Dall
1890-1
Astoria, Eugene Ore
Cal. gravelly Valley
of Cal. Livermore
1890.

Actoria.
Eugene.
Ont Arford.
Cal. Valley gravels.
Livermore valley.
Redding, Cal.
Susanville.
Smith's Point, Janny's Bar, Estacada and M. Villa, called the high hills on the side of the Columbia, head N. 50° W. N 1/4 N. end at entrance Columbia River head N. 98° W.

A 3 to 20 feet thick, yellowish-brown clay, entire, with irregularly rounded, more or less rounded, with gravel and some mostly sand, some fine, clay with traces of marl. Possibly also a few in last gravel; not regularly beded and penetrating into the lower bedding, 7 steps about 16° S. and about the same stope to 98° by S. 30° 30' to S. 15 ft. vertical at highest. Consists of a regular thin layers of clay, a bluish gray clay with white iron wad, 3 to 8 inches thick.
seriously as the surface droods. The layers contain little sand, some do not show any, but the difference as are apparent by the weathering and appear in their sequence to follow with a certain regularity. Here and there a little gravel is intersected in one of the layers and in these gravelly layers are also small fragments of involute shells, the most perfect being a small slightly concave snail, unrolled. The layers are formed by the shells of small, half, and large brachiopods. A few were also observed and a small, Wehelia, like the young of Trachum californicum. Occasionally in the upper layers of this formation the clayey layers have formed concretionary nodules in part fossiliferous. They are arranged in thin layers of a single series of nodules. These certain layers include some of the nodules of small size in one fragment.
...also carbonaceous particles and fragments of small to medium size, chiefly marine. The deposit under the small talus at the foot of the section, the beach of the river not far distant, is composed of the pebbles and small boulders of the Hand Sandstone from upper Cretaceous. These are also in this larger mass mounted small pebbles of a very hard, bright feldspar-granular rocks with the crystals or sandy schist. I did not determine

River Craggyl. At the same formation are scree stones, but larger (5) seems flint and the regularity of the deposit was much broken up. Not far as could be determined in the absence of any road or path at the foot of the cliff, which is fenced off into lots mostly which are built upon. The formation of the same all along the bluffs above the town which is largely built upon piles. The old U.S. Public building is at about the northern end.
of the front and on each side of this the tiers rise higher than elsewhere, perhaps 150-200 feet in all. Behind the slopes which have been graded and built upon there is on the west part of the bluff facing northwardly a fine section with thirty or forty feet of the grayish layers (3) exposed at an angle of 45°-60°, surmounted by as much more of the yellowish alluvial (4) which here and there descends in dykes into the clays. The clays dip about 26° SSE but are not measurable and in some places are broken down or have slipped off long crept. The alluvial (5) has crept over the clays on many slopes and where cleared away leave fine examples of slickensides. In Chenamus 4 a gradual slipping of a bank of this kind has pushed the plank road off at its base nearly two feet out.
It should be noted that in the upper part of the clays the fossil, or at least part of the tooth, seem to have been fossilized in a tufa cement, washed out and re-established in the clays so that between the valleys or on one side of a single one there will be dense sandstone while the fossil is otherwise entirely embedded in a dark waxy clay.

Hence, it itself is a tufa-like mass and on top of the ridge behind the town according to Prof. Candler there is a larger or group of inset fragments of which there forms on the beach, about one block west and on the south side of the street from the Union Pacific dock where a fire had burned away the foundation of the balloon and building. There is a very large red block ten or twelve feet wide and taller just high probably of soluble though it could not
out of it to test with the hammer.

The original bench at its base was
abundantly strewn with large
fragments of the same stone. I
worked carefully along as
much of the beach as I could
approach for concretions but found
some though formed of them were
a good many of them. They
were burned for lime in early
days. Live hogs knew the region.

As the bed from which they were
derived lay here, the birth of the

The water edge has long been
covered by plants and plants
into buildings, so that little
progress has been likely to take
place of late years into the
supplied in probably permanent
tap off.
Abelia apogaea (ex Matthews & Leff) was joined in conjunction of the Chalk washed out on beach at Astoria by Prof. Coleson and also at Elliott Bay & Balcom Bay. White legg of it at Bellingham Bay but did not see. Travelled from Swanson's River 12 mi. from Seattle, Tustinella, small by these, etc.,

- Reckeled from Astoria (exquantum) Miocene Cape Anges x Yacquina Bay.
- Reckeled from Swanson River 12 mi. from Seattle, Tustinella, small by these, etc.,

Big dike near from Rainsbridge bridge a few miles from Eugene. Also from Salem Oregon. Oregon, lokoile, shell cape sage. Eocene either from Eugene Miocene.

- Reckeled from Astoria (118) Cape Bay x Yacquina Miocene (all?)
North Umpqua River Forks
Melanopsis Like Shell, 3 1/2 mile east of Roseburg near Patterson Mill, Oregon

Pomphylus offside typical from
the river below the lake, Camas Lake,
Cottamia recente from the
same place. Calls Pink River
Cottamia fossa from Silver Lake Co., Oregon.
Plankton from Linne River.

Sandworm from Lighthouse at
Cape Blanco, Ore. 120 feet above
the sea-level at Cape Arago. Villa
longa and Charidicta Day where
they are only 50 feet above the sea.
Sandworm. Shells on jetty see
how further on in book.
Smith's quarry, East about mile from Chisnall. In Missoula
rocks with Mytilus Medusae, Mac
The Solen, Mytilus, Nucula, Cypria, &
Bivalves. Rock grayish sand firm
soft to quite hard, weathering yellow
all dipping SE by about 6° covered
by animal, upper layers broken
by lower ones most massive
with several lines of specially
fossiliferous rock flattened
with brushed fossils mostly
molds but some retaining thin
lime which has however been re-
crystallized into spar. Thickness
of rocks exposed about 37 feet
but not more than 20 ft. any
one vertical face visible
Spout mill bridge. Three miles E from Hereford.

E side of river begins just south of town about 1/4 mile. Deep channel between 100 and 200 feet, section being a little more towards W. The river. Big eddy forms near the spot I. go about a mile, measured thickness of the rocks from the eddy to the new bridge (1500 ft) to the point where the dip below the river and form a bar at low water about 160 feet. This is an excellent section of the Miocene which is here unconformably overlaid by 51-10 feet rivers alluvial. The largest sandbar just over the edge of the Miocene rocks. Top of hills capped by loam according to Peake's reports. The surface water drained by Miocene ravelly and has been.
eroded before the deposition of the gravel. The Miocene deposits appear all around the edges of the Klamath Valley except where they dip into deep valleys and abscesses by alluvial fans where they are advanced by basalt. They occur here at Coos Bay, where they form the landward slope of the seaward slope being formed by the edges of the Coos. The last deposits occur at the inlet at the mouth of the Coquille River where this Eocene forms the coast to where it is succeeded by the Miocene which persists to
Up to Port Orford the coast is composed of schist. The last swamp-like hill is at Port Orford. Between Orford & Blance one at the foot of the latter is a small stop of Mesora. Sixteen miles north at village of Dornants is a slate quarry in a metamorphic rock above which are 40-500 feet of what Prof. C. takes to be Eocene rock but which bears no fossils a sandstone some what altered in the central part of the field. There a low coast to the mouth of the Coquille but inland where the bottom is 570 feet or so, Cambrian phyllite has been found. Off the S. head of the Coquille are several solitare islands with salt-pans and brackish ponds. In the sheltered rocks between these is found quartzite about 50 ft. above the sea.
North of the Coquille the shore is barren until Cape Arago is reached. This is Eocene. Going inland at Rocky Pt. about six miles in, the Miocene begins. Across the entrance there are 20 miles of sand until the mouth of the Coquille is reached. Here is another large strand of rocks referred to by Prof. C. D. to the Eocene and supposed to be continuous with the known Eocene of the upper North Fork of the Coquille 20 miles E. of Roseburg.

The Miocene appears on the coast a little south of jagged rock Bay, without any Eocene until Ukiah is reached. Inland at the back of the Coast there on the tolyat reservation a fine Mollusk of the pompeiius type was collected. Probably Eocene at Astoria the Eoceneorro
ly appeared a bed with concretions amongst which alumina was collected. These were washed out on the beach and burned for some years ago. The loess has covered the old beach so they are no more accessible. On Shoalwater Bay it appears again. Here is a good exposure of the bed of the Shoalwater Bay about 200 feet above sea. At Gypsum is 1 mile from Seattle, there is a quarry in the Wahhatche valley from Coquille to Albany. The river is forced to run to that point by a fine Esmeralda Mountain mass near the Indian Cañada place which has been named. The hill country...
Union Co E. Oregon
E. slope of Wallowa Mt.
near Snake River

Large Vivipara
Melanaria, also Genusus
Lithana?

Near Powder River and the old Emigrant Road

Melanaria
Vivipara
Lithana antiqua
Small form like Lithana
The fossiliferous sandstone at Redding seem to be unconformably adjacent to the Mamelonville schists of the valley. Further up, Middle Creek, the valley which is narrow begins to widen, and its floor is formed by the irregular effects of the schists where the flood has laid them bare, above them is the coarse reddish gravel containing many well-sorted cobblestones. One third of the way so, from the Middle Creek Station to Redding, the schists come to an end and there is a series of somewhat compact beds shaly, the lower of which are sandstone, mostly a good deal thicker dipping to the S W. Over these lie the true coal. A timber front stands of young hard wood. Enough clay I let be gue
the mass stability, this bed is remarkably uniform in texture and grayish brown, broken as a rule, and showing no change of fossils. It is on the whole more horizontal than the sandstones and clays, and never exceeds half a mile of the section over it are the same coarse gravelly which cover the rocks, but here the gravelly seem almost a grid conformable to the strata. The fossils collected were chiefly at the first outcrop of sandstone on the middle cutting west of the track on the way from Redding to Middle Bridge. They do have any of the forms of the shells preserved a Volki Wattle or allige shrub much resembling mint only externally, rather long and very especially succulent, shows the most.
Sedanville Cal.

Mr. Fritz found impression of radially bi-valve perhaps Rhynchonella on a small slate pebble in the gravel of the bend of the valley above Stanley Brown's camp near the Yours house.

He also has mass of Tertiary shell rock with Acita-like castaneous or phyllic area.

Trigonia!

Cymula?

Ctenura

Aedoeon etc.

from Minakow road, Butte CO 20 miles SE of Chico, Colo.
Stockton, Cala.
Jerome Havens 1879

For many years devoted to being assessor, rails in the valley for water, oil, gas etc. and has prof
ably done for more of this work than any other man in the State.

In going in the valley away from the vicinity of the foothills the strata vary where there is great
improvement. The consist of clay and loam, the beds of clay getting relatively thicker as they descend the
beds of sand usually 6-8 feet thick remaining unchanged while the
clay will sometimes attain more that 100 feet without a break. The
layers are perfectly horizontal off right angles to the axis of
the core. Gravel is rare. Off about 200 feet in Stockton there
is a layer of which the jumbles reach the edge of cobbledstones. This
Lake at the well in the Cowhouse yard is about 50 feet thick and also at the Hawes gas well, but laterally, from a line drawn between these two, it diminishes in thickness and merges out to a few feet at the distance of a few inches from this side. From this to about 400 feet there are mainly alternating layers of clay and coarse sand. About 400 feet (Hawes gas well) there is more peat with small gravel usually, rather small muck, 5/8 inches in diameter, mostly quartz or clay pebbles; usually with a thin black coating of iron oxide but occasionally without it. The greatest depth not bored is about 2100 feet but one rock was yet encountered at that depth. At 1500 feet the water begins to be done. Shot Salina contains magnesium, salt, and some impurities beside bubbles of
gas such trees of pteridum, the 1400 feet there is less salt, but very perceptible to the taste. The water has a temperature of 90°. Below the gravel it becomes more saline again. It is not potable below 1100 feet. 20 miles east from St. Croixville at the edge of the forest hills it about 200 feet thick. A layer of water-stone granite-colluviolites in a volcanic matrix, after being through this one 100 feet, came to gravel 100 feet, as in the valley and got no more rock in that horizon which was saved so even of feet. The gravel is breccialite or the flint. The sand and clay from the hilly side is different in texture and color from that in the Coast Range. On the river, Bath at the hotel side after passing through about
Five feet of Coast Range debris the hill comes to near gravel and thereafter continues in it, showing that the latter underlies the Coast Range talus. At the southern end of this valley the floors of water are larger, plumper, and more powerful than in the northern part and the drainage is so gradual that Mr. Howard thought that the artesian water of the valley proceeds more from the south than from any other direction. No fossils are found in the valley benches. Here she found a special shell when gravel near the foot Valley. Small bugs and particles of wood are occasionally brought up but no large pieces. The bedrock nodules of the clay are sometimes perforated with holes like the burrows of some
animal. These tunnels nearly larger than the little tuyere were sometimes coated with a limy deposit internally.

At about 1300 or 1600 feet a limy or alkaline layer, quite thin, was sometimes passed through. (Specimen.) Some pebbles from 1400 feet (specimens) were evidently rainworn or are mostly angular. The water from this depth has a slightly mucky taste and it sides off to the right then it becomes almost clear and of a pale prismatic tint or jade.

The conclusions from these data are that the valley as an estuary is older than the volcanic conglomerate and than the present elevation of the Coast Range. That deposits first from the streams and subsequently also from the Coast Range have
fire on continuously and without material change of the setting up the detached shots, though they may have struck the summit. One of the volcanic conglomerate did not interrupt the general detrital action which may even be said to be going on still. That during this deposits the valley was a fresh water lake or estuary which failed to sustain marine life, or at all events was not favorable to its existence, and at the same time afforded no suitable conditions for prehistoric shells.
Livermore Valley
Oct 7 - 6/11

The Livermore valley is the long valley of the Coast Range north of Mt. Hamilton, and unlike most of the valleys of this range is well suited to agriculture requiring no irrigation. The rainfall about 12 inches.
The entire valley, which is bordered through half its length by San Francisco Bay by the meandering Alameda Creek. Within the valley there are a large number of creeks each draining a smaller valley or canyon of its own.
The southern extremity is the Arroyo del Viento which is changed by a permanent stream into a small round bottomed valley, from which there is a small serious passage into the Livermore valley proper. Here the
hills are composed of miscellaneous sandstone and gravelly slate. The lower layers near the bed of the creeks are composed of river pebbles mixed with vein and broken micas, shells, oyster, Venus, tapes, and oyster-like bodies with an occasional banded sand. The mass is cemented together with many small quartzite pebbles, worn smooth. The rock is very hard and the material clearly the compacted result of the beachwear, marine, fragment, and gravel of streams. It lies a good deal twisted but the station composed of them conformable with those above. The dip is entirely variable but on the whole the strata dip eastward from a few to nearly 30 degrees. A mile or two up the escarp.
we come upon a mass of much crushed and contorted schist, cut at every almost quartz and jasper veins of various sizes. These quartz veins furnish the pebbles found in the later sandstone and clayey layers, together with cobbles composed of the harder parts of its phyllite rock. The sandstones lie unconformably against and over the schist, somewhat as at Redding. The lower layers as described are full of worn fragments of shell but more in thin flat scale shape condition or position. The upper layers vary in composition, but are more largely sandy, and with miscellaneous sandy concretions surrounded with thin layers of iron oxide, and here and there vegetable remains but
very few green slate pebbles and practically destitute of fossils. The layers are of various thickness and succeed one another with something like regularity. The upper layers are frequently pale greenish or bluish white, with a little more blue internally. They weather easily and frequently expose the iron from within. Here and there are many layers of lenticular masses which intercept the iron and are often much harder than it. The uppermost beds as a rule become somewhat more horizontal than those below and above them all. Unfortunately, the great extent of layered sandstone, soil, and pebbles of all sizes up to cobbles, not only...


The wealthiest concentrations of the underlying rock strata are the beds of the brooks are full of the gravel and pebbles which were just derived from the hillsides, but which have been utilized more or less in the subsequent strata and may have been worked out from any of them. The bases of the spurs of the hills have often almost wholly comprised this gravel, the finer material having been carried away. The flat part of the valley to the west is largely composed of brown earth, belonging to the uppermost bed described above, with vegetable loam. Further north than this is on the valley and on many of the foothills a very deep layer of the detrital "black aderr," a black clayey...
learn which is very soft and
in wet weather forms an al-
most impassable mass, and
in dry weather shrinks and
cracks in all directions.
Its microscopic granules of
which the hills are chiefly
made up attain a thick-
ness of several hundred feet
without any duplication being
computed in.

The Tessague Creek flows
westward from the flanks of
Mt. Diablo and with its
tributaries about ten or twelve
miles northward from the
same. This creek was followed
for eight or nine miles up to
its headwaters in the hills. It
issues by the junction of two
forks from a meandering cove on
the SW flank of Mt. Diablo. Some of
the springs which fed it are
imprisoned with sulphurized
Maroon and give off fumes of sulphuretted hydrogen. 

Bush at the entrance. The 

Valleys are nearly vertical, 

The dip being towards Mt. Bells 

Further away from 

The mountain the dip 

which bounds the valley 

To the south is composed of 

strata which dip towards the 

mountain at right angles to 

The axis of the dip from 35° 

to 45° defines the dip decreasing 

distally. At the entrance of 

the valley to the mouth. The 

strata most prominent are 

compact and friable con 

glomerate of river pebbles 

with very little fine material 

containing occasional rounded 

fossils. Such as the lining shells 

of Ostrea. The material came 

in blocks and masses into 

fantastic shapes formed up to 

In the right side of 

the valley.
of the road is a section of some of the whitish sandstone [fine and non-fossiliferous (specimen)], it weathering yellow or white or pale greenish and appears below in the valley at each side as a well defined rock line, at intervals. After passing from the canyon, the Tonto same flows through a flat alluvial bottom of material removed from the adjacent hill deposited in nearly horizon tal layers and covered to a considerable depth of soft black alluv. Though this material is sparsely scattered worn gravelly debris from the sandstones mostly involved. Summarize about the locality of this creek according to Dr. J. G. Cooper, some years ago.

patio having some fresh...
wells mark, the hills, according to Stearns, offering some rather remarkable peculiarities. The Cooper supposed to be Pleis- tocene, and my trips involving some 45 miles of driving and uninter-ruption in the hope of a discovery that had not fore-warded of a more specific location we did not suc-ceed in finding the mark which might have been subject to a small area.

The Tepetilla cuts a very deep channel in the alluvial soil, sometimes thirty or more feet below the surface of the alluvial plain. The channel runs westward in many places. At this bank, ten or more feet high, stands a black adobe, through which often hills and the rest of the land, and possibly lagoons, the bed of the creek being sometimes cleared by the hoarse wind.
This valley is the next N.E. from Arroyo del Valle and is separated from it by a high divide. The lowest part of it, though not as much like the Arroyo del Valle, the rocks being apparently all of the father sandstones. About nine miles from here more of the road gradually ascends a little to the north of the S.W. divide. The summit which is of an extremely soft sandstone or sandy soil, which gives way where the rain runs off, suddenly exhibits the beehut, which had previously occasioned in a side edition of the Arroyo. They are in a round or circular shape and above gradually into a subterranean cavity length.
The presence of lime in varying degrees makes the earth phosphatized, and from fissures in them at about ten miles from Guerneville on the upper springs of Agua Vieja, owned by Mr. Allender, circular analyses and supposed to be useful for kidney disease. The sample of lime is 3% just above the sea, above the wharf the clayey stales become in places the color of clay. I observed no fossils in them.

My opinion

This branch of the Avenue del Valle extends eastward from the latter and presents on its left side some interesting effects of erosion by rain upon a very soft sandy rock with layers...
2 underclothes
2 shirts
2 drawers
2 socks
6 hosiery
3 pr. cuffs
1 collars
1 scarf