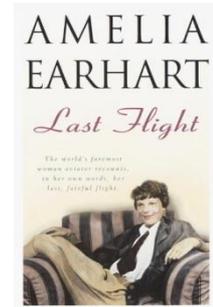
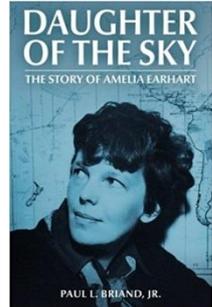
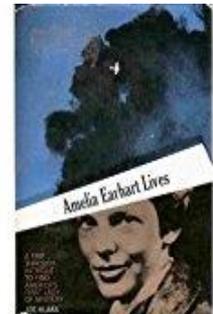
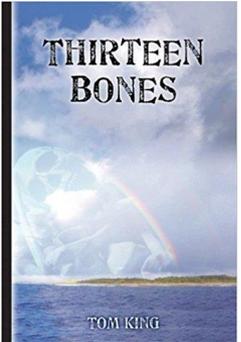
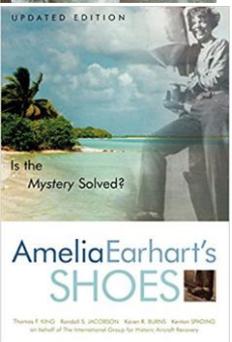
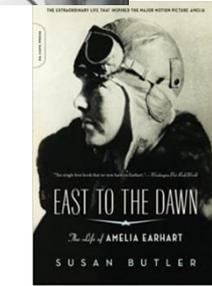
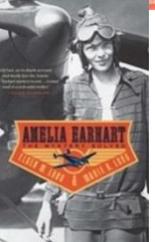
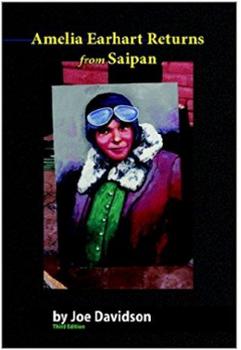
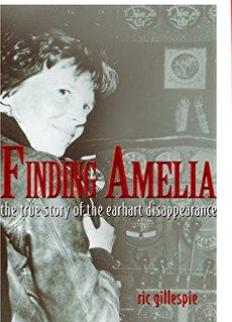
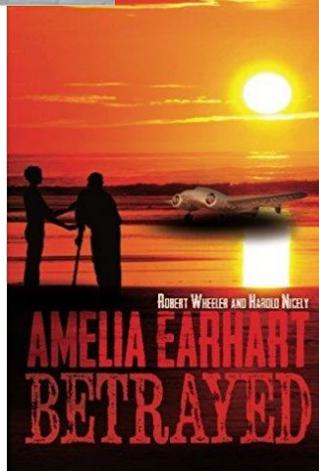
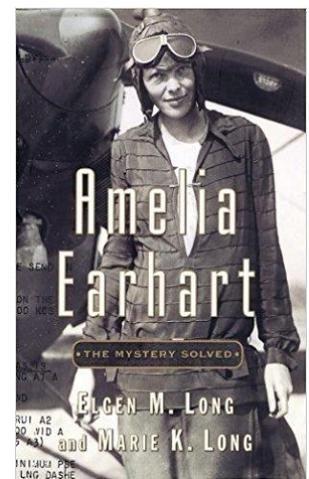
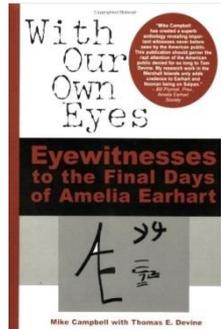
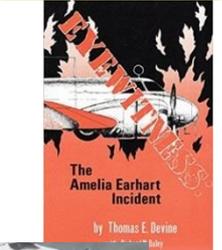
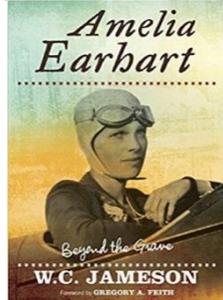
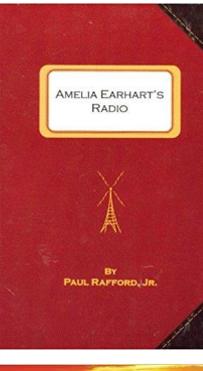
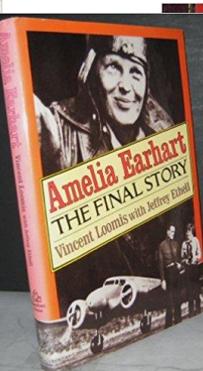
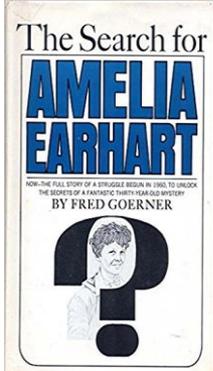
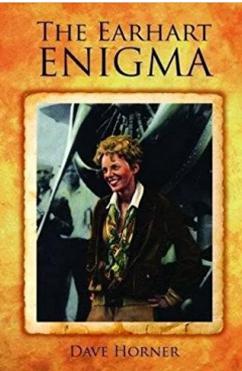
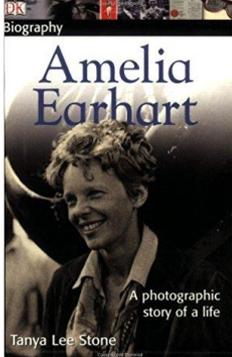
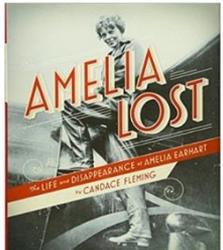


USS Colorado

Theories re the Disappearance



Lots of theories!



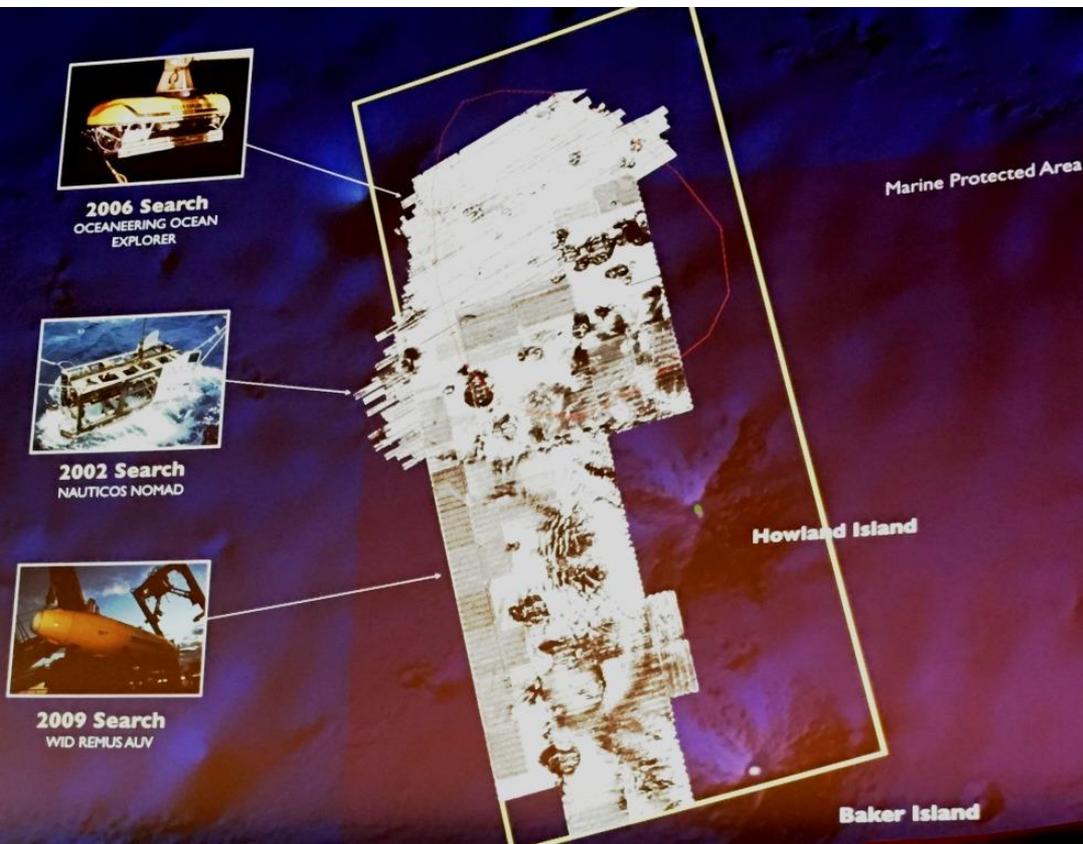
Crashed at Sea?

- 1989: mapping search by Longs N+W of Howland
- 1994: Timmer/Williamson attempt
- 1999: search by Timmer 45 days w/ side scan NW of Howland
- 2002: Kammerer attempt; Elgin Long 27 day search
- 2006: Nauticos/Waite search 687 sq. mi. NW of Howland
- 2009: Nauticos/Waite search 2000 sq. mi W of Howland
- 2017: Nauticos/Eustace search 960 sq. mi. N/S of Howland



© Kenny Polson
MarineTraffic.com

Mermaid Vigilance + AUV
used by Nauticos in early 2017



CT = 5500 sq. mi.,
total area searched
& mapped via sonar

Marshall Islands?



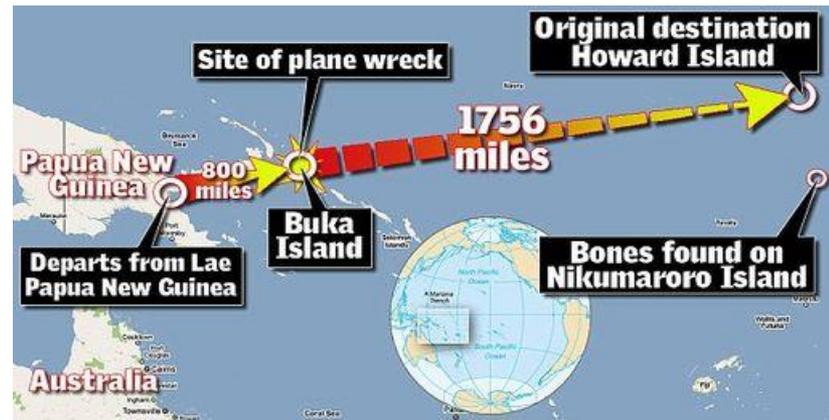
Objects found by Parker Hannifin Corp on Endrikin island Mili Atoll, RMI in 2015



“Flight to Freedom”
1943 movie



New Guinea?



Re-appeared
in NJ?

28 * THE EVENING NEWS
Newark, N.J., Tuesday, November 10, 1970

Claim N.J. Woman Is Amelia Earhart

NEW YORK (UPI)—Two former Air Force officers published a book yesterday claiming Amelia Earhart was captured 33 years ago by the Japanese on a spy mission survived eight years of captivity and may be living today under the name of Irene

yesterday, had "no comment" to the report she was a friend of Mrs. Bolam's.

The book was published by McGraw-Hill. Klaas is an account executive with ABC radio in San Francisco and Gervais is liaison officer for the Clark County, Nev., Sheriff's Office.



AMELIA EARHART



MRS. GUY BOLAM

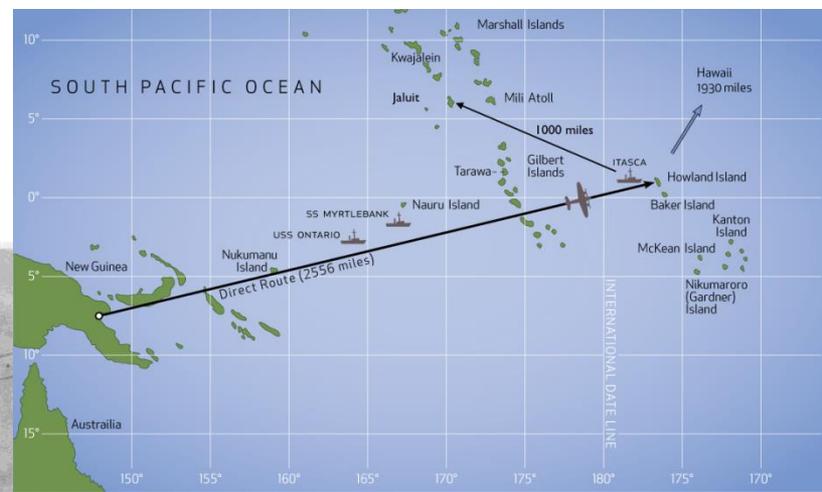
Tokyo Rose(s)?



Captured
by aliens?



History Channel claims this pic shows AE+FN + plane! **See them?**



PL-MARSHALL ISLANDS, JALUIT ATOLL, JALUIT ISLAND. ONI #14381
JALUIT HARBOR.

Me neither!

**Japanese blogger found this pic in 30 minutes on-line
– from 5 Oct 1935 – 2 yrs before the crash!**

ヤルット島ジャボールの港

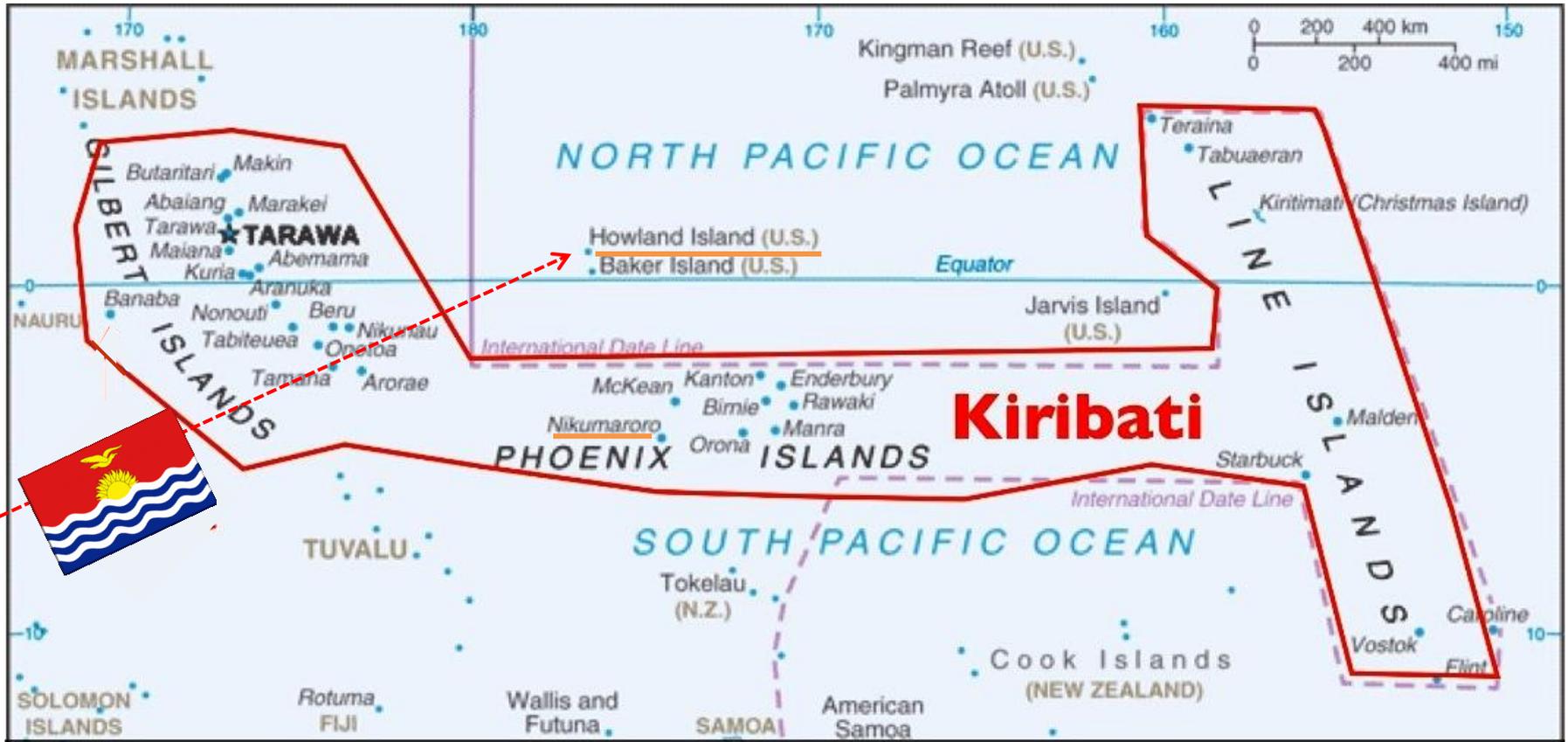


ジャボールの港は海に見る良港である。月一河内地からの大船がゆ
らしい数々の物資に船積をふくらまして入港すると、マーシャル群
島の各地から、大酋長のスクーター、小酋長のボートが従ふてジャ
ボール港に到着して来る、そしてジャボールを賑やかにする。

2017 Expedition to Nikumaroro



Kiribati (“keer e bas”) is both huge and tiny



2750 miles across



Land area size: 313 sq. mi.; only 5 x area of DC

Total area size: 1.35 million sq. mi.; 5 x area of Texas!

Population: only 115,000

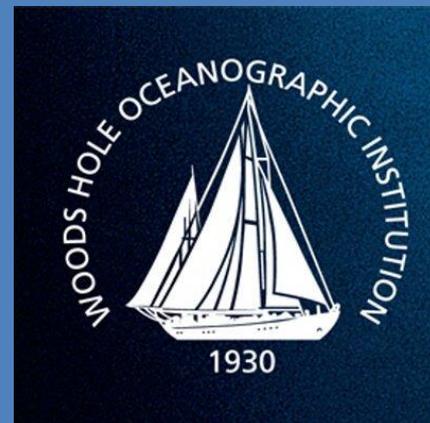
Our 2017 Expedition:



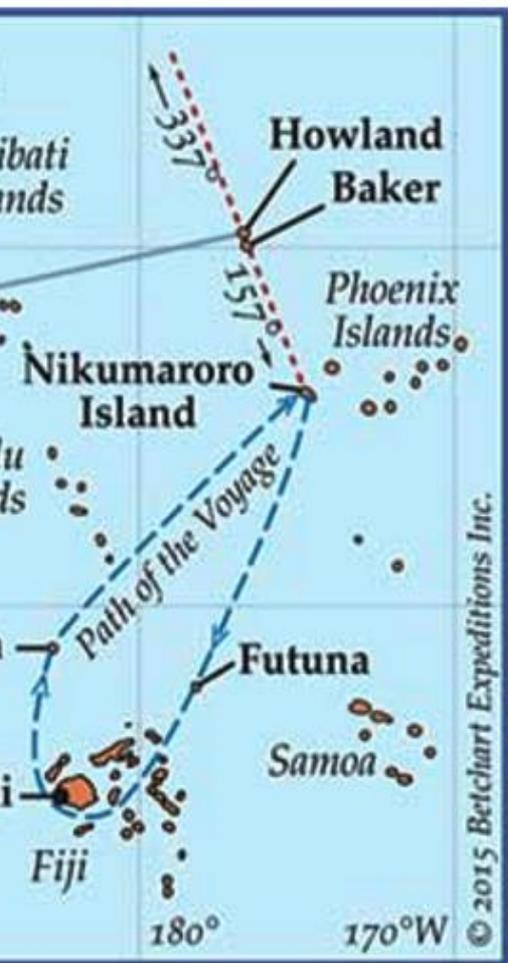
NATIONAL GEOGRAPHIC



The International Group for Historic Aircraft Recovery



Betchart Expeditions INC.



June 21--July 11, 2017

AMELIA EARHART EXPEDITION



TIGHAR NIKU IX 2017

Our effort attracted media attention

The New York Times

Amelia Earhart's Disappearance Still Captivates Searchers, 80 Years Later

USA TODAY

Bone-sniffing dogs will search for Amelia Earhart's remains on remote island



TIGHAR • 2366 Hickory Hill Road • Oxford, PA • 19363 • USA
610-467-1937 • tighar@tighar.org

NATIONAL GEOGRAPHIC

IN SEARCH OF AMELIA EARHART

Exclusive: Bone-Sniffing Dogs to Hunt for Amelia Earhart's Remains

In what may be the best chance yet to learn the famous aviator's fate, forensic dogs are headed to a Pacific island to search for her bones.

< 14 / 16 >



Ten-year-old Marcy and her handler, Miranda Townzen, help law enforcement agencies investigate crime scenes and cold cases.

PHOTOGRAPH COURTESY LYNNE ANGELO

Sniffer dogs on mission to find bones of Amelia Earhart

THE TIMES



A good ship and a great crew



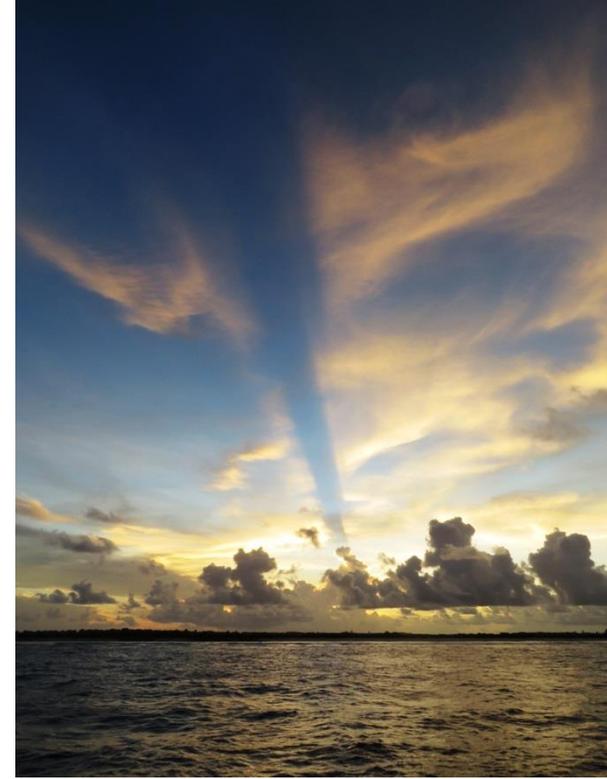
First sight of Niku



Getting ashore and around



A beautiful island



A small island, with many sites



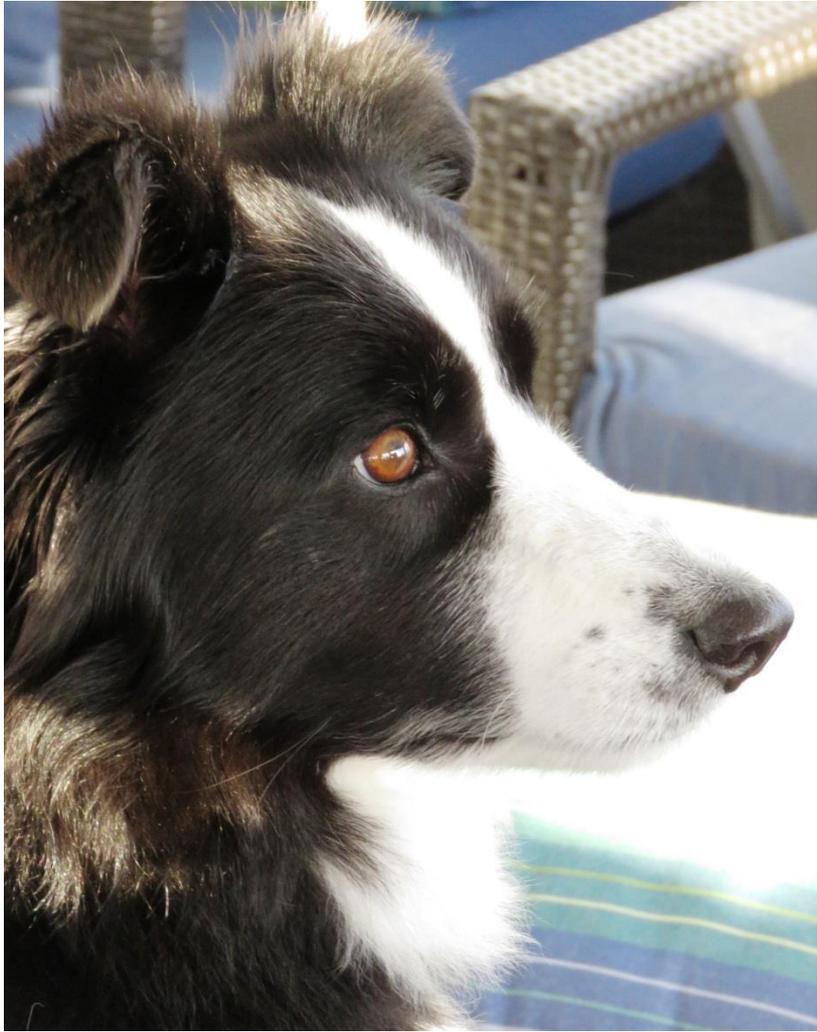
Humans worked hard...



...and were great companions...



...but the dogs
were the stars!



The Nikumaroro Hypothesis: Evidence



TIGHAR is collecting evidence re the Niku hypothesis



The International Group for Historic Aircraft Recovery

- * Non-profit organization based in Oxford, Pennsylvania
- * Missions: historic aircraft preservation, pursuit of aviation mysteries
- * Website: tighar.org
- * Earhart Search Project (started 1988) is major priority: 30 years of work!



The Nikumaroro Hypothesis

Nikumaroro: Uninhabited island 348 N miles SSE of Howland Island

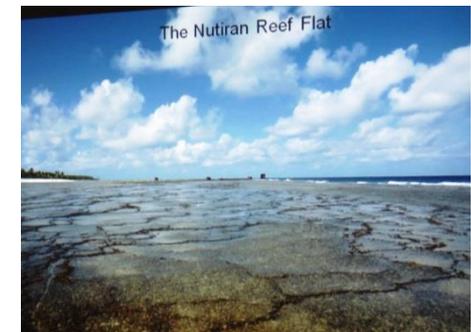
Hypothesis: Educated guess that can be tested

Nikumaroro hypothesis: Earhart and Noonan landed and died on Nikumaroro

TIGHAR's research program: test the hypothesis

The Detailed Hypothesis

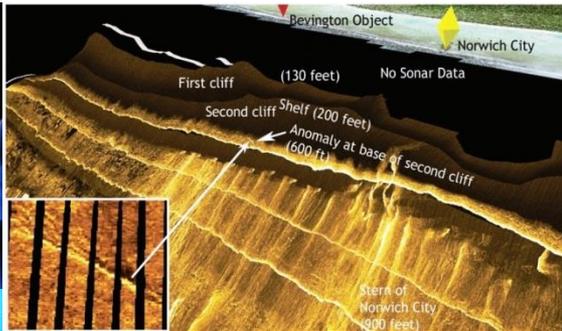
- * AE and FN got close to Howland but couldn't find it
- * Flew SSE along 157-337 degrees "line of position"
- * Landed on flat Nikumaroro reef
- * Transmitted radio messages (4-5 nights)
- * Plane floated off into deep water, due to rising tides
- * AE/FN survived for a time
- * Succumbed on the island



TIGHAR's 30 years of research:



- ✓ Historical, archival research & interviews in UK, NZ, Fiji, Kiribati, Tuvalu, Solomons
- ✓ Archaeological research on Nikumaroro & other Phoenix islands in Kiribati
- ✓ 12 expeditions to Niku
- ✓ Underwater searches: SCUBA, ROV, AUV



Selected key evidence:

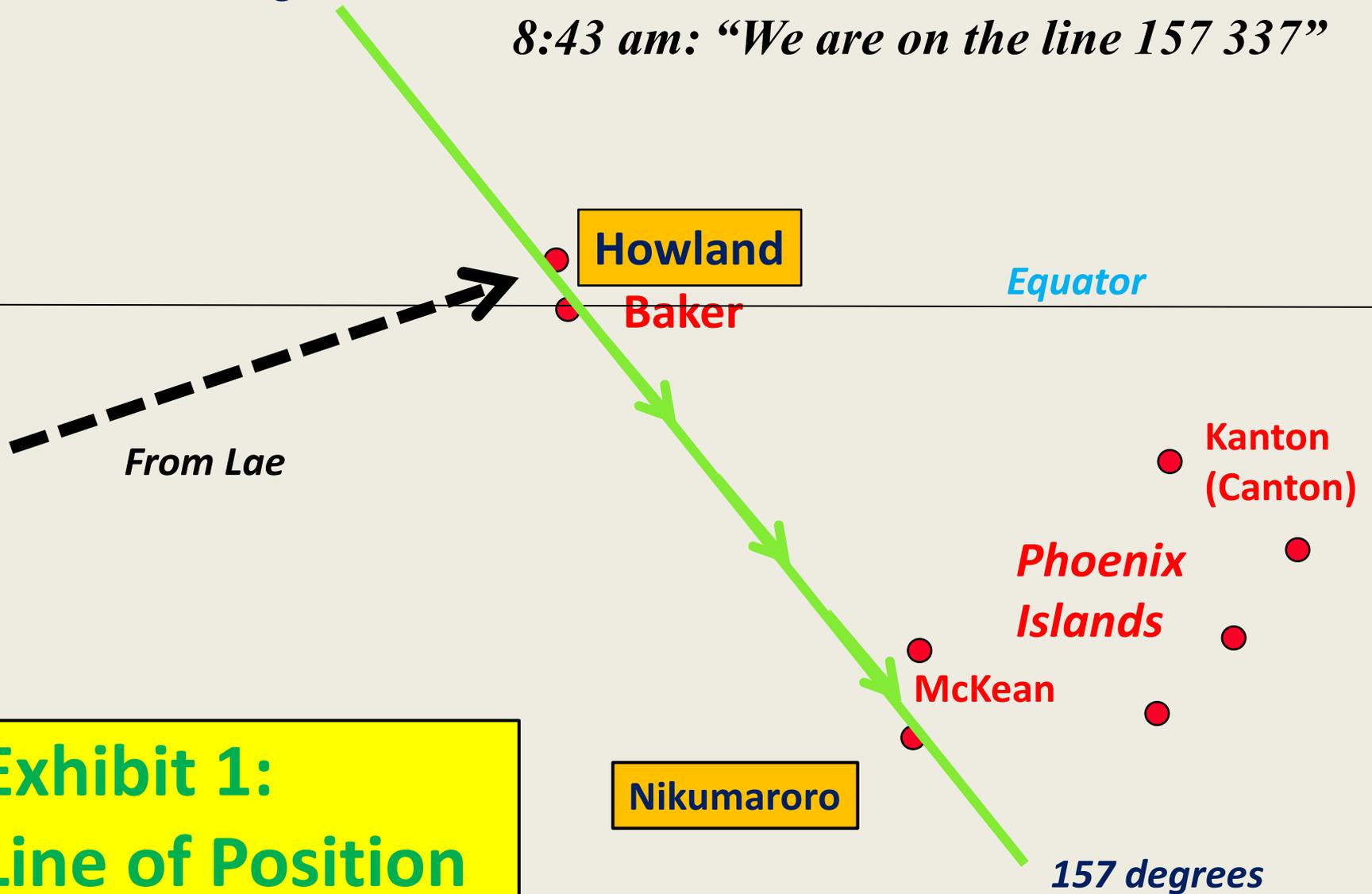
1. Line of position to Niku
2. Post-loss radio messages
3. 1937 photo of probable landing gear, & possible eye-witness
4. Documented discovery of bones, etc. in 1940
5. Archaeology at Seven Site
6. Possible DNA evidence



337 degrees

7:40 am: "Must be on you but cannot see you"

8:43 am: "We are on the line 157 337"

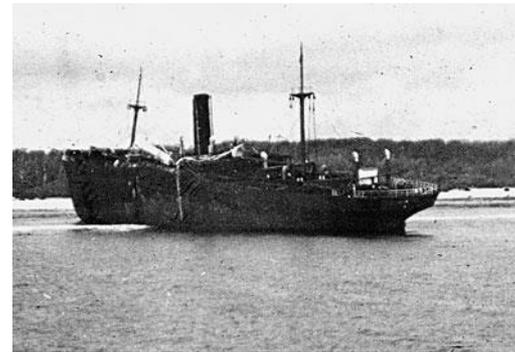


**Exhibit 1:
Line of Position**

History of Nikumaroro



- Prehistoric occupation
- Coconut planting 1890s
- *SS Norwich City* wreck 1929
- 1938-63: The “PISS”



- Phoenix Islands Settlement Scheme (UK)
 - Western Pacific High Commission
 - Nikumaroro, Manra, Orona
- 1944-46: US Coast Guard Loran
 - 1970s: USAF ICBM tests



U. S. Coast Guard Loran Unit 92, Gardner Island, S. Pacific - 1944

Exhibit 2: Post-Loss Signals

July	GM Time	Signal	Received at
3	0200	Weak signals, "L-A-T"...	L.A
3	0400	Weak signs, "erratic, undeciph."	L.A.
3	0517	Carrier wave	Honolulu
3	0530	"Hear her now, weak..."	Itasca
3	0600	(Itasca requests dashes)	
3	0600	Itasca request, responding dashes	Achilles
3	0604-06	"Something like generator start"	Itasca
3	0607	Unreadable, "Earhart" mentioned	Itasca
3	0700	Weak, unreadable	L.A.
3	0800-45	Earhart voice, SOS loud & clear	Amarillo
3	0831-54	Unintel. voice, "like last night"	Nauru

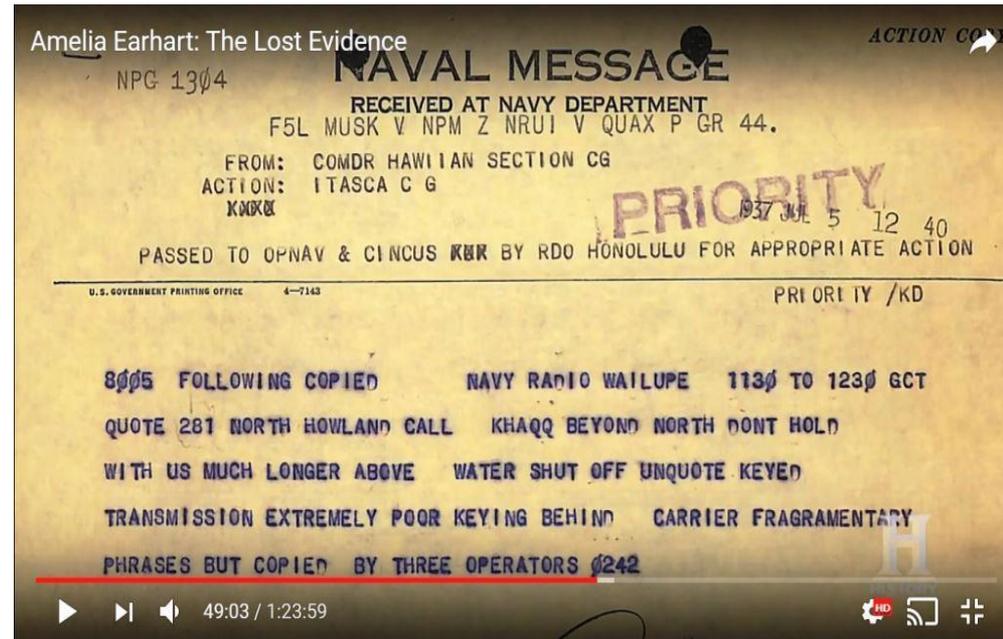
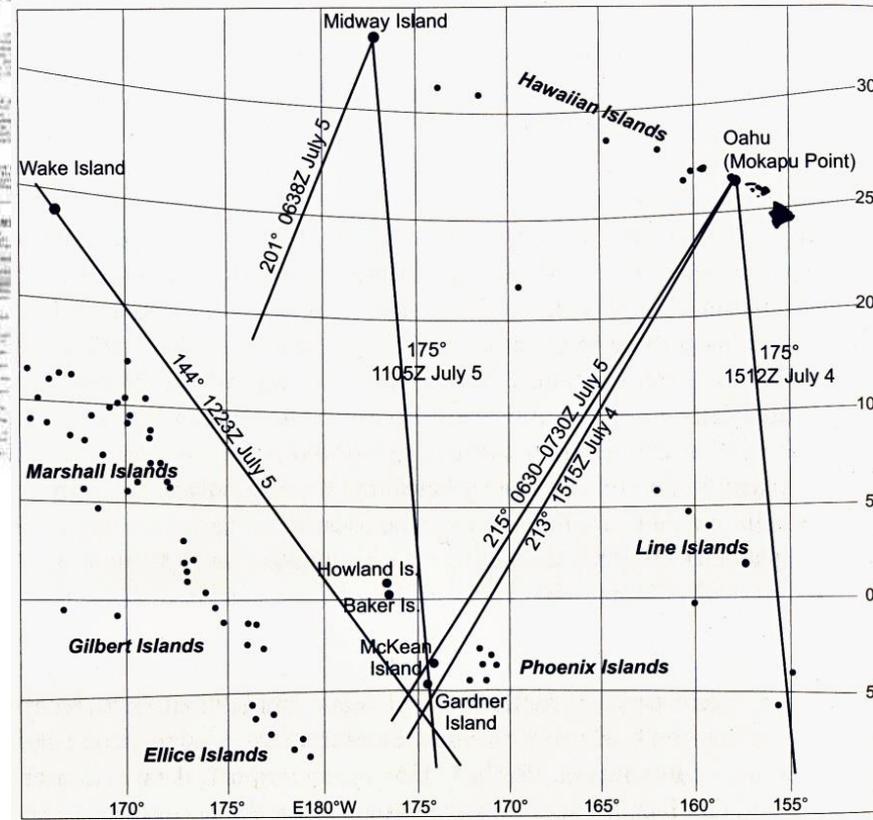
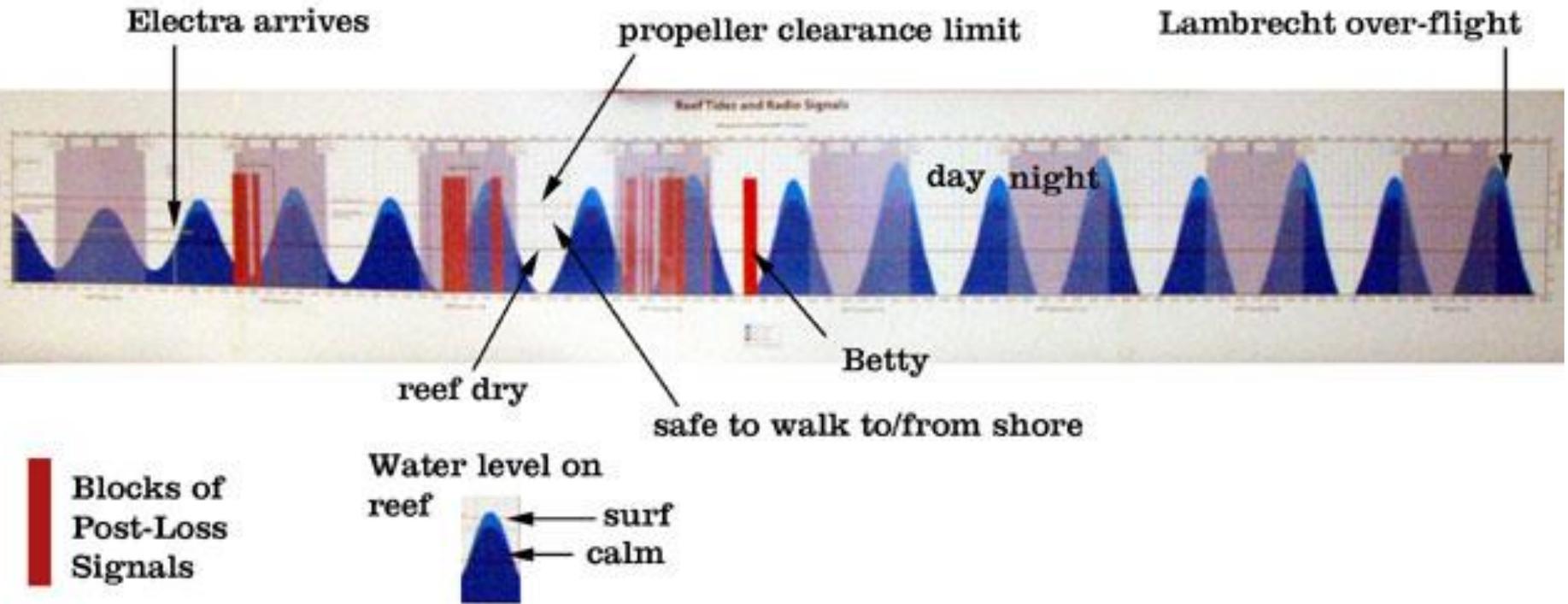


Exhibit 2, cont.: Post-Loss Signals and the Tides

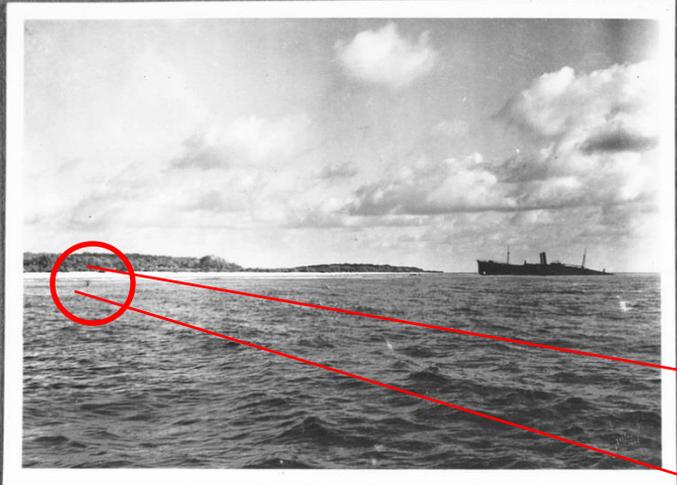


**Exhibit 3: Oct 1937
Eric Bevington
Photo**

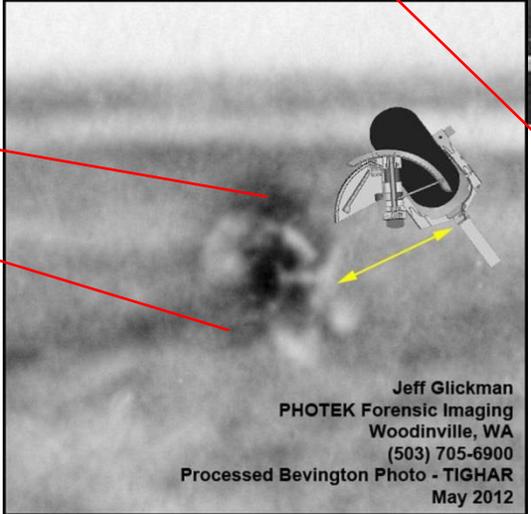
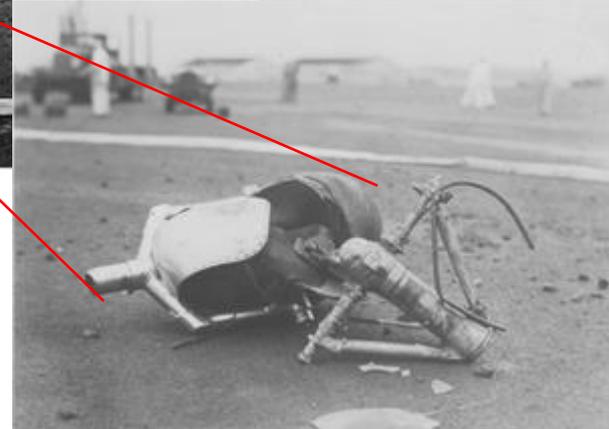


Yardman Is. and the wreck

Blow-up of photo:



Gardiner Is. and the wreck



Jeff Glickman
PHOTEK Forensic Imaging
Woodinville, WA
(503) 705-6900
Processed Bevington Photo - TIGHAR
May 2012



Possible eyewitness:



Emily Sikuli

Exhibit 4: 1940 Discovery of Bones

From files of Western Pacific High Commission (WPHC)

(Serial No)

“Skeleton. Human – Finding of, on Gardner Island”

From: WPHC 4 Vol 2 IV MP 4439/1940(G&E)

Working
party
found
human
skull

TELEGRAM.

From The Officer-in-Charge, Phoenix Scheme, Gardner Is.,

To The Resident Commissioner, Ocean Island.

No. 71

(R)

(Date) 23rd September, 1940

Some months ago working party on Gardner discovered human skull - this was buried and I only recently heard about it. Thorough search has now produced more bones (including lower jaw) part of a shoe a bottle and a sextant box. It would appear that

- (a) Skeleton is possibly that of a woman,
- (b) Shoe was a woman's and probably size 10,
- (c) Sextant box has two numbers on it

5600 (stencilled) and 1542 - sextant being old fashioned and probably painted over with black enamel.

Bones look more than four years old to me but there seems to be very slight chance that this may be remains of Amelia Earhardt. If United States authorities find that above evidence fits into general description, perhaps they could supply some dental information as many teeth are intact. An holding list of finds for present but have not exhumed skull.

There is no local indication that this

More bones
found

Woman's shoe

Sextant box

“Slight chance”
may be Earhart



Gerald Gallagher,
UK Colonial Officer

13 bones found...

TELEGRAM.

From The Officer-in-Charge P.I.S.S., Gardner Island . . .

To The Secretary for the W.P.H.C., Suva.

No. . . 1, . . . (Date) 17th October, . . . 1940

Confidential.

Complete skeleton not found only skull,
lower jaw, one thoracic vertebra, half pelvis, part
scapula, humerus, radius, two femurs, tibia and fibula.
Skull discovered by working party six months ago - report
reached me early September. Working party buried skull
but made no further search.

Bones were found on South East corner of
island about 100 feet above ordinary high water springs.
Body had obviously been lying under a "ren" tree and
remains of fire, turtle and dead birds appear to indicate
life. All small bones have been removed by giant coconut
crabs which have also damaged larger ones. Difficult to
estimate age bones owing to activities of crabs but am quite
certain they are not less than four years old and probably
much older.



← Bones found
SE corner under
"Ren" tree
← Fire, bird, turtle
remains
← Bones damaged
by crabs



Dem bones...

- ❖ January 1941: Gallagher sends bones to Fiji
- ❖ Dr. David Hoodless analysis:
 - Adult European/mixed male
- ❖ 1941: Being held by Hoodless for govt at Hospital
- ❖ Now gone missing, TIGHAR searched Fiji hospital, govt offices, and intelligence service
- ❖ 1998: Hoodless notes found in WPHC files
 - Measurements of cranium as indicators of sex
 - Measurements of limb bones as indicators of stature
 - Re-analyzed by forensic anthropologists Burns & Jantz
 - Most similar to adult female, n. European ethnicity, ca. 5'7"-5'9"
- ❖ 2015: Burns & Jantz criticized by Cross & Wright
- ❖ 2018: Jantz rebuttal published

1.	Orbital width	38.5mm
2.	Orbital height	33.5mm
$\text{Orbital index} = \frac{oh \times 100}{ow} = \frac{3350}{38.5} = 87.0$		
This indicates a European - (Polynesians are about 89.0)		
<u>Skull</u>		
3.	Length	182 mm
4.	Breadth	137 mm
$\text{Cephalic index} = \frac{B \times 100}{L} = \frac{13700}{182} = 75.3$		
This indicates also a European.		
<u>Karl Pearson's formula for stature</u>		
⑤	$S = 70.641 + 2.894 \times H$ Numerus is 32.4	$\therefore \text{height is } 163.406 \text{ cm}$ $= 5 \text{ ft } 4.3 \text{ in.}$
⑥	$S = 78.664 + 2.376 \times T$ Tibia = 37.2	$\therefore \text{height is } 167.051 \text{ cm}$ $= 5 \text{ ft } 5.7 \text{ in.}$
⑦	$S = 84.925 + 3.271 \times R$ Radius = 24.5	$\therefore \text{height is } 170.064 \text{ cm}$ $= 5 \text{ ft } 6.5 \text{ in.}$
Average of these three measurements is <u>5 ft 5.5 inches.</u>		
<i>D. W. Hoodless</i> 14 April 1941		

Original 1940 bone measurements



Fiji Govt House

Jantz's new analysis of Niku bone measurements:



UF PRESS

UNIVERSITY
OF FLORIDA

FORENSIC ANTHROPOLOGY

Jan 31, 2018

Richard L. Jantz, Ph.D.
U of Tenn
Anthro. Dept.

Home > Early View > Jantz

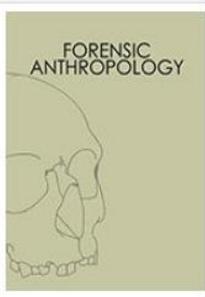
Forensic Anthropology Vol. 1, No. 2: 1–16
DOI 10.5744/fa.2018.0009

RESEARCH ARTICLE

Amelia Earhart and the Nikumaroro Bones **A 1941 Analysis versus Modern Quantitative Techniques**

Richard L. Jantz^{a*}

ABSTRACT: The unknown fate of Amelia Earhart continues to fascinate. One of the most tantalizing clues involves skeletal remains found on Nikumaroro Island in 1940. Some have summarily



ABOUT

Overview

Editorial Board

Contact

CONTRIBUTORS

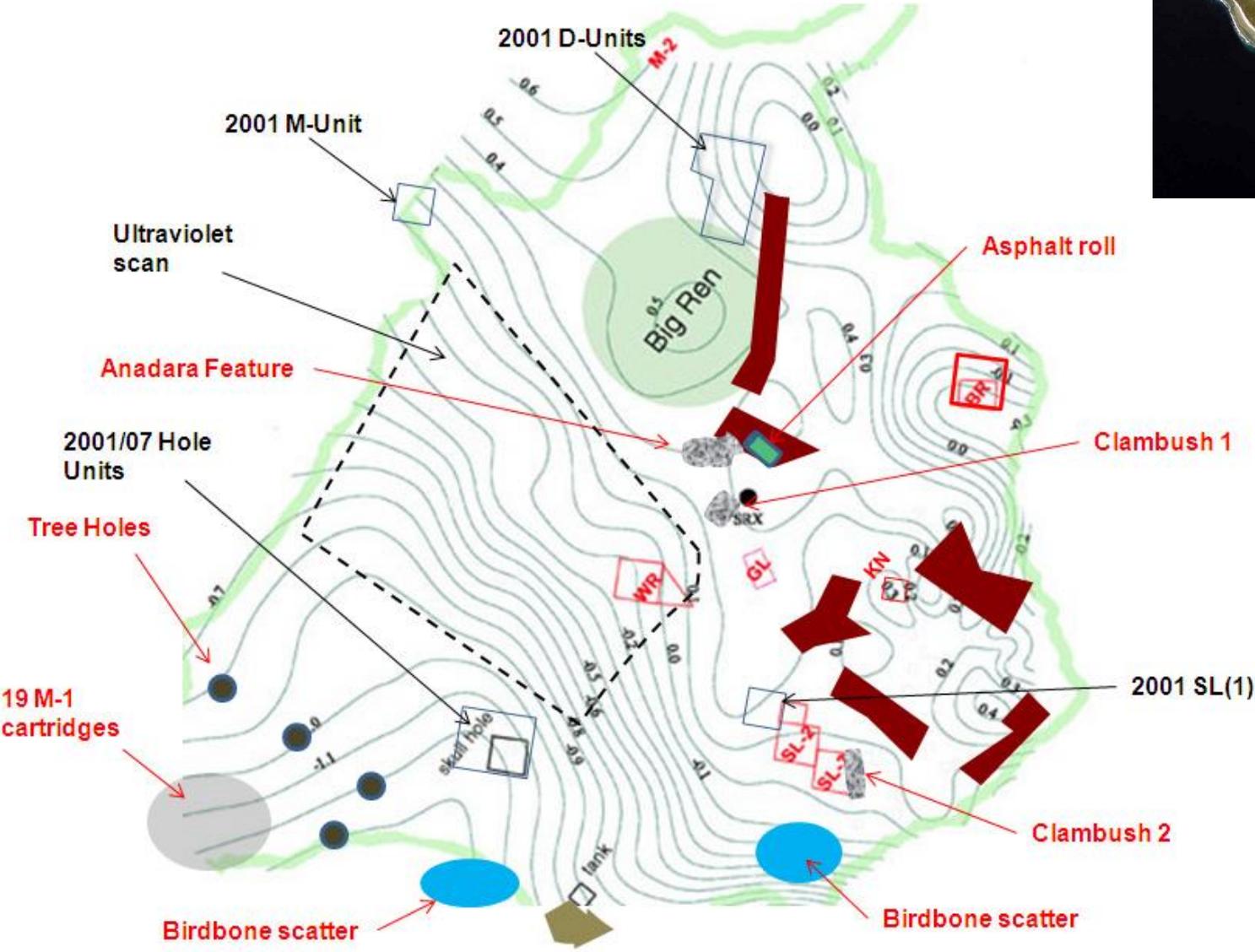
“This analysis reveals that Earhart is more similar to the Nikumaroro bones than 99% of individuals in a large reference sample.”

“This strongly supports the conclusion that the Nikumaroro bones belonged to Amelia Earhart.”

Exhibit 5: Archaeology at Seven Site



Seven Site:







SOLO-SCREEN
1-844-275-1000

Fish, bird, turtle bones

- Fish –
 - Wide range of species, sizes
 - All readily available on reef or in lagoon
 - Heads apparently not eaten
- Birds
 - Readily available on site
- Turtles
 - Apparently one adult
 - Several babies

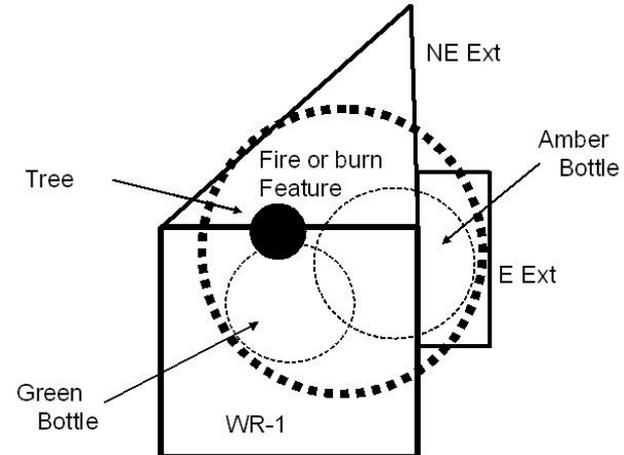


Bottles from Fire Feature

Artifact 2-8-S-27
compared to
Design Patent 90023
E.W. Fuerst May 30, 1933



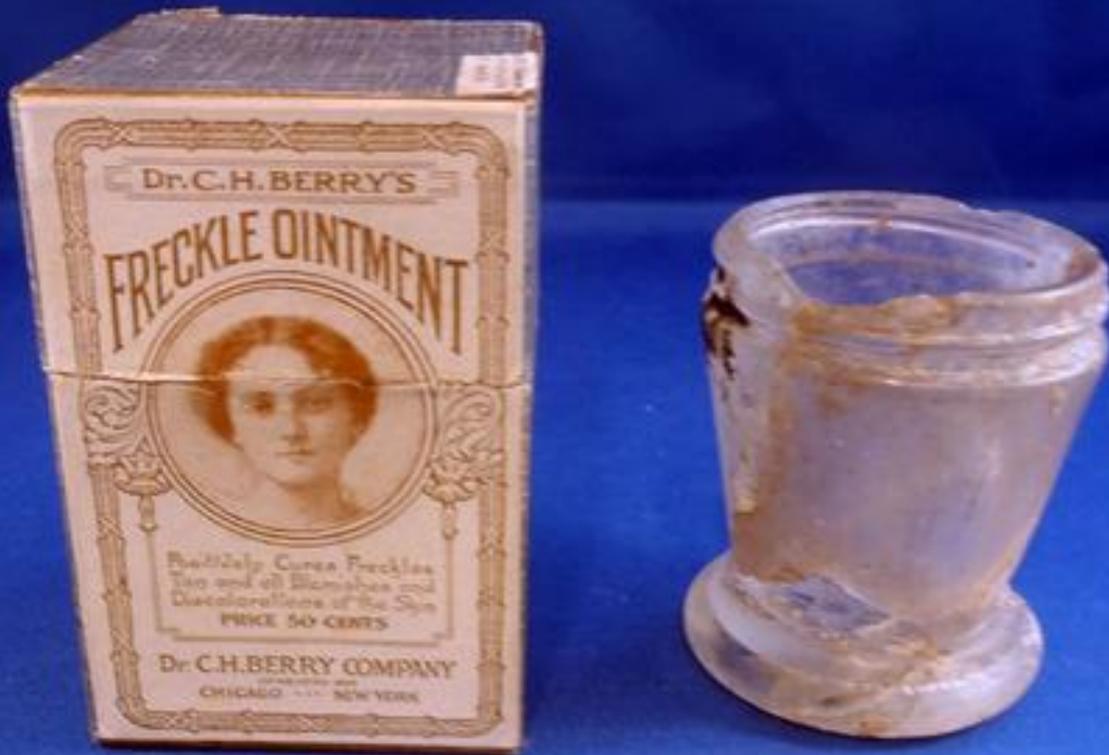
Wire



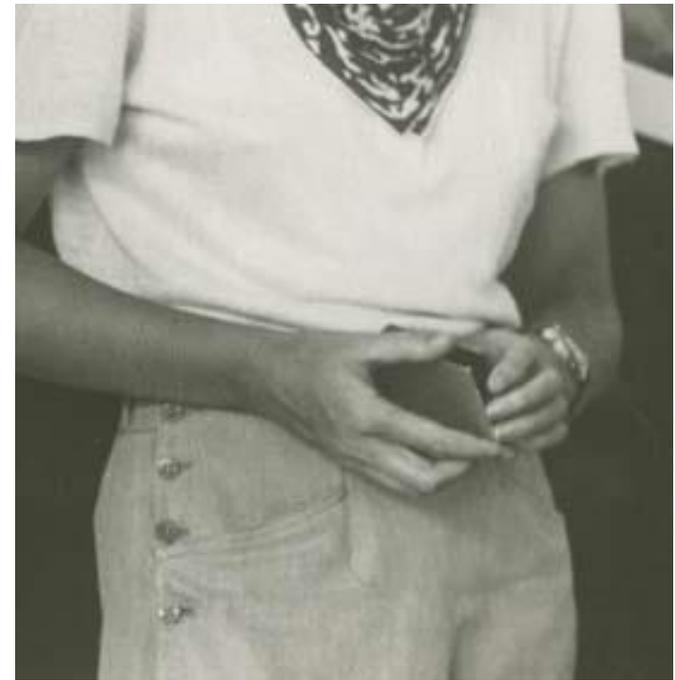
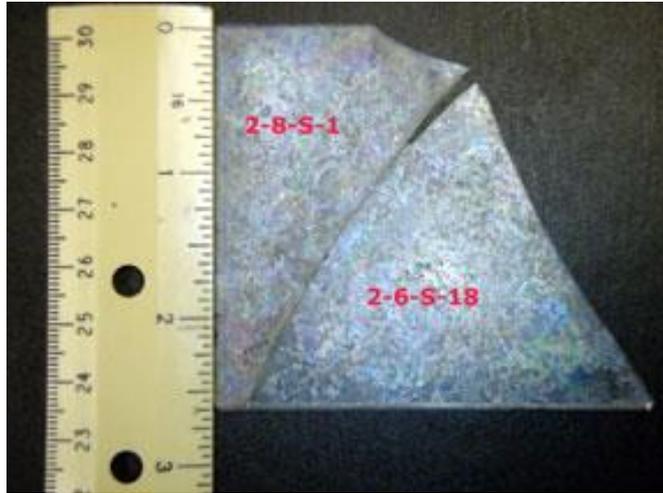
Probable Freckle Crème Jar

**Chemical analysis:
contained mercury**

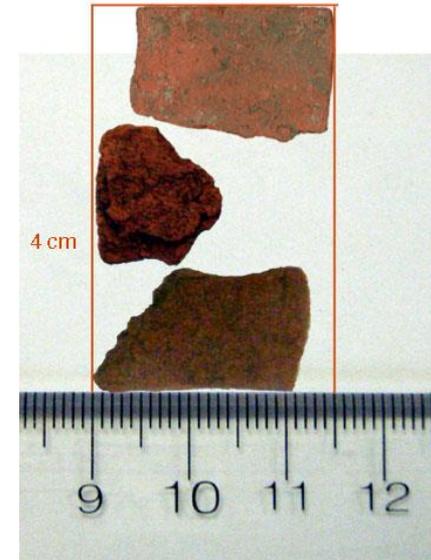
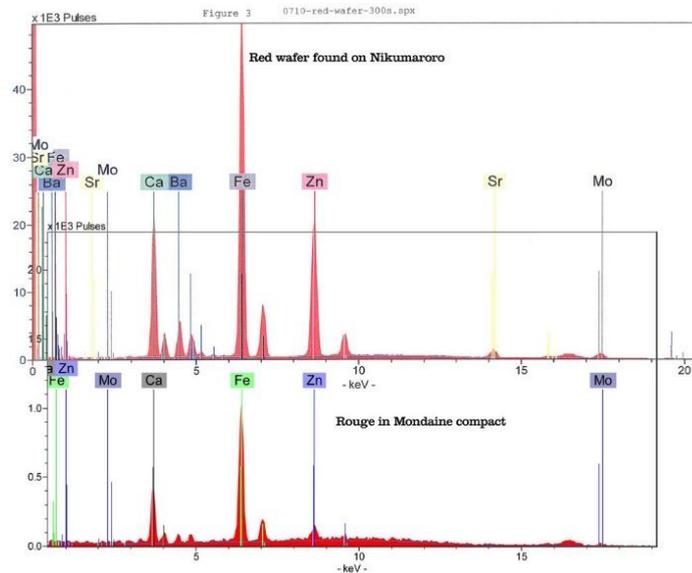
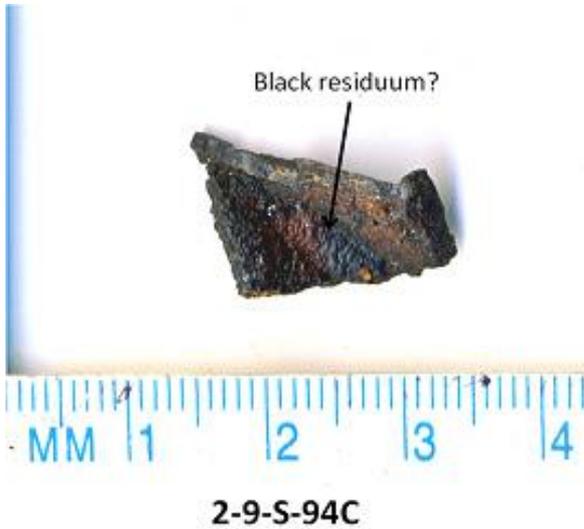
**Important ingredient
In Dr. B's Freckle
Ointment**



Probable lady's compact



AE with compact

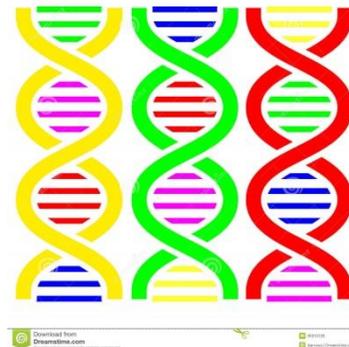


Possible Exhibit 6: DNA

**Dogs confirmed human residue at the
Ren Tree, as forecast by TIGHAR**



**Soil, coral and tree material collected
for DNA analysis –
Keep fingers crossed!**



|| ?

Conclusions



So, where are they?

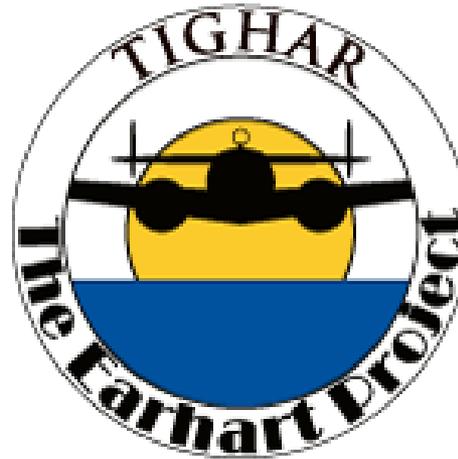


Lew's estimate:

- 14% chance they crashed at sea near Howland
- 5% chance Marshall islands
- 1% chance of other theories
- **80% chance landed & died on Niku**



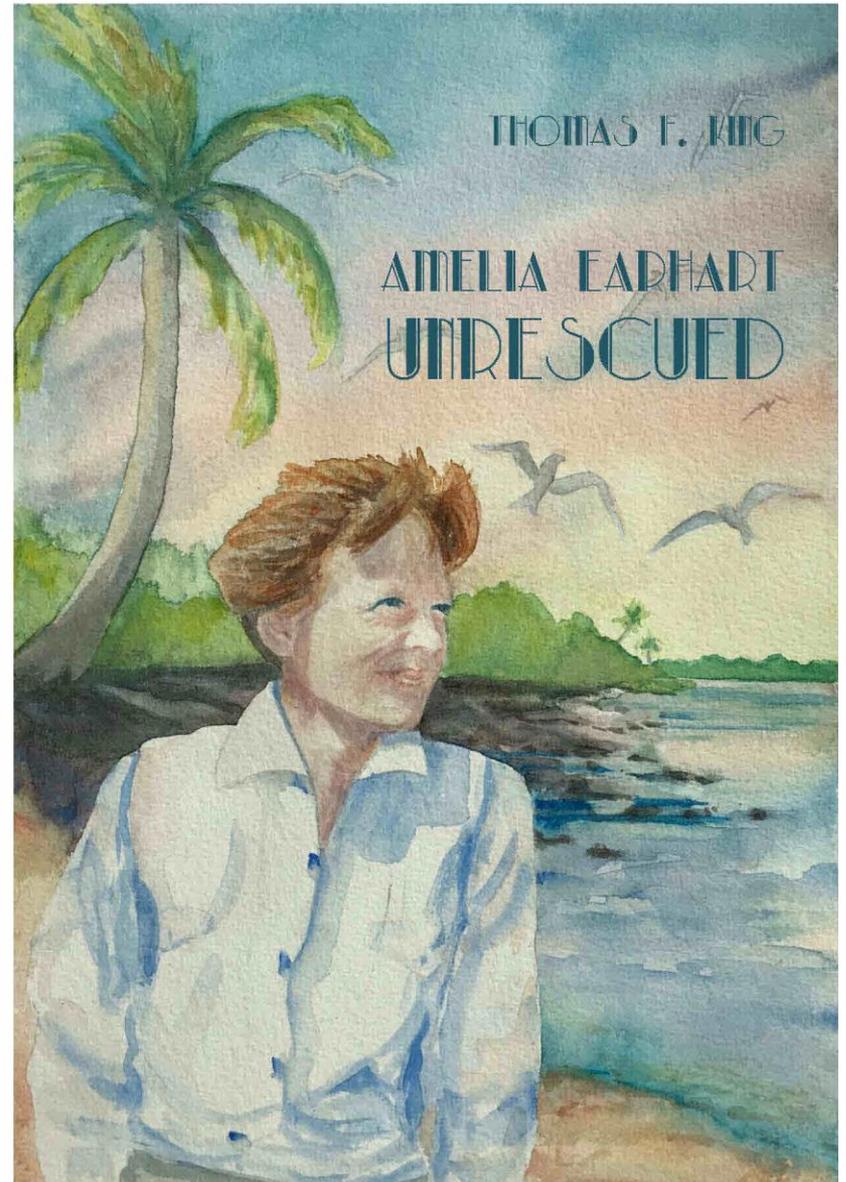
Last photo of AE/FN



Forthcoming by Tom King

In *Amelia Earhart UNRESCUED*, author and archaeologist Tom King offers a fact-based but fictional solution to the mystery, weaving a story around the history, archaeology, and environment of Nikumaroro, to visualize what Amelia and Fred may have experienced.

FlatHammockPress.com



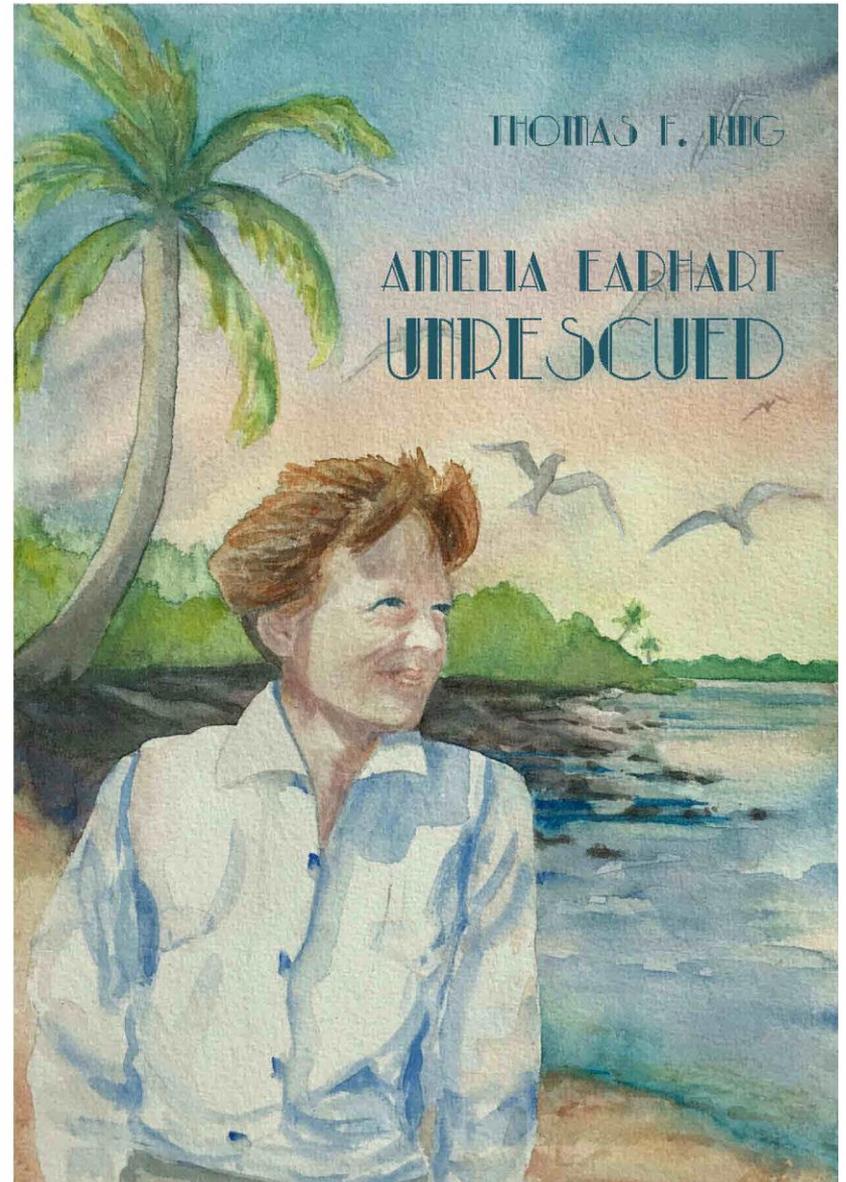
**THANKS!!!
QUESTIONS?**



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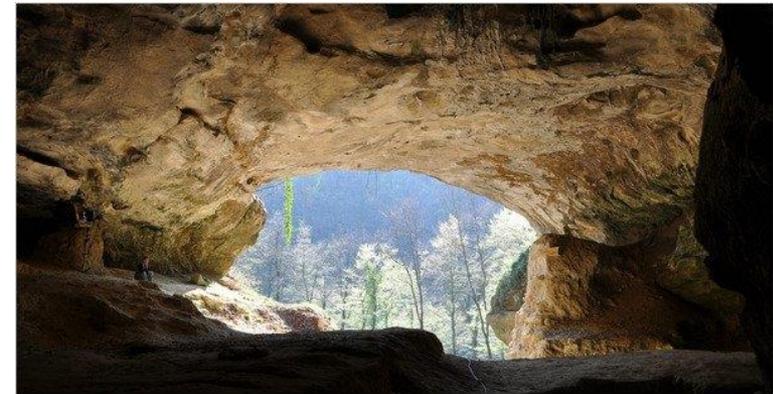
Neanderthal & Human DNA from Dirt (not just bones or teeth)

Science

April 2017

Neanderthal and Denisovan DNA from Pleistocene sediments

Viviane Slon^{1*}, Charlotte Hopfe¹, Clemens L. Weiß², Fabrizio Mafessoni¹, Marco de la Rasilla³, Carles Lalueza-Fox⁴, Antonio Rosas⁵, Marie Soressi^{6,7}, Monika V. Knuł⁸, Rebecca Miller⁹, John R. Stewart⁸, Anatoly P. Derevianko^{10,11}, Zenobia Jacobs^{12,13}, Bo Li¹², Richard G. Roberts^{12,13}, Michael V. Shunkov^{10,14}, Henry de Lumley^{15,16}, Christian Perrenoud^{15,17}, Ivan Gušić¹⁸, Željko Kučan¹⁸, Pavao Rudan¹⁸, Ayinuer Aximu-Petri¹, Elena Essel¹, Sarah Nagel¹, Birgit Nickel¹, Anna Schmidt¹, Kay Prüfer¹, Janet



- 85 teaspoon-sized samples of dirt from 7 Euro-caves
- 4 w/ Neanderthal DNA; 1 w/ Denisovan DNA
- Modern DNA “hook” used to find ancient DNA
- Future std. technique?

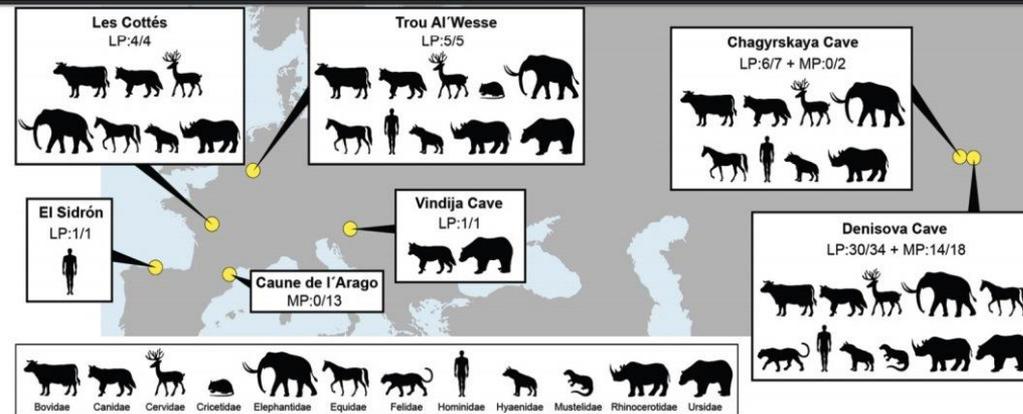


Fig. 1. Ancient taxa detected in Late Pleistocene (LP) and Middle Pleistocene (MP) sediment samples from seven sites. For each time period, the fraction of samples containing DNA fragments which could be assigned to a mammalian family and authenticated to be of ancient origin is indicated. The shaded symbols representing each family are not to scale.