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SUPPLEMENTAL HISTORICAL REPORT

POINT REYES NATIONAL SEASHORE PROPOSAL

BY

ROBERT J. BECKER

THE STORY OF THE POINT REYES LIFE SAVING STATION

When the Point Reyes Light was erected in 1870, no provision was made for rescue operations. The Life Saving Service, as a unit of the Department of the Treasury, charged with the primary responsibility of saving life from stranded vessels, was only then being organized, and such rescues as were accomplished were performed for the most part by the cutters of the Revenue Marine Service, which combined with the Lighthouse Service and the Life Saving Service in 1915 to form the U.S. Coast Guard. In any case, the location of the Light and the keeper's quarters on top of a 500-foot ridge is an awkward distance from any place where a surf boat or other rescue craft could be launched or landed. Moreover, there were no personnel to patrol the long outer beach where many of the strandings occurred.

Provision of a rescue station was authorized by the federal government in 1886, and in January of 1888, Mr. Charles Webb Howard sold about 3-1/2 acres of land to the government for this purpose. The site, now that of the U.S. Navy Radio Compass Station, is on the outer beach, about three miles north of the lighthouse. The construction of the necessary buildings--quarters for the crew, a stable, and boat-sheds went on slowly, and finally, in April of 1890, twenty years after the establishment of the lighthouse, the station was ready for operation.

The station was manned by a keeper--the officer in charge--and seven surfmen whose duties were to patrol the beach at night and in foggy weather, and to be available at any time for rescue operations, including the manning of the surf boat. In December of 1890, two members of the crew, Fred Carstens and Andrew Anderson, were killed in the surf during a boat drill; in March of 1893, another surfman, George Larson, was killed in the same way. Thereafter,

the principal means of effecting rescues at this station was by means of a Lyle gun, which shot a line from the beach to the stranded vessel, and the breeches buoy, which brought the shipwreck victims from the vessel to the shore. The original wreck reports are still in the custody of the Commanding Officer of the Point Reyes Life Saving Station. Through the courtesy of the U.S. Coast Guard, some of them are quoted at length here. The report of Keeper George Jorgensen of the wreck of the schooner Rachel, June 21, 1895, indicates that although a surf-boat was available, the means of rescue was a number of lines from the ship to the beach:

Dense fog prevailed along the coast. The schooner Rachel, 84 T[ons] R[egister] Capt. E.C. Meyers of San Francisco, Cal. was bound from San Francisco to Fishermans' Bay, Cal. Went on shore about one and three quarters miles south of station. The [wind] at the time was from the westward. Fresh. The vessel was discovered by the patrolman at 4:15 A.M., who at once flashed one of his Coston signals, then returned to the station and gave the alarm. The Keeper and crew at once man[n]ed the beach cart and with the assistance of the Government horse started for the wreck and arrived there about 5. A.M. Immediately one of the crew was sent to get a team--secured one from A. Reinhold, the nearest ranch, and hauled surf boat to scene of wreck. A tug was also sent for immediately, which arrived about 9 A.M. The crew of the schooner consisted of 5 men, including the Capt., who was assisted on shore by the L. S. S. crew, by means of lines thrown on shore from the vessel and made fast to the sand anchor which had been buried for that purpose. Also their personal effects. The crew was then taken to the station for dry clothing and refreshments, then returned to the wreck, where [they] arrived a short while before the tug came in sight. Immediate preparations were made to get connections with tug. There were 5 shots fired before our efforts were rewarded with success....The men was then assisted on board of the vessel and part of the L. S. S. crew went on board also to assist in making the hawser [from the tug] fast to the vessel. When the hawser was fast and the L. S. S. men had gotten on shore and all shore lines

cast off, the signal was made for the tug to go ahead. About one half an hour after the go ahead signal was given, the hawser parted, the schooner being thus relieved from the strain, was thrown upon the beach higher than before. There was no further attempt made to get her off; as soon as it was evident that the hawser could not be regained, the men were again assisted on shore by the L.S.S. crew, and by this time the surf was very high and breaking over the vessel which tore off the hatches and filled the hold with water and sand. About 4 P.M. she began breaking up--the cargo was washing out, part of which was strewn along the beach and was recovered by the crew and citizens. The vessel is a total wreck; the total valuation of cargo and vessel's property saved will amount to about \$500.00.

Date of Report
June 24th, 1895

Geo. Jorgensen
Keeper

The difficulty of launching a boat through the surf on the outer beach led to the establishment of a boat house and a launching facility in Drake's Bay, at the site of the present station. The report of the assistance given to the stranded schooner, Ida A., March 12, 1912, indicates the rigorous nature of the work of marine rescue:

At 8.30 A.M. Keeper got a telephone message from J.P. Geary, a rancher, that the gasoline schooner Ida A. had parted her anchor at 8.15 A.M., and had drifted on the beach in Drake's Bay. Keeper immediately gave order for the crew to proceed to Drakes Bay, arrived at boat house at about 8.50 A.M. Launched Beebe McLellan surf boat, got along side of wreck at about 9.15 A.M. Captain of the schooner asked Keeper to lay an anchor out and he would try and get her off at high water, which would be about 12.50 P.M. Got the anchor into surf boat, and laid it out; they took anchor line over stern of the schooner. Keeper sent four surfmen on board to help to heave on the windlass, they hove the anchor home. By this time the wind which was South East had increased to about 40 miles an hour and a choppy sea was getting up. The keeper took the four surfmen off the schooner, and laid the anchor out a second time; this time the line was taken through the hawse pipe forward

In the schooner. The Keeper sent four surfmen on board again-- by this time the sea was hitting her pretty hard on the beam--she was turning head out when the line broke, and she fell back broad side on the beach again. Keeper again took the four surfmen off the schooner and grappled for the anchor, caught the anchor line about 1,50 [sic] feet from the anchor, put a buoy on the end of the broken line, went back to the schooner and got the other end of the line and made it fast to the anchor line already buoyed, put four surfmen on board the schooner again; by this time she started to leak. They hove on the anchor line, but she did not move, so gave it up for the time being, as the tide had fallen considerable. They got what freight was on board of her off at low water, which was about 15 tons. Life crew could render no more assistance for the present, so they returned to the boat house, got the boat into the boat house and made her ready for service again....

The report does not tell what happened thereafter, except that there was no loss; we can assume that the Ida A. was eventually hauled off the beach without damage.

A classic example of the successful use of the Lyle gun and the breeches buoy was the rescue of 21 men, officers and crew of the steamer Samoa, on January 28, 1913. The Keeper reported as follows:

At 8 A.M. a steamer coming down the coast, blowing the usual fog signal, was heard by the life saving crew; the whistle sounded very close in shore. At 8.15 A.M. she blew a distress signal. The keeper ordered the crew to man the beach cart. He then ran down to the beach to try and locate the steamer. In the mean time he gave orders to the crew to follow him with the beach cart. When about 600 yard south of the station, the Keeper knew he was abreast of the steamer by the sound of her whistle, but could not see her, the fog was so dense. He then hurried back to the beach cart, which was coming down along the beach. We arrived abreast of the wreck with the beach cart at 8.30 A.M. A little clearing of the fog gave us a chance to see a steamer, which proved to be the Samoa, with her bow in for the beach, in the breakers with the sea going over her.

We got our apparatus gear into action--soon had the gear set up, and the breeches buoy hauled off to her, and the work of rescue began. We took twenty-one men on shore with the breeches buoy, all that was on board. We worked under great difficulties; that no one was lost or seriously injured by the mass of drifting lumber and heavy timbers that was thrown up by the rough sea is due to a great extent to the valuable assistance rendered us by the farmers and there [sic] hired help in hauling the breeches buoy to and from the wreck. It enabled me to have two and three surfmen in readiness to run out into the surf and protect the shipwrecked man in the breeches buoy from being hit by flying lumber, without retarding the working of the beach apparatus. By 10.25 A.M. we had all hands on shore. We then sent off the hawser cutter and cut the hawser, hauled our lines ashore and coiled all our gear into the beach cart, arrived back at the station at 12.30 PM.

Brought all the shipwreck men to the station, gave them dry clothing and some warm coffee, kept them at the station over night, made them as comfortable as possible, sent them off on board the Revenue Cutter McCulloch at 10 A.M. Jan. 29th, which was in Drakes Bay over night, waiting to give the shipwrecked men a passage to San Francisco.

Very respectfully

Christopher Hunt
Keeper

It is obvious that the arrangement of facilities was not a happy one. The Life Saving Station itself was on the outer beach, and the boat launching had to be performed at Drakes Bay. The use of surf boats on the outer beach seems to have been abandoned after the three men mentioned before had been killed in the course of boat drills. With the boat ramp in Drakes Bay and the station on the outer beach, the crew had to travel nearly ten miles--four miles overland from the station to the launching place, and a six mile oar-propelled lifeboat trip--to put their rescue craft beyond the surf opposite the station!

Moreover, the stations buildings themselves began to suffer from obsolescence and deterioration, and in time the enforcement of the noble experiment--Prohibition--became a responsibility of the Service. Accordingly, in the records of the U. S. Coast Guard, we find the following letter, dated Feb. 15, 1926:

Treasury Dept. United States Coast Guard

From: Field Assistant, C[onstruction] & R[epair]

To: Commandant

Subject: New Station for Point Reyes, Call

Reference: Joint Report of District Superintendent and myself, dated March 13, 1925.

1. The urgent necessity for adequate accommodation for the crew, as well as increased facilities for operating the Point Reyes Coast Guard station is too well known at Headquarters, to need additional comment; if Headquarters has no intention of building a new station at Drake's Bay, in the near future, it is essential that the old building be repaired, and decent sanitary toilets and bathing facilities provided.
2. Point Reyes is by far the worse station on the Pacific Coast, and from the stand point of equipment and efficiency, it is practically nil. If new buildings are contemplated, it is recommended that proposals be issued early in the spring, so that the work can be done during the summer; owing to poor landing facilities, if the work is delayed until the fall and winter storms set in, it will be harder to get bids, and it will cost considerably more to build the new station.
3. As Drake's Bay is an ideal place for the operation of bootleggers, and rum runners, it would seem that the cost of erecting and equipping an adequate and efficient station at that point, as a base, against such activity, would be a legitimate charge, against the appropriation for the enforcement of prohibition.
4. In its present condition, the station is of no benefit whatever; either for life saving purposes, or for checking rum runners, but being on an active status, the people expect the service, which, owing to antiquated and worn out methods and equipment cannot be rendered, thus reflecting unfavorably on the whole service.

Andre Fouchy

It might be inferred from the foregoing that the establishment of the Life Saving Station in its present location was largely due to the necessity for measures against the rum-runners of the 1920's, but this is not the case. The United States acquired the land now occupied by the present station in 1913, due to the necessity for better accommodation of the crew and for more efficient operation; the law enforcement activities of the Coast Guard merely made more apparent the need for a long-awaited change. Work on the new installation began in the late summer of 1926, and in slightly less than a year, the new station was in operation, and continues so to this day. Unfortunately, this interesting installation is not open to the public.

Four members of the station's company--Fred Carstens, Andrew Anderson, and George Larson, who were killed in life boat drills, and John Korpela, who died of lung hemorrhage--are buried in the tiny Point Reyes Cemetery, amid a small grove of trees on a hill overlooking the northern tip of Drakes Estero. As an expression of comradeship, the present members of the crew of the Life Saving Station keep painted white the picket fence surrounding the plot, and the headboards on the graves. The cemetery is located on a ranch owned by the Radio Corporation of America, and has been unused for many years. Only one other plot is identifiable--that of the Claussen Family, including the graves of Peter Claussen, who died in 1915, and of H.J.N. Claussen, who died in 1872; a third grave in the Claussen plot is now unmarked.

HUNTERS AND OTHER SPORTSMEN

The first hunters on the Point Reyes Peninsula were not sportsmen. They were part of California's First Families--the aboriginal Indians--who, uncounted generations ago, killed rabbits, ground squirrels, birds, and an occasional elk, not because they loved to kill, but because they were eternally hungry.

The first Europeans on the Peninsula, either Spanish or English, did not stay long enough to exploit this aspect of their new discovery. Two centuries later, the first European wave of immigration swept over California, north from Mexico. The first of the newcomers were as hungry as their hosts, and occasionally it was the Indian, whose skills and generosity kept the European alive. Unfortunately, there were few Indians in the Point Reyes area who survived the "membership drives" put upon them by the Spanish soldiery, acting of course to bring them into the austere light of the mission compound at San Rafael. Following the secularization of the missions in 1834, to a few returned/their ancestral haunts on the Peninsula, and attempted to resume their legendary way of life. They found, however, that now their landward activities were circumscribed by agile men on horseback; they turned more to the sea for sustenance, following the vaqueros inland only when there was food to be gained. When, in 1846, Lt. Joseph Warren Revere, U.S.N., "Lately in Command of the Military District of Sonoma," wrote an account of an elk hunt on Point Reyes, in his Tour of Duty in California, New York, 1849, the first inhabitants of this area are the last to appear on the scene. Lt. Warren, with a mounted detachment had been pursuing some recalcitrant Californios, and stopped overnight at the home of Rafael Garcia, near the present town of Olinda. He goes on to report:

...we found, on rising next morning, several of the neighboring rancheros, who had arrived, on their way to the Punta de los Reyes,

for the purpose of hunting the elk, with which it abounds. Sending all my men, except two, back to Sonoma, I resolved to remain and witness the sport; and, getting fresh horses from Señor García, we started for the point. I observed that the Spaniards had no arms; but they pointed to the riata, the unfailing companion of all rancheros, and exclaimed, "este es el rifle del ranchero!"... On our way, however, I observed one of the party dismount, near a small grove, and selecting a straight light pole, take from beneath his sarape a crescent-shaped weapon, which he fixed to the top of the pole. This instrument they call, from its shape, the "luna," and it is used for hamstringing the elk, which then falls an easy prey to the hunter.

...Crossing a deep valley, up which I could not see for the mist, we surmounted a high hill, and I saw in a moment that we stood on an isthmus or neck of land, connecting a lofty promontory --lying right before us--with the main land. At the same time I discerned the sea on either hand, and heard the musical roar of the surf, as it tumbled ashore on the right. Suddenly one of my men exclaimed, in a low tone, "hush!" and, rifle in hand, dismounted for a shot. Following the direction of his glance, towards the promontory, I perceived a band of elk, which must have numbered not less than four hundred head of superb animals--the apparently cumbrous horns of the bucks thrown back on their shoulders, and the leaders seeming to hesitate whether it should be ^a fight or a foot race. Pacific councils, however, prevailed, and the whole body were soon in full retreat, the old bucks occasionally stopping to gaze at us, while the does and fawns made the best of their way up the slope....The rancheros seemed to despise the stealthy advance on foot of the Americans with fire-arms, and as the game could not escape us, being surrounded on all sides by the sea, except on that occupied by our well-mounted party of six men, they planned a mode of attack, which they communicated to us. Two of them gave their horses the rein with an "adelante!" and the noble beasts sprang forward in full pursuit of the now flying herd. At this season (August) elk are fatter than at any other, and cannot compete with the horse in speed; whereas, a couple of months later, the fleetest horse could hardly overtake them. Their speed was now inconsiderable, the rancheros soon coming up with them and scattering them in various directions. Our friend with the "luna" had hamstrung several of the poor creatures,

and his companion had entangled with his riata a noble buck which was plunging and tearing violently, the riata being at its greatest tension, and the little horse, to whose saddle it was made fast, standing stiff and stark, with eye-balls staring, and every nerve braced to meet the pulls and tugs of the elk; while the Californian sat coolly in his saddle, and addressing the elk by the familiar title of "cuhado," (brother-in-law), pleasantly assured him that he "only wanted a little of his lard wherewith to cook tortillas!"--a joke which the struggling victim was in no humor to relish.

...In the meantime, our friends on the point had not been idle, having taken toll of two more of the flock as they passed, one of which was caught with the riata by a Spaniard and an Indian vaquero, and the other shot by one of my men. It usually required two men with riatas to kill the animal, the object being to trip him up and then give him the coup-de-grace; but one man sometimes does it alone with a riata and lina, and there are rare instances where a single expert hand trips up the animal with his riata and then finishes him.

...

We proceeded to what was called the rancho, but on arriving found nothing but a broken down corral--passing on the way a herd of cattle so little civilized that the very antelopes were grazing amongst them. There was, however, a good cool spring of delicious water near at hand, where we made our bivouac; and the Indians now coming in numbers--like vultures, by instinct--brought in all our game, amounting to six fat elk....Our Indian friends were officiously assiduous in cooking the meal, and eating two pounds where we ate an ounce; and as I had fasted all day, I imitated my companions, and fairly gorged myself to such a degree that I felt much in the condition of an anaconda which has swallowed an elephant;...

...

The Punta Reyes is a favorite hunting-ground, the elk being attracted by the superior quality of the pasture--the land lying so near the sea, that the dews are heavy and constant, adding great luxuriance to the wild oats and other grains and grasses. The elk are very abundant at this season, and more easily killed

than cattle. We passed many places, on our way back, where mouldering horns and bones attested the wholesale slaughter which had been made in previous years by the rancheros of the neighborhood. I took a pair of the freshest and finest horns I could find, and put them on a led horse. They touched the ground on each side of the horse; but I was told they would not compare with some, under the arch of which--the points resting on the earth--the most profligate man in the world could walk uprightly with his hat on!

The land over which Revere and his Mexican hosts had travelled and hunted was not public domain, although with the exception of a few rudely built corrals, there was not a fence upon it. The ranchero himself was not always sure when it was that he crossed from his own property onto that of his neighbor. Since there was more than enough for everyone, why worry about boundary fences? The coming of the Anglo-Americans changed the situation. Within ten years after Lt. Revere's elk hunt, title to the land had come into American ownership, and subsequently, with the development of the dairy industry on the Peninsula, the elk disappeared.

With the coming of the Americans, hunting and fishing in the area became restricted sports. One poached, at considerable risk both to oneself and to the valuable dairy herds--a cow and a six-point buck are not readily distinguishable to the eye behind the illicit rifle, and the sound of unauthorized shooting makes hostile even the mildest and most hospitable rancher. The Marin County Journal of December 22, 1881, notes with sadness and some indignation:

TO CLOSE THE GATES OF EDEN.--We hear with regret that Messrs. Howard and Shafter will put locked gates upon the entrances to Bear Valley this season, and debar the general public from privileges hitherto enjoyed. They are compelled to do this by the vandalism practiced. Bear Valley is one of the most beautiful

natural parks in the world, and if its exquisite loveliness will not shield its bowers and grottoes from desecration, nothing remains but to exclude the barbarians.

Only a few sportsmen were allowed to revel in this paradise, and indeed a paradise it must have been. Payne Shafter, whose ranch lay at the entrance to Bear Valley, wrote a short essay entitled "Hunting in Marin County" for a promotional booklet published by the Marin County Journal in 1893. He describes hunting wild geese on the ranch tenanted by Capt. Josiah Swain, using an old and specially trained ox as a blind. He recalled seeing, as a boy, one Canada goose, "...carried over a man's shoulder by the head, and the tips of the wings touched the ground; this goose weighed twenty-two pounds." However, at the time of writing, these birds had ceased to stop at the Peninsula. Mr. Shafter went on to describe the hunting of snipe, ducks, quail, and the then fast~~ly~~ disappearing bear and mountain lion.

With the closing of Bear Valley, access to the Peninsula became available only by permission of the ranchers, except for a small group--125 in number--who had the wealth and position to join the Marin Country Club, situated in Bear Valley, two miles inland from the sea. The Club owned about 100 acres in the valley, and had hunting rights over several thousand acres of adjacent ranch property. At one time three gamekeepers were employed to protect the area from poachers; the lakes were stocked with fish--one lake ^{with} and land-locked salmon from Maine, another with New Hampshire trout, and a third with black bass. Moreover, according to a description of the Country Club in the same booklet that contains Payne Shafter's essay, "In the close season, when hunting and fishing are forbidden, members frequently bring their lady friends to the club house to enjoy the beauties and privileges of this sequestered paradise. To pass a week here is a treat, especially to those who have never know what mountain life was except as they have seen it at some public hotel or private farmhouse."

The Marin Country Club lasted until the mid-1950's; little now remains even to mark its location. The Bolema Club, a much less exclusive organization, now offers hunting privileges to a few sportsmen, but this use is still relatively limited.

Mr. Dan Miller of the California Department of Fish and Game, Marine Resources Operations, describes in a letter to the author the use of the beaches for sport fishing. Mr. Miller states that until 1960, the Peninsula could be classed as "not utilized" when compared to equivalent areas along the coast. Drake's Bay is not accessible to skiff fishermen because of the absence of a public skiff launching site. Skiff fishermen do fish in the Tomales Point area, taking several species of rockfish, lingcod, greenling seatrout, and occasionally, rock greenling and cabezon. A few skiff fishermen have access to the private launching facilities at Drakes Bay, and report excellent bottom fishing in the rocky areas near Point Reyes. Skindivers find the rocky areas off Tomales Point to be very productive, especially for red abalone; and clamming inside Drakes Estero is reported to be excellent, but lacking accessibility.

Because there are no public lands available to sportsmen, except the tiny areas at McClure's Beach and Drakes Beach, and because virtually the entire area has been in private hands for a century, exploitation of the Peninsula and its adjacent waters by sportsmen has been negligible.

THE 1906 EARTHQUAKE

The rift valley extending northwest from Bolinas Lagoon to Tomales Bay is part of a great geological feature--a fault line, or zone of slippage within the earth's crust--which runs through California from the Colorado Desert west and then north, parallel to the Coast Range to Humboldt County. On April 18, 1906, a portion of this zone--from San Juan Bautista to Point Arena--suddenly and violently ruptured, causing the famous and inaccurately named San Francisco Earthquake. The greatest concentration of population was in the cities bordering San Francisco Bay, and therefore the greatest physical damage occurred in this area, but the tremor was felt and damage suffered in the smaller communities from one end of the ^{rupture} fault line to the other. Perhaps the greatest geophysical effect took place in the rift valley between Bolinas and Olema, for in this area, the land on the west side of the fault slipped laterally northward from eight to twenty feet!

Within days after the earthquake, the State government and the University of California had formed a State Earthquake Investigation Commission, headed by Professor Andrew Lawson, of the University's Department of Geology. The Commission enlisted the best investigative geologists in the United States, and with generous help from the Carnegie Institution of Washington, D.C., published an extremely detailed report of the disaster. Dr. G.K. Gilbert, with many years of U.S. Government geological surveys in his experience, was assigned to observe and report on the effects of the earthquake in the Bolinas-Tomales Bay area, ^{and} his findings were included in the Commission's Report. Dr. Gilbert's manuscript is among the Andrew Lawson Papers at the Bancroft Library, University of California, and through the permission of the Director of the Bancroft Library, Dr. George P. Hammond, portions are quoted here at length because of its authenticity and because there are some differences between it and the published version.

OBSERVATIONS OF EARTHQUAKE PHENOMENA IN MARIN COUNTY

Made by G. K. Gilbert April and May 1906.

Itinerary.--April 26; By train, Sausalito to Ross; by carriage, Ross to Fairfax and Bolinas, returning by same route. April 28;--By train, from Sausalito to Point Reyes Station; by carriage to Inverness; on foot to Point Reyes Station; and by train to Sausalito. May 6;--By train, Sausalito to Mill Valley and West Point; on foot to Rock Spring and Dipsea, returning by stage road to West Point; by train to Sausalito. May 8-12;--By train, Sausalito to Point Reyes Station; by carriage to Inverness, Point Reyes Postoffice, Point Reyes Lighthouse, Inverness, and Olema; on foot, following fault line from near Olema to creek crossing near Point Reyes Station, and return; by carriage, from Olema, through Bear Valley, to within two miles of ocean coast, and return; by carriage and on foot, from Olema to Bolinas and return, tracing fault line; by carriage and on foot, to various points on the upland west of the head of Tomales Bay, returning to Point Reyes Station; thence by rail to Sausalito.

The Main Fault Line.

From the head of Tomales Bay to the head of Bolinas Bay there is a principal line of earth disturbance which may properly be regarded as the main line, and about which other disturbances are grouped....Usually through a belt from five to fifteen feet wide the ground is broken into blocks of irregular form but frequently lozenge shaped and suggestive of splintering...Wherever there are suitable objects for the determination of antecedent relative position, it is evident that there has been horizontal displacement along this lines of disturbance--the western wall moving northward and the eastern wall southward, and the splintering, or breaking of the wall into blocks, appears to be a result of this dislocation....At various points where the horizontal displacement was measured, it was found to amount to from eight to twenty feet....

Tomales Bay and Bolinas Lagoon occupy portions of a structural trough between conspicuous ridges. The intervening portion of the trough is a valley drained by Olema Creek and Pine Gulch, or Bolinas Creek. The general trend is northwest and

southeast. Of the bounding ridges, that on the southwest presents a steeper face to the valley, and its crest line is nearer to the valley than is that of the bounding ridge on the northeast.... The main fault line described above holds a fairly direct course from the head of Tomales Bay near its southwest side to the head of Bolinas Lagoon near its southwest side and is nowhere very far from the base of the southwestern upland.

...

Numerous land-slides occurred. Those which most intrude on attention were started on shore cliffs and on bluffs made by road cutting, but the more important in point of mass are on steep hillsides of the upland southwest of the fault. The land-slip is a normal and abundant factor in the physiographic development of that region, and the earthquake merely precipitated slippings that would otherwise have occurred at later and scattering dates. Two land-slides which I observed are of the mud type, and both occurred on the western slope of the western upland, their distance from the fault following a direct line, being two or three miles. In each of these cases meadow bog in a canyon burst its vegetal bonds and flowed for a distance down the canyon. The larger of the two flowed about one-half mile....

Several instances were mentioned [by informants] of springs and streams which received considerable accessions of water at the time of the shock, and in one or two instances the water was referred to as muddy. Near Dickson's Ranch a spring upon a steep slope descending from the west toward the fault discharged ~~too~~ so large a body of water as to clean out its earlier deposit of alluvium and redeposit it at the foot of the foot of the slope....

Besides the trees carried down with land-slides a considerable number were uprooted or broken. I probably saw fifty such. A few were broken near the ground, but more lost large branches and many spruces and pines had their main stems broken near the top.

Accessory cracks, secondary cracks, land-slides, and broken trees are all more in evidence on the west side of the fault than on the east side, and the destructive effects at similar distances from the fault are greater toward the west than toward the east.

The personal accounts indicate greater violence in a narrow belt immediately adjacent to the fault than elsewhere, but the evidence of intensity contained in injury to structures is no stronger within a few feet or rods of the fault than it is at a distance of one-fourth to one-half mile. Perhaps this fact is connected with the character of the structures. On the immediate line of the fault the buildings are all of the character usually found on dairy farms, namely, farmhouses, barns, and dairies. At a short distance on either side are the residential towns of Inverness, Point Reyes Station, Olema, and Bolinas, and it may be that the town houses are for some reason more susceptible to earthquake injury than the farm houses.

I append an enumeration of specific data illustrative of the preceding general statements.

Local Details

Measurements of Fault.--The road which crosses the valley westward from Point Reyes Station is intersected by the fault about one-fourth mile from the southwest side of the valley. The road is there on the natural levee of Paper Mill Creek, the creek channel being north of it and a marsh margining it at the south. The road bed is raised by an embankment three or four feet high. The fault is represented by a zone about sixty feet wide crossing the natural levee, the road embankment, and the marsh. This zone is depressed below the general surface....The road embankment has now been restored to its full height, but when I first saw it, there was a descent of three and one-half feet to the fault zone from either side. Standing just west of the fault zone I aligned myself with one of the wheel-tracks of the road on the east side and then measured to the corresponding wheel track on the west side, finding the offset to be twenty feet. As the two points of road compared are separated by the fault zone of sixty feet, the measurement is subject to some qualification, but I do not think that any possible swerving of the road could give more than one or two feet correction to the measurement....

Skinner's Ranch is on the road from Olema to Inverness, about one mile north of Olema....The entire fault is there concentrated in a single narrow zone less than ten feet wide, and there are many objects that are conveniently located for the determination of the throw. My measurements ranged from fourteen and one-half to sixteen feet. A post said to have been opposite a point on the dairy building is now sixteen feet farther south-east. A row of raspberry bushes in the garden, distinguished from other rows by association with some rows of onions, is offset fourteen and one-half feet. A path in the garden said to have been formerly opposite the front door of the house, is now fifteen feet out of place. A fence bounding the cow yard on the south is offset fifteen and one-half feet.

...

Near Dickson's Ranch, about two and one-half miles south of Olema, the throw, as shown by an offset fence, is about eight feet.

At Beisler's, midway between Olema and Bolinas, the fault is in two parts, of which the western has a throw of six feet, and the eastern of two feet, with a total of eight feet.

In the valley of Bolinas Creek, near the point where it turns westward and enters the canyon in the western upland, a fence is intersected by the fault and thrown eight and one-half feet....

At a point nearly opposite the head of Bolinas Lagoon a well beaten cow path is intersected at an ^{angle} ~~angle~~ by the fault and offset by an amount not less than six nor more than eight feet.

Details Along Main Line of Fault

...

At Skinner's Ranch the fault passes within about ten feet of the house, within two or three feet of the dairy and runs under a portion of a large cow barn. The house stands southwest of the fault line and is on the block which moved northwest, and the house itself was shifted northwest with reference to the ground. A granary standing one hundred feet farther west than the house was shifted southward about three feet....Movables in the buildings were thrown about with violence, dishes, etc. were broken, but no

building was destroyed, and at the time of my visit, the house had been partly repaired and was occupied. A circular water tank standing on a trestle about twelve feet high and approximately one hundred feet northeast of the fault was uninjured, and seems to be absolutely undisturbed. In the barnyard, which was traversed by the fault, the cows were assembled and several men were engaged in milking. Cows and men were all thrown to the ground, the direction of their fall being northeastward and away from the fault.

Payne J. Shafter's place is south of the Skinner place and opposite the village of Olema. The fault passed near the house and farm building, traversing alluvium which is probably supported by bed rock at a short distance below the surface. I visited this place at dusk, and report chiefly what was told me. Here also men were milking and were violently thrown to the ground along with the cattle. Buildings were much damaged, but were being repaired and used. Mr. Shafter estimated the horizontal throw at twenty-five feet, but this estimate I did not verify. During the earthquake a cow fell into the fault crack and the earth closed in on her so that only the tail remained visible. At the time of my visit the tail had disappeared, having been eaten by dogs, but there was abundant testimony to substantiate the statement. As no cracks were seen in that neighborhood large enough to receive a cow, it would appear that during the production of the fault, there was a temporary parting of the walls.

...

Inverness

...The village occupies two valleys normal to the shore, and a mesa between them. The valleys and the mesa are traversed by many cracks. The directions of cracks of the mesa are irregular. In the valleys they are somewhat related to the topography, showing a tendency when near the valley walls to turn parallel to them. Along the bluffs facing the bay were many land-slides; so that much work was necessary to reopen the shore wagon road, especially that portion of it connecting the two valleys of the town. In fact the portion of the road between the valleys was so completely buried by land-slides that a new road was made having a

different grade from the old one. About half the houses of the settlement were shifted on their foundations....A few houses in the southern of first valley near the beach were demolished or so badly injured as to be torn down. The same may be said of a few others situated on the mesa....It is related that a number of persons were thrown violently from their beds, but there were no serious injuries. ...

Olena

The village of Olena is about one-half mile east of the fault and stands on hill slopes of the tertiary formation. Mr. Pease's house was shifted south about two feet, falling from its supports. I was told it was so racked that it would be torn down. A neighboring piece of alluvial land sank about two feet. The hotel owned by Mr. Nelson was somewhat racked, but not shifted. A house next door moved two and one-half feet to the northeast. A house opposite moved two feet to the northwest. A stable leans to the south-east. Another house opposite fell from its supports, moving southwest. Another house and a large barn moved to the southwest. A church behind the hotel moved three feet to the west-southwest, that direction being down hill. Probably one-half the houses in the town were not shifted from their foundations. Of those which were shifted a number were so badly injured as not to be occupied, and some of them will doubtless be torn down instead of being repaired. A lady living in the hotel related that she was thrown from her bed by the shock.

Bollinas

The portion of the peninsula about Bollinas is a gently sloping bench rising toward a bluff two miles to the northward. This bench is trenched by the drainage. Bollinas Creek occupies an opening one-fourth mile wide in which it is building an alluvial plain. There are a few houses on that plain, but the principal settlement is near the mouth of the bay....Nearly all the houses situated on the alluvium were either shifted more or less on their foundations, or else thrown from them, and are out of plumb. There was great destruction of furniture and other breakable articles. In some cases people were thrown from their beds, but none seriously injured. The injury to houses was greatest along the shore of the

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lagoon. Three buildings were tipped toward the lagoon so that their lower edges came within reach of the tide. These and a few other buildings were so badly racked that no attempt was made to repair them, and they will be or have been torn down. Houses not standing on the alluvium, but situated on firmer ground at the edge of the valley or on the bench above, were not shifted, and in a few instances their chimneys were not thrown down....

From Inverness to Point Reyes Lighthouse

I drove over this road in both directions, diverging at a few points and spending a night at Mr. Claussen's, about seven miles from the lighthouse. Within two miles of the shore of Tomales Bay a number of large cracks were seen. One of these was traced on the ground for about a thousand feet, its course being irregular, but with a general east-west trend. Road cracks were abundant and many of them of such magnitude as to require avoidance in driving. Point Reyes Postoffice is at a ranch seven miles in a line from the shore of Tomales Bay, and at the head of one of the branches of Limantour Bay [Drakes Estero]. The principal residence building was shifted two feet westward, thrown from its foundation of props, and was so badly wrecked that it may perhaps not be repaired....At the next ranch to the northeast the only damage visible from the road was the injury to chimneys, and at a ranch west of the head of Limantour Bay two chimneys are still standing. At Claussen's the motion was violent. Mr. Claussen, being out of doors, was thrown down. Some cows also were thrown down and the herd stampeded....Chimneys were thrown down, plastering cracked, furniture shifted, and many dishes broken. A picture was reversed so as to hang face to the wall. The cows are said to have been uneasy in the corral before the shock. It was noted that the dogs sometimes barked before the occurrence of one of the after shocks.

At the U.S. Life Saving Station, on the coast three or four miles from the lighthouse, brick chimneys were broken, but not thrown down, furniture was moved, dishes broken, and the filled ground about the house settled several inches. A mast standing in the sand was said to have been heaved up several feet, but

Its position had been restored before my visit. My ^{informant} information said that he was standing when the shock came and sat down to avoid falling.

At the Point Reyes lighthouse the heavy mechanism controlling the light was shifted several inches on its base. A lens "jumped" from its ways. It was so held in place by dowell pins that its movement required a lift of about two inches. The only injury to buildings was from the cracking of chimneys. Wooden tanks with water were not shifted. One of the lighthouse keepers stated that after the shock he looked from the window of his room, which commanded a portion of the sea near the beach, and saw the water "boiling," but there was no change of the nature of a wave.

Bear Valley

I drove from Skinner's ranch southwestward through a pass in the upland, covering two-thirds of the distance to the coast, and reaching a point about three and one-half miles in a direct line from the fault. The most striking evidence of violence was shown by trees. A few were thrown down, including oaks and spruces; branches were broken from others; and some spruces had lost their tops. Most of these phenomena were seen within half a mile of the fault. In the same region are a few summer cottages, with sustained little injury, only the fall of chimneys being noted. The club house of the Country Club, situated about one mile from the fault, lost chimneys, but was not shifted. One of its barns was wrecked, falling down hill in a southerly direction. In this region I saw only a few cracks other than road cracks, and the road cracks were unimportant.

West of Bolinas

Driving two miles west of Bolinas, and looking at buildings from the road I saw very little evidence of injury. At a distance of half a mile from the fault a chimney is broken at the roof but is not on the ground.

The Upland Southwest of the Head of Tomales Bay

The general divide of the peninsula is here quite high, and is approximately two miles from the fault line. It is traversed

by numerous cracks, some of which are of such magnitude as to make the road impassable previous to repairs. These cracks are not associated with alluvium, but traverse the ridges at all heights and in all directions. Road cracks are numerous and large. A considerable number of trees were broken or up-rooted. There are few houses in the district. The only ranch visited, known as the "Sunshine Ranch" and occupied by Mr. George A. Silver, has suffered as severely as the houses of Inverness and Bolinas. The house moved southwest three feet, and was badly racked; the dairy was thrown from its foundation and wrecked beyond repair; and the barn, a large building, fell northward down hill and collapsed, so that the roof lay on the ground.

There were many land-slides in this region, most of them being on steep hill slopes and involved considerable dry material. Two others occurred in canyons of moderate grade, and the material was wet mud, which previous to the sliding had been accumulated under bogs.

Dr. Gilbert's report indicates that widespread structural damage did occur, as might be expected in an area of such violent displacement of the earth's crust. Undoubtedly the resilience of the frame-constructed buildings was a large factor in the survival of so many. And finally, it is to be noted that Dr. Gilbert reports only one fatality--Mr. Payne Shafter's cow.

THE ESTABLISHMENT OF THE OVERSEAS COMMUNICATION FACILITIES
ON THE POINT REYES PENINSULA

On December 23, 1931, radio-telephone communication was opened between the Hawaiian Islands and the mainland. On the island of Oahu, a transmitting station was erected near Kahuku Point, with an antenna designed to "beam" on the receiving station at Point Reyes. The mainland transmitting station was located at Dixon, in the Sacramento Valley, with its antenna directed at the Hawaiian receiving station at Koko Head. The Pacific Telephone Magazine of January, 1932 reported that:

The Point Reyes receiving station building is located in a treeless expanse of wild country near Drake's Bay, where Sir Francis Drake landed during one of his forays in the Pacific 352 years ago. The location of this station, and of that at Dixon, was decided upon, after a survey which covered the entire Pacific Coast of the United States, as the best for the purpose at hand.

The land where this receiving station, was established known now as the "RCA Ranch," had been the property of Mr. James McClure, who had himself purchased the property less than ten years before. McClure was apparently reluctant to sell, for the Book of Deeds in the Marin County Recorder's office in San Rafael shows an Order of Condemnation of the U.S. District Court, October 14, 1929, ordering the transfer of the property from McClure to the Radio Corporation of America, the price being \$127,000.

This communication by voice over the ocean was a milestone in the history of radio. Only two years before, the Atlantic had been bridged by radio telephone, and subsequently, in 1933, direct service, in which the Point Reyes installation was involved, was established between San Francisco and Sydney,

Australia. By 1940, subscribers of the Pacific Telephone Company were linked to over 90 percent of the world's telephones.

FISHING INDUSTRY IN DRAKES BAY

Drakes Bay has been important to the ocean-fishing industry of California, both as a harbor of refuge and as a receiving point, for many years. Salmon fishing was confined to netting in the rivers until the development of trolling techniques in the 1890's; following this, the exploitation of the grounds of the Gulf of the Farallones began. The trollers used Drakes Bay first as a harbor of refuge, and then the whole-out salers in San Francisco began to send/buyer-barges, equipped to prepare the fish for market. The barges anchored in Drakes Bay, depending on delivery boats to take the catch to San Francisco.

Shortly after World War I, two wharves were erected by fish wholesalers, and another wharf was added later. Delivery boats continued to bring much of the catch to market until the opening of the Sir Francis Drake Highway. Now all of the catch comes to the city by truck. This arrangement, whether buyer-barge or landing wharf is a logical and economic one, for it eliminates the necessity for the trollers themselves to make a journey of several hours to deliver their fish, and it permits them to stay that much longer on the fishing grounds.

The catch consists of salmon, caught by trollers, and bottom fish such as sole and other flatfish. The latter are caught by drag boats, now operating over depths of as much as 400 fathoms--2,400 feet. Virtually none of this catch comes from Drakes Bay itself; the importance of the bay is its proximity to the off-shore grounds. The waters adjacent to the Peninsula abound in shell-fish, and some commercial exploitation is carried on. The crab catch--taken both from the outer beach and from Drakes Bay has,

In good seasons, exceeded half a million pounds per year. For many years, oyster beds have been maintained in Tomales Bay, and recently the Drakes Bay Oyster Company with beds in Drakes Estero has exceeded the production of Tomales Bay. The oysters are a Japanese variety, the seed being imported from Japan because the local conditions are not suitable for propagation. There are other varieties of shell-fish in these waters: clams in Drakes Estero, and abalone in the rocky area around Tomales Point, but these are exploited only by sports fishermen, and that only to a limited extent.

THE RISE OF INVERNESS AND BOLINAS AS RESORTS

The town of Inverness was laid out by James McMillan Shafter in 1889, with the intention of establishing a resort area on the west side of Tomales Bay. Mr. Shafter's daughter, Julia Shafter Hamilton described it in 1893 as follows:

Inverness includes 640 acres of the 3,000 which lie along Tomales Bay. Of an undulating character, beautifully wooded, its charms must be enjoyed to be appreciated. The water of Tomales Bay is several degrees warmer than that of any other watering place on the coast: boating, fishing and all the sports of rural life are here enjoyed to the fullest extent. Nearly one thousand campers were here last summer, and it simply needs capital to develop the place. The tract is surveyed and subdivided, and has a small hotel on the grounds.

Before the advent of the paved highway, Inverness was reached by train from San Rafael to Point Reyes Station, and by hired team from the latter place. Later, a stage service was established between Point Reyes Station and Inverness, and subsequently, a bus was installed to bring train passengers to Inverness, and particularly to Inverness Lodge, which for many years was the only public facility available for the accommodation of guests.

By train and stage it was not possible for a family to come to Inverness, to enjoy its beaches, and to return to the city in the same day. Now, the highway and the automobile can enable anyone from San Francisco or Oakland to travel to Inverness in less than two hours, and with the establishment of state parks along the shore of Tomales Bay, Inverness itself becomes less a goal for over-night travelers and more an area for the building of summer homes, and for the Day-Only type of parks.

Along with Olema, Bolinas is one of the oldest settled areas in western Marin County. The stands of timber at the head of Bolinas Lagoon brought about the establishment of a lumber industry early in the 1850's. The editor of the Marin County Journal toured the area in May of 1865, and with the tongue-in-cheek writing of the time, described three small communities: Dogtown, Greaserville, and Jugville; the latter is, according to the account:

...the port of entry to Bolinas. From 10 to 15 vessels are running to this point. Here are the warehouses, owned by Mr. Rosenberg, wherein is deposited the vast amount of freight awaiting shipment. Mr. R. has a saloon adjoining his warehouses, in which is the Post Office. The Petroleum Hotel, kept by Mr. Lacey, is a fair specimen of country hotels--with bar and reading room--the latter well supplied with newspapers and periodicals for the benefit of frequenters of the house.

The article mentions industrial activity of one sort and another, copper mining, lumbering, oil-well drilling, and farming. Other than the above Petroleum Hotel and a hotel being built at "Dogtown," there seems to be little accommodation for travelers.

The beginning of the change seems to have taken place in the 1880's. A feature writer for the San Francisco Call, writing in August of 1888, refers to Bolinas as "a little corner of California, the name of which does not appear on the list of places which the tourist finds necessary to visit, neither is it known as a watering-place to which large crowds of fashionables annually repair."

At this time, Bolinas was served by two stage lines, one from Sausalito, and the second over the ridge from San Rafael. Intermittently for many years, small passenger boats braved the Golden Gate to bring the more adventurous from San Francisco to Bolinas by sea. By January of 1894, when a disastrous landslide destroyed a number of buildings in Bolinas, it is noted that several of them were summer homes of prominent San Franciscans.

Both Inverness and Bolinas can thus be said to have been established resort areas for the past seventy years.