[MISCELLANEOUS DOCUMENTS FOUND LOOSE IN THE DIARY.]

LINK

Life Discovered 6 Miles Down in the Pacific; Anemones, Bivalves and Crustaceans Found

July 27, 1951 Friday

N.Y. Times

Special to THE NEW YORK TIMES.

MANILA, July 25—A group of international oceanographers and marine scientists exploring the Mindanao Deep off Mindanao Island reported today finding proof that life exists more than six miles beneath the surface of the sea where hydrostatic pressures exceed 15,000 pounds a square inch.

Ingenious scoops and steel nets lowered by cable from the Danish research vessel Galathea first brought from the sea floor samples of primeval ooze containing bacterial matter from 34,000 feet, just under six miles.

Then, exploring at greater depths in the so-called Mindanao Trench, they trawled seventeen sea anemones, sixty-one sea cucumbers, two bivalves and one crustacean, demonstrating the fairly rich variety of life in the previously unexplored submarine region believed to be the deepest spot in the world's oceans—between six and seven miles below the surface.

The 1,600-ton corvette Galathea, borrowed from the Danish navy and fitted for oceanographic research, docked briefly today at Cebu in the central Philippines for refueling and to report on its findings.

The head of the expedition, Dr. Anton Bruun of Copenhagen University, said that the expedition's work and especially its recent findings would help solve mysteries locked prehistorically under the world's deepest waters.

Members of the expedition include Danish zoologists, a marine research expert from Thailand, a Swedish scientist and two Americans. The latter are Miss Grace Pickering of Yale University, who is leaving the expedition in the Philippines, having traveled with it from Europe, and Dr. Claude Zobell, science professor from Scripps Institute of Zoology at La Jolla, Calif., who joined the party here. The Galathea is on a two-year circumnavigation trip sponsored by Prince Axel of Denmark.

The New York Times July 27, 1951

Where ocean life has been found six miles down (cross).

RESEARCH VOYAGE SLATED

Dartmouth Schooner on Project of Undersea Warfare

HANOVER, N. H., Sept. 27 (AP) — Dartmouth College announced today a new scientific mission for its 100-foot schooner, Blue Dolphin, recently returned from a three-month oceangraphic survey off Labrador.

The craft will sail out of Boothbay Harbor, Me., tomorrow on the first leg of a journey that will take her off New York. Captained by Comdr. David C. Nutt, U. S. N. R., Dartmouth Arctic specialist, the craft will sail to the Woods Hole (Mass.) Oceanographic Institute for a thorough overhauling.

Later she will be used in an underseas warfare project to be conducted for the Office of Naval Research by Columbia University scientists.

LINK

AMFORD ADVOCATE, THUR

Record Seamount Found In Pacific

La Jolla, Calif., Sept. 27. (AP)—Two seafaring scientists have discovered an 11,400-foot mountain rising from the floor of the Pacific Ocean. They believe it is the largest known seamount, as undersea peaks are called.

Its top is about a mile beneath sealanes 700 miles northeast of Hawaii and it is 18 miles across at the widest point of the base, the scientists said. They expressed surprise that it has not been noted before.

Warren S. Wooster, assistant oceanographer of the Scripps Institute of Oceanography, and Dr. Henry W. Menard, of the U. S. Navy electronics laboratory, announced their find yesterday when they returned from a two-month exploration cruise.

They reported they surveyed 8,200 miles of the northeast Pacific, obtaining hydrographic data and also dredged up what may be the largest manganese concretion yet found—a 100-pound chunk the origin of which is in doubt.

They made the cruise aboard the Scripps oceanography ship Horizon.

LINK

ditions which last year discovered and surveyed the submerged Mid-Pacific mountain range, west of Hawaii, and the Mendocino Escarpment — great submarine cliff that extends for hundreds of miles off the Northern California coast.

The new expedition will examine the northern ridge of the escarpment, dredging bottom samples and making soundings. It will then turn north to the center of the Gulf of Alaska.

Other samples will be dredged from the tops of sea mounts south of the Alaskan peninsula.

ONE STOPOVER

After a call at Kodiak, the only stopover, the Horizon will continue the research southwestward along the Aleutian trench to Unimak Pass; then turn southward on an 1800-mile voyage to 500 miles northwest of Honolulu. It will return to the California coast along a suspected escarpment facing the Mendocino Escarpment.

The Scripps Institution's newly developed mid-depth trawler will be used to investigate sea life between the surface layers and great depths.

Dr. Roger Revelle, Scripps director, and John D. Isaacs, assistant director, plan to join the expedition for part of the trip.

SAVANTS CHOSEN

Five scientists chosen for the entire expedition are: Warren Wooster, Scripps chemical oceanographer; Dr. Henry W. Menard, of the Navy Electronics Laboratory; Jose Barandiaran, of the Peruvian Hydrographic Service; and Robert L. Wisner and Charles Dinkel, of Scripps.

Club Leader Seated

LINK

LINK

Sources for Industry

Brookhaven National Laboratory announced this week that it has made some rather scary objects: radioactive sources as powerful as three or four pounds of radium.* They glow in the dark with an eerie blue light and are so dangerous that they must be kept under several feet of water or behind thick lead or concrete shields.

The sources are made by "cooking" cobalt or tantalum tubes (13½ in. long) in Brookhaven's nuclear reactor at Upton, N.Y. There the original metals turn into cobalt-60 and tantalum-182, both of which emit gamma rays with more than 1,000,000 electron volts of energy.

Brookhaven does not plan to ship its powerful playthings anywhere just yet: they are too dangerous to be allowed off the reservation. But it is inviting industrial scientists to send samples to be exposed to their radiation. Their hot blasts of gamma rays may prove to have valuable industrial properties. They can start or speed up chemical reactions, turn certain liquids (*e.g.*, methyl methacrylate) into solid plastics. Their most valuable application may be in food processing, for their gamma rays reportedly kill microorganisms without heating the food material or making it radioactive.

Out of the Depths

About the last of the earth's living creatures not catalogued by man live in the deep sea. Last week man's deep-sea fishing techniques were catching up with some of them.

Off Southern California, Dr. Carl L. Hubbs of the Scripps Institution of Oceanography was having good fishing with a new kind of deep-sea trawl. Its mouth is held open by a broad, V-shaped steel beam that acts like an airplane wing in reverse, making the net dive downward while giving it unusual stability. It can be towed at six knots, instead of the two knots which is top speed for ordinary trawls.

With his new, fast net, Dr. Hubbs catches faster fish, some of them as deep as 9,000 ft. "Every time we send the net down," says Hubbs, "we come up with something never before seen on this coast: fish with telescopic eyes, long fanglike teeth, dragonlike appearance." One fish caught has a long ratlike tail. Another, the black swallower, has an extensible stomach, convenient for heavy, infrequent meals. It can swallow a victim three times as big as itself. Another fish has a well-defined neck. Another has a huge lower jaw, a hundred times the size of the rest of its head, which it uses very much as Dr. Hubbs uses his trawl.

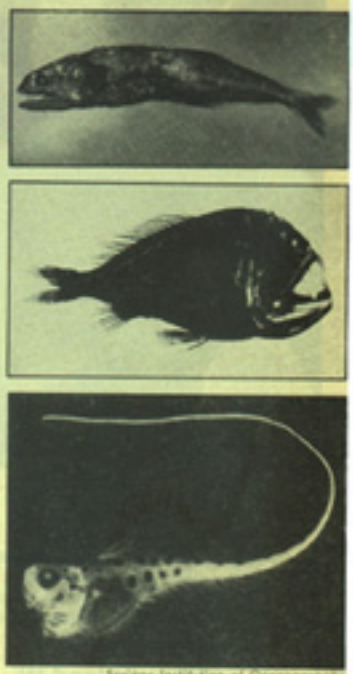
The present nets are at most 15 ft. wide, but Dr. Hubbs plans to build one 50 ft. wide, and catch even bigger and faster deep-sea inhabitants. Such creatures are known to exist; sperm whales, for instance, live mainly on giant squid taken at great depths. There is a chance that the new net may catch such a squid.

Off the Philippines, other scientific fishermen were combing even deeper waters. Dr. Anton F. Bruun of the Danish research ship *Galathea* reported that there seems to be no limit to the depths that life can sink. His men dredged the bottom of the Mindanao trench, the deepest part (35,400 ft.) of the ocean, never explored before. They hauled up 17 sea anemones, 61 sea cucumbers, two mollusks and one crustacean. All were comparatively fragile creatures, but they did not seem to mind living in darkness and cold more than six miles down, where the water pressure is more than seven tons a square inch.

Paradise Lost

When Dr. William Grey Walter of Bristol, England created his first mechanical turtles, Elmer and Elsie (TIME, March 27, 1950), he made them happy beasties. With their photoelectric eyes they could seek out the dim light that was suitable to bask in as well as the bright light that led them to their food, *i.e.*, electric current to recharge their batteries. When they bumped into obstacles, they knew how to back away on their electrically driven wheels and try a different angle.

This was quite enough intelligence for a simple, happy life. Elmer and Elsie might



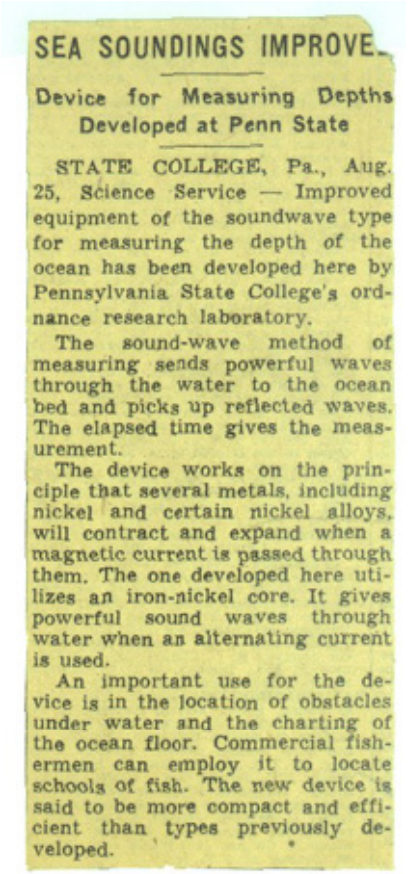
Scripps Institution of Oceanography

DR. HUBBS'S NEW FISH*
At 9,000 feet, good trawling.

* More than the entire world's pre-World War II supply.

* Top to bottom: black swallower, *coulolepis* (*Melamphaidae*), rat-tail grenadier.

LINK



SEA SOUNDINGS IMPROVE.

Device for Measuring Depths Developed at Penn State

STATE COLLEGE, Pa., Aug. 25, Science Service — Improved equipment of the soundwave type for measuring the depth of the ocean has been developed here by Pennsylvania State College's ordnance research laboratory.

The sound-wave method of measuring sends powerful waves through the water to the ocean bed and picks up reflected waves. The elapsed time gives the measurement.

The device works on the principle that several metals, including nickel and certain nickel alloys, will contract and expand when a magnetic current is passed through them. The one developed here utilizes an iron-nickel core. It gives powerful sound waves through water when an alternating current is used.

An important use for the device is in the location of obstacles under water and the charting of the ocean floor. Commercial fishermen can employ it to locate schools of fish. The new device is said to be more compact and efficient than types previously developed.

LINK

Seamount Statistics – Northern Holiday —

Name	Date	Shoalest Depth	Bottom Depth	Height fm	Height feet	Number of Soundings	Log Book #	Page #	Remarks
Gilbert	16-17 Aug	620 fm	2300 fm	1680 fm	10,080'	550	1	67-90	Aphrographic casts at 4 points on profiles – Dredge #1 – Surveyed
Miller	18-19 Aug	520 fm	2200 fm	1680 fm	10,080'	925	2	2-43	Dredge #2&3 Core #4 – Surveyed BEM survey of 26 Segs.
Holiday	21 Aug	1080 fm	2100 fm	1020 fm	6,120'	150	2	46-51	Newly discovered – Surveyed but not dredged or cored
GH-#5	21 Aug	420 fm	2000 fm	1580 fm	9,480'	250	2	52-62	Surveyed
Pratt	22 Aug	390 fm	2000 fm	1610	9,660'	475	2	63-84	Dredge #4 & #5 Surveyed
GH-#4	23 Aug	238 fm	2000 fm	1762	10,572'	175	2-3	88-96 D-1	Surveyed
GH-3	24 Aug	410 fm	2100 fm	1690 fm	10,140'	250	3	3-12	Surveyed
GH-1	25 Aug	1130 fm	2600 fm	1470 fm	8,820'	325	3	15-31	Surveyed
5 Sept Smt.	5 Sept	2058 fm	2700 fm	620 fm	3,720	100	3	60-64	Surveyed
Sea Lump	7 Sept	2450 fm	2800 fm	350 fm	2,100'	20	3	70-71	not surveyed
" "	8 Sept	2250 fm	2880 fm	630 fm	3,780	7	3	72	Watch didn't tell anyone of it; not surveyed
" "	8 Sept	2590 fm	2800 fm	210 fm	1,260'	23	3	74-76	Intervening depression before not Surveyed
Mendocino Extension?	11 Sept	2420 fm	3000 fm	580 fm	3,480'	100	3	90-95	Surveyed
Sea Lump	13 Sept	2490 fm	3000 fm	530 fm	3,180'	15	4	3-6	not surveyed
Scripps(?) Seamount	18-19 Sept	900 fm	2800	1900 fm	11,400'	350	4	25-40	Surveyed –

As of 22 Sept – 10 Seamounts Surveyed; 8 on first leg; 2 on 2nd leg
Possible Westward Extension of Mendocino Scarp Surveyed
Three uncharted seamounts located & surveyed (3 of the ten)
Three Small seamounts (500 fm or less relief) crossed over (not of 10)
One Seamount (8 Sept) passed over with the watch asleep.

Total number of soundings to date: 8,575

Thanks
WSW

[LINK]

INSTRUCTIONS FOR LABORATORY WATCH STANDERS

I. GENERAL

1. Immediately upon relieving the watch, examine stowage of all scientific equipment. If the sea increases it is the responsibility of the watch to secure all loose scientific gear. Particular attention should be paid to gear stowed on deck - dredges, corers, meternet, midwater trawls, etc.

2. Inspect all gear streamed over the side. Make certain GEK cable is not chafing and that THERMITOW is properly streamed.

3. You are responsible for general cleanliness and order in the laboratories.

4. During the watch you are responsible for the following observations:

a. Fathometer
b. Thermitow
c. GEK
d. Wind recorder
e. Bathythermograph

5. Enter in the General Log dates and times (GCT) and other pertinent detail for the following observations:

a. Hydrographic stations
b. GEK jogs
c. Midwater trawls
d. BT observations
e. Other observations of interest - large fish, sea mammals, newly-discovered land, icebergs, etc.

II. FATHOMETER

1. On steaming watches soundings should be made at ten-minute intervals (preferably on the even ten-minutes) and at twenty-minute intervals during midwater trawls, unless otherwise directed by the Geologist. These soundings are entered in the Fathometer Log, using <u>local</u> time.

2. Enter also in the log and on the tape (when recording) all course and speed changes inclusing hydrographic stations, GEK jogs and midwater trawls and any other information of value in interpreting the sounding data.

3. Notify the Geologist of

a. Unusual soundings or unexpected changes in depth
b. Malfunctioning of the Fathometer

LINK

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3. Notify the Geologist of

a. Unusual soundings or unexpected changes in depth
b. Malfunctioning of the Fathometer

LINK

Instructions for Laboratory Watch Standers, Cont.

III. THERMITOW

1. Enter on recorder paper:

a. Date-time (GCT), course and speed at least once each watch
b. All course and speed changes including hydrographic stations, GEK jogs and midwater trawls
c. Bucket temperatures, including date-time, whenever taken.

2. Just prior to hydrographic stations and midwater trawls, retrieve Thermitow, blow on element and place in bucket of water. The recorder can then be secures. When ship is underway again turn on recorder, blow on element and place back in the sea.

3. Notify Expedition Scientist of

a. Sudden large changes of surface temperature
b. Malfunctioning of instrument

IV. GEK

1. GEK jogs should be made every two hours at 5 minutes past the hour. Jogs should be made just prior to hydrographic stations and just after leaving them regardless of the time.

2. The instrument should be turned on one half hour before the jog (including a jog to be made on the next watch) and any changes in wave suppression switches made at least 5 minutes before the jog. Make certain that the pen is printing properly before starting jog.

3. Enter on recorder paper:

a. Jog number and date, name of observer
b. Base course, course changes and steady-ons (GCT times)
c. Signals for each base course and fixed course.

4. Complete all entries on GEK log sheet, except position, and enter jog in General Log.

5. Prior to arriving on station or taking midwater trawl, slow the ship to 3 knots and retrieve GEK cable and electrodes. Be certain plug is removed before starting GEK winch. Upon leaving station, cable and electrodes should be again streamed.

6. Notify Expedition Scientist of malfunctioning of GEK.

V. WIND RECORDER

1. The wind recorder should be wound each morning at 0800.

2. Enter on recorder paper:

a. Date-time (GCT) course and speed at least once each watch

LINK

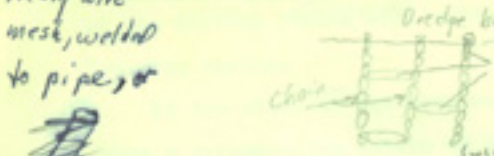
Code 2236
U. S. Navy Electronics Lab
San Diego 52, Calif.
7 Aug 1969

Dear Stew:

Enclosed is what we have on the rock dredge. Also included is the material for making up the chain bag and the inside netting. We also used to place small pipe dredges on the bottom of the bag to catch the fines; this was simply a large diameter gas pipe with wire at one end (mesh) and a small wire yoke at the top end.

or a canvas bag

The chain bag is made up by deciding how long you want the bag to be and cutting the correct number of lengths of chain, attaching them at one end to the holes around the lower edge of the steel box. The lap links are used for this purpose. After the chains are attached, then they are secured together in a sort of mesh by connecting adjacent chains with lap links.



6 foot lengths of chain

(with the chains)

After the lap links have made up an open-ended bag, the lower end of the chain bag is drawn together with 3T or other steel wire. The shrimp netting is then used to make up an interior bag to fit inside the chain bag; it is secured at the top through the holes around the lower edge of the steel box. It is a good idea to tie it down to the bottom end of the chain so that it doesn't come out during lowering.

heavy wire mesh, welded to pipe, or

In the past, wire has been used to secure the chains to the steel box, and wire clips have secured the chains together to make a bag, but the lap links are better, and what we have used for the last few made.

I don't have any data on how much this will cost, it has been several years since we made up the last batch of dredges.

If I can help out, further, let me know.

We are looking forward to seeing you and the new wife in New York. We should have about nine people from the Lab and scores from Scripps; not all of us from the Lab, however, will be on Govt orders--details not settled yet. As ever,

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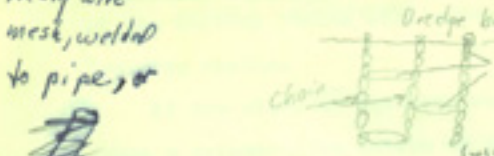

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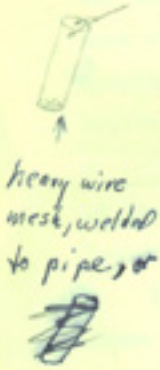

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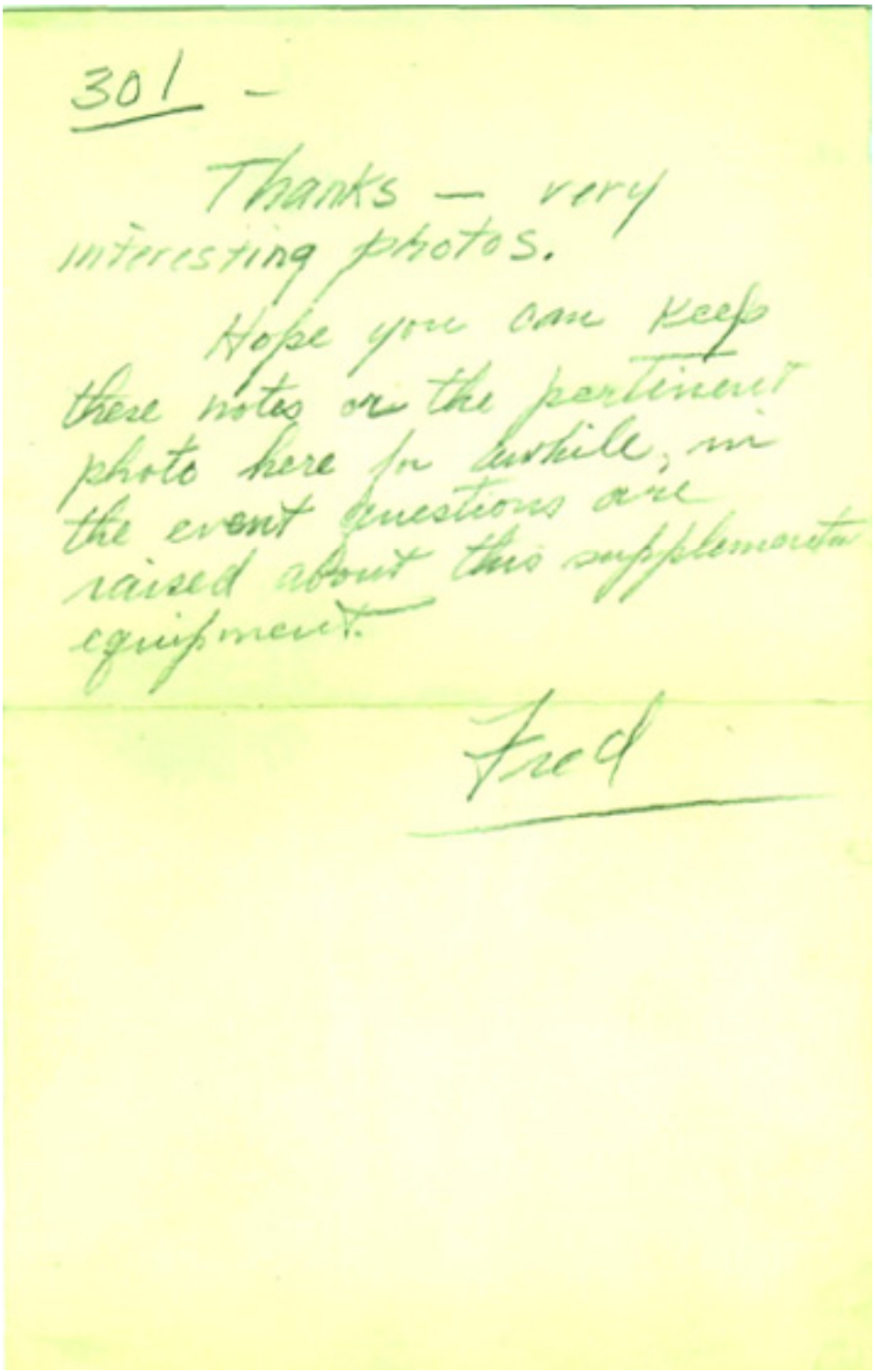


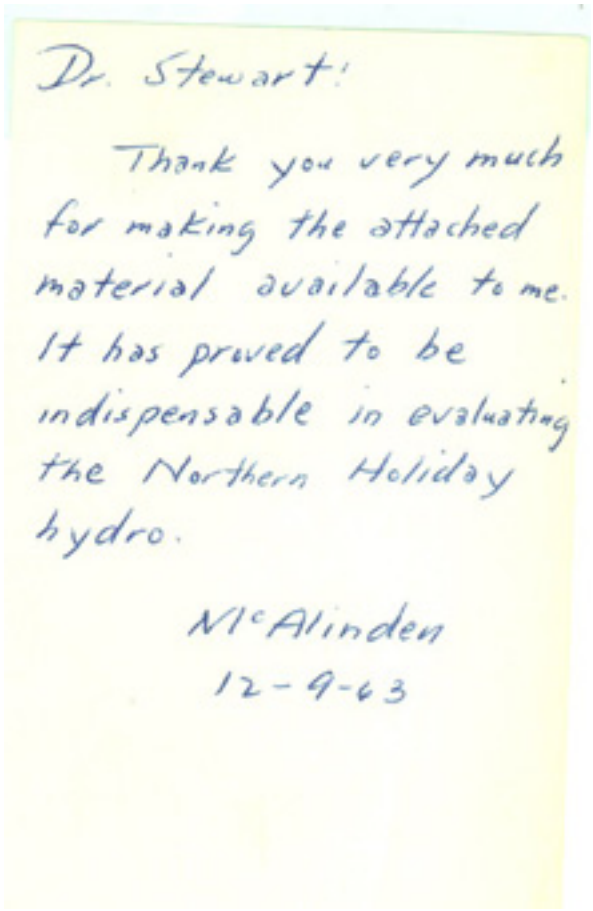
301 –

Thanks – very interesting photos.

Hope you can keep these notes on the pertinent photo here for awhile, in the event questions are raised about this supplemental equipment.

Fred

LINK



Dr. Stewart:

Thank you very much for making the attached material available to me. It has proved to be indispensable in evaluating the Northern Holiday hydro.

McAlinden
12-9-63

LINK

PHASE TIME and ATTENDANCE

Payperiod:	Start:	End:

PHASE candidate name:		Hours Worked													
		Week One							Week Two						
		Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Total
Duty Hours	From:															
	To:															
Hours Absent	From:															
	To:															
Total Hours Worked																

Comments:

PHASE Signature Date

Supervisor Signature Date

Fax to: Dr. Bob Mahler
(303)492-1585

LINK

LINK