

HANDY
NOTE BOOK

DIARY.

of Willits Brothers,

Boat Builders,

3719 North Washington Ave.,

Tacoma, Wash.

Earl C. Willits—Floyd C. Willits.

1910.

January 1.

Went to work at 8:30 A.M. and worked on the form until 3:00 P.M. We then conducted an experiment with a water propeller. We discovered that there is considerable power coming from this means but do not as yet know how much. In the experiment we used a garden hose with one end attached to a faucet and the other end fastened to a model boat in a bath tub.

Sunday, Jan. 2.

Floyd and I were invited to Charlie Cooper's for

New Year's dinner.

Monday, Jan. 3.

Bought three sheets of black iron at A. F. Cizek's for \$5.20. We both went out to the shop and put all the remaining $\frac{1}{2}$ " strips on the form, and planed the boat down. We quit at 9:30 P.M. and ate supper after we got down town.

Tues. Jan. 4.

We did not go out to the shop. I ordered Frank Sanders to take our metal out for us from Cizek's and paid him 75¢.

Wed. Jan. 5.

Did not work.

Thurs. Jan. 6.

Worked from 3:15 P.M. till 7:00 P.M. Sawed the form into three sections. Got started on the three-cornered pieces. Ate supper at Dwight's. Electric lights went off and prevented us from working in the evening after supper.

Fri. Jan. 7.

Arrived at the shop at 3:30 P.M. Showed the shop and our form to Ray Phillips. He was well pleased with the boat but thought the people would not pay much more than \$80. Worked on the three-cornered piece and the drawings of the bow pieces.

Sat. Jan. 8.

Arrived at the shop at 7:30 A.M. We worked until noon in the shop. Floyd worked on the three-cornered piece and I finished the drawings of the two pieces and made patterns for the three-cornered piece. After lunch we went downtown to look around for a pump with which we might conduct another experiment. At an Implement Co. at 15th and Commerce they had a force pump that might answer our purpose. The price was \$16.25 brass lined. At Cabell Brothers we found a test pump for \$12.50 that we thought might

be good. It is capable
of developing 1050 lbs. pressure
by one man. Gave the
proposition, considerable
thought in the evening at
the library and in the
room.

Sun. Jan. 9.

Spent the afternoon at
the library looking up
hydraulics and ship
building.

Mon. Jan. 10.

Arrived at shop at 3:15 P.M.
and worked till 7:30 P.M. I
worked on the drawing of
the decks and gunwales.
Floyd finished one three corner
piece and started another.
Ate supper at Dwight's.

Tues. Jan. 11, 1910.

Floyd went to work at 3:00 P.M. and worked until 7:00 P.M. He finished a three cornered piece and made some patterns for the bow pieces. I went down town and saw Biggs and the expressman about some steel. I arrived at the shop at 4:00 P.M. and worked until 7:00 P.M. on the drawing of the gunwales and decks. We ate at Dwight's.

Wed. Jan. 12.

Floyd did not work. I arrived at the shop at 3:10 P.M. and worked on the drawing of the gunwales and the decks until 6:30 P.M. I

ate supper at Dwight's.
Through Dwight, we learned
for the first time, of Mr.
Lane's idea, of propelling
a boat with air. The
expressman brought the
steel for our form.
Thursday, Jan. 13.

Went to work at 3:25
and worked until 6:35.
Started putting on the
steel on the form. Ate
supper at Dwight's.

Friday, Jan. 14.

I did not work
to day. I went to a lecture
on Public Health by Dr.
Kelley at high school.
Floyd went to work at
3:15 P.M. and worked till
5:30 P.M. He put a portion of

the steel on the form.
He bought 10¢ worth of
lath nails.

Saturday, Jan. 15.

Went to work at 8:00 AM.
and worked until 6:00 P.M.

Put some metal on the form
and had a business talk
with Dwight. Ate supper
at Dwight's. I mailed
a letter to Ruth.

Sunday, Jan. 16.

I went out to Dwight's
with Harry Phillips and
showed him our shop.

Floyd spent the afternoon
at the library. He learned
that authorities differ on
what propels a boat. He
was also convinced that
we can get a patent

on the water propeller.
He was reading Walker's
"Patents".

Monday, Jan. 17.

Went to work at 3:30 P.M.
and worked till 6:30 P.M. He
put some more iron on the
farm. Ate supper at Dwight's.

Tuesday, Jan. 18.

Went to work at 3:00 P.M.
and worked till 6:00 P.M.
Put more iron on the farm.
Ate supper at Dwight's.

Wednesday, Jan. 19.

Worked from 3:20 P.M.
till 5:45 P.M. Put more iron
on the farm. Ate supper
at Dwight's.

Thursday, Jan. 20.

Worked from 3:15 P.M.
till 6:00 P.M. putting on iron.

Friday, Jan. 21.

I worked from 3:15 P.M. till 5:30 putting on iron. Floyd spent the afternoon at the library looking up patents and pumps.

Saturday, Jan. 22

We worked from 7:45 A.M. till 7:00 P.M. We ran out of iron. Devised plans for springing the center section together.

Sunday, Jan. 23.

Nothing doing in the line of business.

Monday, Jan. 24.

Received a letter and \$55 from Ruth. Talked over business, went downtown and picked out a pump and paid for it. (12.5)

and ordered piping to go with it.

Tuesday, Jan. 25.

Went down town, and I deposited \$25. We got our pump and paid for the tubing etc. (\$2.25) We took the pump out to Dwight's set it up, and tried it. It worked well, throwing a good stream.

Wednesday, Jan. 26.

We worked from 3:15 P.M. till 6:30 P.M. Tore part of the center section to pieces. We fixed a contrivance to hold the hose with in trying our experiment with the water propeller.

Thursday, Jan. 27.

I went down to Old Town from school at 12:45 and rented a boat from the Old Town Boat house and rowed up to the foot of the cliff below Dwight place. Floyd went out to the shop from school and he and Dwight carried the pumps and apparatus down to the water front where they met me with the boat. We set the pumps in the boat and connected it up with a $\frac{3}{4}$ " garden hose fifty feet in length. We took the ^{water} into the pumps through an inch and a quarter pipe

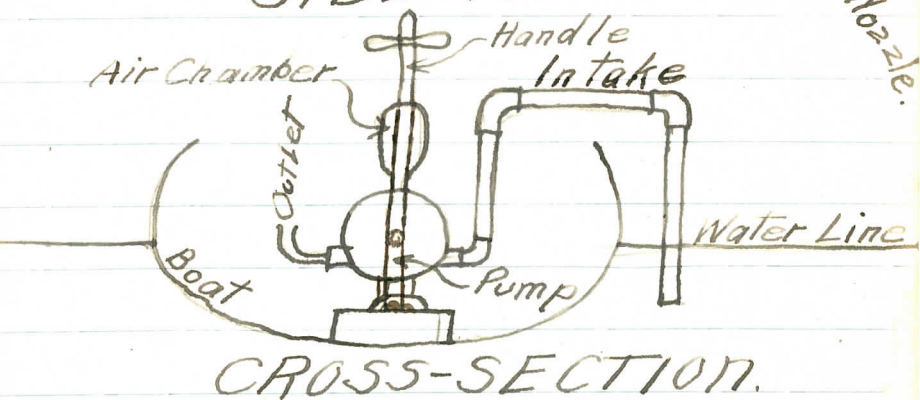
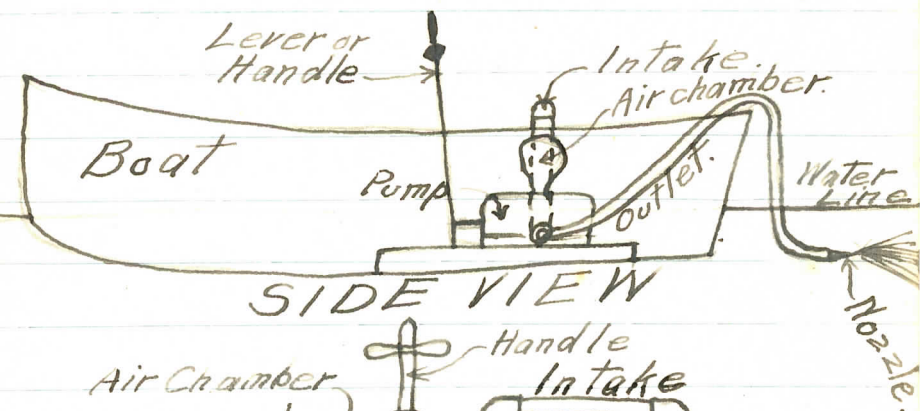
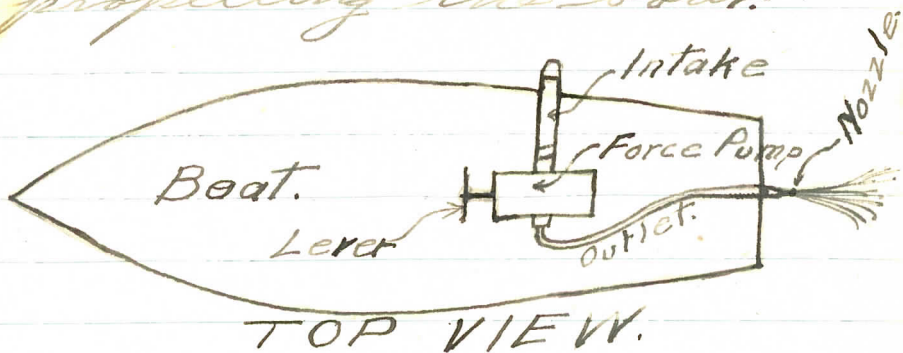
from over the side of the
boat. The outlet of the
pump was $1\frac{1}{4}$ " but we
reduced it at the outlet
to $\frac{3}{4}$ " so as to attach
a $\frac{3}{4}$ " garden hose. We
sent the water through
50 feet of the hose and
then out of a $\frac{1}{4}$ " nozzle.
We fixed it all ready
for operation, and then
rowed out in to the
Sound about a quarter
or half of a mile. I
held the hose in the
water at the back end
of the boat by means
of a combination of
wooden strips which
I had fixed up for the
purpose. Dwight and

Floyd took turns in operating the pump, but did not work, it together while we were out in the bay. We had no means of determining the speed we were making but we were able to make perceptible headway against a moderate wind. We attained such headway as to enable us to steer the boat with an oar, used as a rudder with ease and certainty. We maneuvered around for about a half of an hour and in the mean time a strong wind had picked up. By keeping the

bow into the wind with an oar at the bow we were able to hold our own. When we decided to go in closer we were about a mile from shore. We rowed to shore and tried the experiment further along Milwaukee railroad where there was not so much wind. We could detect a moderate current and there was a fair wind. We made progress against this wind and current. Dwight and F. Lloyd both worked the pump, but it rocked the boat so much that we could not work it.

very well. We tried it without the nozzle but it did not work well. While making the experiment there we were observed by a man walking along the track. We do not know how long he was watching us nor what he learned. He walked on after we first noticed him. We then landed and Dwight and Floyd took the pump and apparatus up to the shop while I took the boat back to the boat house. The following is a drawing of the method we used in

propelling the boat.



After we completed the experiment I went down to the library and began

a study of the patent laws and a study of engines and pumps.

After supper Mr. Lloyd and I both began the study and a good share of our time in the near future will be spent at the library.

Before we left Dwight he said he was willing to sacrifice ^{his} Regent's park lots in order to get some money and wanted us to make him a proposition. We made no proposition because we are not yet ready to make anybody an offer.

Friday, Jan. 28.

Floyd looked for a job in the afternoon and went out to Dwight's. I helped make out programs at school in the afternoon and spent the evening at the library studying on patents. The book on patents that we are studying mostly is: Walker on Patents - Fourth Edition.

Saturday Jan. 29.

We spent the whole day at the library looking up patents that were similar to Floyd's idea. We looked up 88 patents and found several that used our same

principal but they were
all more complicated
than ours in their
operations. We de-
cided to let ours go
for a while but may
take it up later.

Sunday, Jan. 30.

Nothing doing in par-
ticular.

Monday, Jan. 31.

Floyd looked for a
job in the morning.
We both worked all
afternoon. We tore
the center part of the
farm apart and began
to construct it over
again.

FEBRUARY.

Tuesday, Feb. 1.

Floyd worked all day.
I worked from 1:00 P.M. to 5:17 P.M.
We went ahead with
the construction of the
center section of the farm.

Wednesday, Feb. 2.

Floyd worked all day
and I from 1:00 P.M. till 5:45 P.M.
We went ahead with the
construction of the center
section of the farm.

Thursday, Feb. 3.

Floyd looked for a
job part of the day and
work the rest. I worked
from 3:15 P.M. till 4:30 in
the shop. We went ahead
with the construction of

the center section of the farm. At 4:30 P.M. we went down town with the pump, we bought recently and sold it back to the man from whom we bought it including all fixtures for \$10.⁰⁰.

We bought some bath nails, sheet metal, wrapping paper and a journal. I spent the evening transferring from the note book into the journal.

Friday, Feb. 4.

Floyd worked all day.

He oiled a considerable amount of wrapping paper for patterns. He also cut out the two inside pieces of the

saws. I did not go out to the shop, but went down town, and bought some clamps and then bought a ledger, and went home and transferred notes from our note book, into the journal, completing the task about 9:45 P.M.

Saturday, Feb. 5.

We both worked all day. We finished the form all up, and started the canoe. He endeavored to bend one of the bow pieces, and broke it.

Sunday, Feb. 6.

He went out to look at Papa's six acres of land.

We were well pleased
with his buy.

Monday Feb. 7.

Floyd looked for a job
and got one with Frank +
Hanson. He joined the
union. We both worked
from 3:20 to 5:45. We
experimented in bending
the inside strips.

Tuesday Feb. 8.

Floyd worked for F. + H.
I worked from 3:15 to 6:55.
I made part of the steam
box.

Wed. Feb. 9.

Floyd worked for F. + H.
I worked from 3:30 to 6:30.
I finished the steam box
I paid the St. bills to
Dwight.

Thursday Feb. 10.

Floyd worked for F and H all morning. He finished the job, and was laid off. We both work at the shop from 3:30 to 6:00 P.M.

We fixed connections with the steam box, and experimented, in bending the inside strips.

Friday Feb 11, 1910.

Floyd looked for a job most of the day. He worked at the shop from about 3:15 to 6:20. We further experimented, with the inside strips. Floyd painted the form with white lead and oil.

Saturday, Feb. 12.

Floyd worked all morning for another man. In the afternoon he did not feel well so did not work. I worked all day. I tore our old form to pieces and fixed up the up stairs of the shop. I put a bunch of lumber up stairs and figured out a way to hold the inside strips on the form and started to fix it up.

Sunday, Feb. 13.

We posted the ledger all up to date and took a trial balance for Dec. 31, 1909. We walked down along the docks and

back up through the
stadium.

Monday Feb 14, '10.

I worked after school
fixing a means for holding
the inside strips on the
farms.

Tuesday, Feb 15, '10.

We both worked after
school. We started the
inside strips on the boat.

Wednesday, Feb 16, '10.

Floyd worked all
afternoon, and I worked
after school. He went
ahead with the inside
strips.

Thursday, Feb. 17.

Floyd worked all day, and
I worked in the afternoon
after school. Floyd

Trimmed up the inside
strips in the morning and
we put on the bow
pieces in the afternoon.
Friday, Feb. 18.

Floyd worked all
day. He trimmed up
the bow pieces, and
put in four inside strips.
Saturday, Feb. 19.

We both worked all
day. We put more inside
strips on. Some of the
strips bent well, but
others proved to be
dead and we could
not use them at all.

We tried bending a
small piece of Spanish
cedar we had and
found it to bend

very well. Florence
and Earl Cooper were
out to visit Bell and
us.

Sunday, Feb. 20.

We both went over
to Seattle to meet
Ruth, who came back
from Beaver.

Monday, Feb. 21.

We did not work
on account of no material
for the inside planking.
Ruth and Lloyd looked
up a house for rent.
I received a catalogue
from the University of
Pa. and three skate
catalogues. We all
had a good chicken
dinner at Dwight's.

Tuesday, Feb. 22.

I had a vacation today. We rented a house at N. 34th and Madison Sts. for \$18⁰⁰ a month and paid one months rent from 2/24 to 3/24. Ruth and I went to Maggie's in the evening.

Wednesday, Feb. 23.

Could not move, on acct of rain and snow.

Thursday, Feb. 24.

Could not move, on account of rain and could not work on acct of material.

Friday, Feb. 25.

Ditto Thursday.

Saturday, Feb. 26.

Bought some Spanish cedar at the Washington Cigar Box Factory, Gas. Swallowell, proprietor, 2102 A st. Tel. Red 3713. We took the cedar out on the car and spent the remainder of the day at the shop. We tried bending the cedar and found that some of it bent fine but some pieces broke square off. This, Dwight informed us, was due to a timber break received when the tree fell. We got two strips on which we left. We changed the method of conducting the steam

to the steam box.

Mr. Sualwell, gave us the address of a firm in N. Y., who handles Spanish cedar. It is: H. H. Prichs., 311 to 325 E. 11th St. N. Y.

Sunday, Feb. 27.

Nothing doing in particular.

Monday, Feb. 28.

We moved to 34 and Madison in a driving rain. It cost us \$4.00.

Tuesday, March 1.

I stayed home from school and helped clean up the house.

Wednesday, March 2.

Nothing doing in particular. Went home and helped

clean up, after school.

Thursday, Mar. 3.

Ditto Wednesday.

Friday, Mar 4.

Had a debate in the Political Science Club: Resolved, that Tacoma should own its street railways. Matthew Hill and I were on the affirmative and won by a unanimous vote of the judges. Irving Scott and Minnie Mc. Dowell, defended the negative.

Saturday Mar. 5.

I made a bookcase and a stool for Ruth and Papa to stand on to light the lights.

Monday, March 7.

Floyd looked for a job in the afternoon without success. Neither of us worked on the canoe.

Tuesday, Mar. 8.

Floyd worked all afternoon and I worked after school. Floyd tore up the old platform. We put some of the cedar strips on the frame.

Wednesday, Mar. 9.

I worked after school. I put on one strip and broke two of them. Floyd helped me bend them.

Thursday, Mar. 10.

We worked after school on the inside strips.

Friday, Mar. 11, 1910.

Noodles Fagan spoke in an assembly at school. He was fine.

We did not work today.

Saturday, Mar. 12, 1910.

We went down town in the morning and hunted for some books on boat-building but found none that suited us. We learned that Mr. Jones of Vaughn Merrill & Co. residing at Regent's park is a prospective buyer.

We looked at a place at the intersection of E. 20th and the Waterway where we might locate our factory.

We called to see Berg
& Lindstrom and had
quite a talk with Lind
strom. His opinion is that
Spanish cedar is a good
wood for canoes and
bends well. He had some
oak veneering 8" thick which
he sells at 6[¢] a sq. ft.
He has but little mahogany
in 18' lengths. He owns
a Canadian canoe for
which he paid \$75. He
gave us the address of
a man in Fines whom
he recommends for Span
cedar. It is Edwin Reihan
& Co., San Francisco.

In the afternoon we
worked at the shop. We
got the old canoe down

out of the gallet and
were going to put it in
the water, but thought
we had better wait
until we had another
completed, before we put
our first one out lest it
might be a discredit to us.
We went ahead with the
inside strips of cedar
and had good success.

Sunday, Mar. 13.

Nothing doing in
particular. This was
Flayds birth day.

Monday Mar. 14.

Flayd worked half
the day for Frank + Hans.
I work in the afternoon
after school putting on
strips on the boat.

Tuesday, Mar. 15.

Floyd worked for F + H.
I did not work at the shop.

Wednesday, Mar. 16.

Floyd worked for F + H.
I worked on the canoe
in the afternoon after
school.

Thursday, Mar. 16.

Floyd worked for F + H.
I did not work.

Friday, Mar 18

Ditto Thursday.

Saturday, Mar. 19.

Floyd worked for F + H
in the morning. I worked
on the canoe all day.

Sunday Mar 20, 1918.

Nothing doing, in
particular. I wrote on the
"On the Road of Time".

Monday Mar. 21.

Floyd worked for
L. + H. I went to a
lecture in the evening
by Wm. Howe Bryan
On The Education Of
The Deaf.

Tuesday, Mar 22.

Nothing doing in
particular.

Wednesday, Mar. 23.

Nothing doing on acct. of
material.

Thurs., Mar. 24.

Ditto Wednesday.

Friday, Mar. 25.

Ditto.

Saturday, Mar. 26.

We both worked in the
morning on the inside strips.
We used up all the

material we had.

Sunday, March 27.

Ruth and I went out to Warren's and met Maude's friend Ross Chamberlain.

Monday, March 28.

Nothing doing, on account of no material.

Tuesday, March 29.

Ditto Monday.

Wednesday, March 30.

Ditto.

Thursday, March 31.

Ditto.

Friday, March April 1.

Ditto.

Saturday, April 2.

I went down town in the morning and bought some Spanish

cedar to complete the canoe.

Sunday, Apr. 3.

Nothing doing in particular. Attended a socialist meeting in the evening and made a little speech myself.

Monday, Apr. 4.

I chopped wood the first thing in the morning and went to work on the canoe at 10:30 A.M. and worked the rest of the day. I put some more of the inside strips on. They went on fine.

Tuesday Apr. 5.

I worked $\frac{3}{4}$ of the day on the inside strips.

Wednesday, Apr. 6.

I worked $\frac{3}{4}$ of a day.
I moved the inside strips
up closer to each other
and painted them. I
ripped one of the 8" piece
of spuce in two and
dressed it down.

Thursday, Apr. 7.

I worked all day.

I went down town
in the morning twice to
get some muslin, and
some copper tacks.
I put some inside
strips on, nearer the
low, and got all ready
for the outside strips.

Friday, Apr. 8.

I worked all day.
I put nearly two

strips on the outside
of the boat.

Saturday, Apr. 9.

I worked all day
and Floyd worked
in the afternoon. I
finished the second
strip. He spent the
afternoon in planning
a concrete form to
build the canoes
over.

Sunday, Apr. 10.

Ruth invited Miss
Thompson and Mabel
Wright to dinner.

Monday, Apr. 11.

Nothing doing on the
canoe.

Tuesday, Apr. 12.

Ditto Monday.

Saturday, Apr. 23.

I waked all morning
and half the afternoon.
I found that we
could not use the
spruce that we bought
from Wheeler-Bigood
because it was all
dead and split out
where we nailed it.
We gave up the canoe
for the present.

Sunday, Apr. 24.

I walked along the
Narrows and noticed that
someone had politely
occupied our platform
out there by putting
a shack on it.

Monday Apr. 24.

I went to the

Dentist's to have my
teeth fixed.

I got a letter from
Clyde.

Sunday, July 17, 1910.

Floyd and I added an
extension to the bench in our
shop and glued the paper down
to make plans for another
canoe.

Mon. July 18, 1910.

Nothing doing in particular.

Tues. July 19, 1910.

Floyd put the horizontal
and vertical lines on the drawing
for the end view in the evening.

Wednesday, Jul. 20.

Nothing doing in particular.

Thursday, July 21.

I went out to Warren's in
the evening.

Friday, July 22, 1910.

Nothing doing in particular.

Saturday, July 23, 1910.

I worked all day and
Floyd worked in the afternoon.

We worked on the drawings.

Sunday, July 24, 1910.

Ruth and Clare and
Harry and I went canoeing
up the West passage to
Seattle. We took a picture
of our canoe and various
other pictures.

Monday, July 25, 1910.

Floyd and I worked all
day on the drawings. In
the evening we went out to
Pt. Def. and took numerous
measurements of different
canoes and studied their
lines.

Tuesday, July 26, 1910.

Floyd and I both worked on the drawings. We went out to Pt. Def in the afternoon to look at the canoes. In the evening I went to the military tournament with Clare and Ruth.

Wednesday, July 27, 1910.

Floyd and I worked all day and until 10:30 in the evening on the drawings.

Thurs., July 28, 1910.

Floyd and I worked all day on the drawings. We finished the design and I got started on the details. Floyd started to mark out the patterns.

Friday, July 29, 1910.

We both worked all day and Floyd worked in the evening. We bought some lumber from Mr. Meely's and carried it up. I went down town and got some tracing paper and nails. In the afternoon I worked on the details and Floyd worked on the form. He cut out all the forms.

Saturday, July 30, 1910.

I worked all morning + half the afternoon. Floyd worked all day. I drew the details for the bow pieces and finished the details for the 3-cornered pieces. I spent the remainder of the time on the form for the

new canoe.

Jack and Pete came over from Seattle and we went to the Stadium in the evening.

Sunday, July 31, 1910.

Jack + Pete + I went out to the Point and took a little ride in the canoe and went swimming in the Nereides. Willits were all out in the evening.

Monday, Aug. 1, 1910. F.W.

I worked 9 hours on the form.

Tuesday, Aug. 2, 1910 F.W.

I worked 5 hours and practically completed the form.

Wednesday Aug. 3, 1910 F.W.

In the morning I bought 117 sq. ft. of oak and 2 pieces of poplar veneering from Lindstrom + Berg

Arrived at work 12 o'clock and dressed cedar planking till 5.30. Material from Lindstroms Berg came in the evening.

Thursday, Aug. 4, 1910. F.W.

Marked out and bent inside bow pieces. One broke ~~was~~ bent. I made and individual form to bend it out. I also dressed and cut some oak planking. I worked 9 hours.

Friday, Aug 5, 1910.

I worked 8 hours - marked out one bow piece, straightened out material, dressed 4 pcs. of planking and successfully bent 8 pcs. F.W.

Saturday Aug. 6, 1910.

I worked 11 hrs. - trimed one bow piece, - scribed and trimed 8 planks, - dressed and bent 8 planks, and swept shop up. F.W.

Monday Aug. 8, 1910.

I worked 9 hrs. - bent one bow piece and dressed 14 planks; scribed and trimmed 8 planks. F.W.

Tuesday, Aug. 9, 1910

Earl and I moved from No. 5 into the basement before breakfast then I worked 9 hrs. - fixed the frame a little and bent 8 planks, trimmed one bow piece and started the Δ pieces. F.W.

Wednesday Aug. 10, 1910.

I worked 9 hrs., finished one Δ piece, scribed and trimmed 8 planks and bent 6 planks. F.W.

Thursday Aug. 11, 1910.

I made one Δ piece and the patterns of 2 clinching iron and took them to the Atlas Foundry to be moulded. F.W.

Friday (Aug 12, 1910)

I was sick but was at the shop a couple of hrs although I did not

Saturday (Aug 13, 1910)

I work 8 hrs. - bent 2 planks, scribed and trimmed 5 planks and cut and dressed 5 planks, put low pieces on and (p) decided to oil the planks for preserving and glue the joints with yellow marine glue, the inside joints to be glued after outside planks are on and paint between planks.

Monday (Aug 15, 1910).

I dressed 5 planks and bent 6; all inside planks are one. Also dressed 5 outside planks. J.W. worked 9 hrs.

Tuesday, Aug. 16, 1910.

I worked 9 hrs. scribed + trimmed 10 planks - dressed 3 outside planks and painted between planks 1 coat.

Wednesday Aug. 17, 1910

I made drawings for the gunwales, painted planks then after supper Earl and I worked and I hrs respectively, put two center planks on

Thursday Aug. 18, 1910.

I put inside planks on at bows and tried to get some screws - lead. Earl and I work 4 hrs after supper. He started to put plank 2 on outside but got wrong start so took it off without any damage, to fit it on later.

Friday Aug 19, 1910

I bought white lead, lubricating oil and screws went to the shop about 12 o'clock. I trimmed an outside plank a little and worked on drawings of decks. He work that night till 2 a.m. a.m. put on one plank. T.M.

Saturday, Sept 3, 1910.

We both worked about 6½ hrs in afternoon and evening. He put one plank on. T.M.

Monday, Sept 5, 1910

We both work about 6 hrs and put on plank on. I went to the Library to look up about plaster of paris but it was closed. T.M.

Sunday, Sept 11, 1910

Earl went to Portland Ore. to see if there was a demand for canoes there. He found the situation favorable and though we could sell a number of boats there.

Monday, Sept 12, 1910.

I experimented with plaster of paris and in the afternoon looked up a little about material.

Tuesday, Sept. 13, 1910.

I experimented with plaster of paris and lime mixed but the experiment was a failure on account of the lime not being thoroughly slaked. We came to the conclusion that plaster of paris would not do to clinch on. In the afternoon I

turned and put an outside strip half on.

Wednesday, Sept. 14, 1910.

I finished putting on that outside strip and in the afternoon I went to the library also bought some sulphate of iron to put on plaster of paris mould but thought it not worth the while. It took 5 hrs to put the outside strip on.

Thursday, Sept 15, 1910.

I made a mould for an experiment with cement mortar. I did not work in the afternoon.

Wed. Oct. 12.

I went down town to look at some stones and decided to get one.

Thursday Oct 13

I got a stove at a 2nd hand store for \$2.75 for the shop.

Friday Oct 14

I went down town twice and got a

joint of stove pipe for the stove.

Saturday Oct. 15

I set up the stove, straightened up the shop and put one strip on. Earl did not work in afternoon, being too tired.

Monday Oct 17.

I mixed and pored 18 bricks of cement for experiment. Nine brick neat cement 9, 1:1 sand and used Mt. Diablo cement.

Tuesday Oct 18.

I finished recording experiment and started to put an outside flange on but the thing split right down the center so I left it go till the next day.

Wednesday Oct 19.

I finished putting that strip on and Earl helped a little with it after supper.

Thursday, Oct 20

I recognized our inefficiency in selecting material ~~so~~ went to the library and

got a book called "Woods of Commerce" so
that we might learn something about wood.

Friday Oct 21.

I experimented just a little with sulphate
of iron on cement and found that by putting
the sulphate on the cement and heating the
surface a little, I used a candle to heat it with,
that the cement became very hard. I left
the experiment be at that but will make
it more scientifically. I did not accomplish
much but the experiment that afternoon.

Saturday Oct 22.

I worked nearly all day at misse-
lanious jobs and late in the afternoon
and evening Carl and I worked on
plaster of Paris model form.

Monday Oct 25.

We bought 100^{lb} plaster of Paris from
W P Fuller & Co. #41st to be del. then I
went out to Ft. Reliance and brought the
canoe in and Carl and I carried it up

We went down to shop after supper and decided on way to fit the line & a plan and to use Spanish cedar top-board.

Oct 25, Wednesday.

I put a strip on in afternoon and evening. It took about $4\frac{1}{2}$ hr to fit and nail it. Early held it and sanded a little after supper.

Oct 26 Wednesday.

I put last native cedar strip on and it took 4 hrs. to do it. We are convinced that under improved conditions we can put a strip on in one hr.

Oct 27 Thursday.

The plaster of paris came and I worked on model but not with complete success so waited till we could both work on it together.

Oct 28 Friday.

I bought 15 sq ft of Spanish Cedar

to finish the boat with. I would about
3/4 hr at the shop.

Oct 29 Saturday.

I put on two pieces of top
plank.

Monday. Oct 31.

I cut out and fitted one end
of top board.

Tuesday. Nov 1.

I went down town then to the
shop and nailed the plank on
which I had fit.

Wednesday Nov 2.

I put on one piece of top board.

Thursday Nov 3

I put on one end of top board.

Friday. Nov 4.

I finished planking except a little
in the center of top board.

Saturday. Oct 5.

I finished all the planking and worked

on a form for the decks.

Monday. Nov. 7.

I went to Political Science Club meeting and heard Mr. Fickox on Insurance, then went to the shops and finished form for the decks.

Tuesday. Nov. 8

I tried to plan the finish of the boat but got too perplexed to think so left it over till the morrow.

Wednesday. Nov. 9.

I went down town and saw Prof. Copper then worked on the boat a little till Karl came out; then we planned the rest of the work on this boat.

Thursday. Nov. 10

I did not work as Ruth's friend from Chalm was here.

Friday. Nov. 11.

I made the three out side forms for the shell and things are looking brighter.

Saturday Nov. 12.

I worked about 7 hrs and made a form for outside bow-piece and bent one but it was too thick to use ~~the~~ I cut out two more ready for bending. I also cut most of the top line of the boat, down. At about 2:45 Earl came down and straightened up the shop while I worked on the deck.

Friday Nov 17.

I placed the cuts for the decks but found a mistake in the form for bending them on so had to make a new. I planned it out but did nothing on it till the next day.

Saturday. Nov 18.

I made the new form for the decks, marked out on the mahogany, the four pieces and cut out and dressed two then bent them and so far they look alright. We also stoned and bent the

sticks under the decks and one bow piece.
Earl went to work 2:30 to 6:30 + 7:30 to 12:00
and made 2 horses and helped steam the
other things.

Monday Nov. 21.

I cut out the pieces for beneath
decks and screwed them together then
cut out and deiced other two decks.

Tuesday Nov 22.

I steamed and bent one deck and
under strips and outside bow piece.

Wednesday Nov 23.

I began to cut gunwales down.

Friday Nov 25.

I finished both gunwales.

Saturday. 26.

I fixed up the under part of deck
made a steambox and got ready for
steaming gunwales. We bent the 1st
gunwale at 10 P.M. Earl worked on
his bicycle.

Sunday. Nov 27

I steamed a gunwale and we bent it.

Monday Nov 28.

I cut top line down at bows and trained the ends up for bow pieces.

Tuesday Nov 29.

I cut the bow pieces to fit the boat and got ready to take out the form. That night Earl and I worked and took the form out and put one bow piece on.

Wednesday Nov 30

I put the other bow piece on.

Thursday. Dec. 1.

I started the gunwales and things look good.

Friday. Dec 2.

I figured out the screws and cut for the piece under the deck.

Saturday Dec 4.

I made two forms for bending the gunwales on then bent the four corners. Earl and I tried to put the gunwales on at one end but the screws slipped and we had to postpone it till we got some iron to fix it with. I then started to work on the thwart and almost finished one.

Monday. Dec 5.

I finished one thwart.

Tuesday Dec 6.

I worked on the other thwart.

Wednesday Dec 7.

I finished both thwarts and fixed the piece under the decks that broke and then got the other piece ready for the other end.

Thursday Dec 8.

I bent the top of one of the bow pieces in and tacked on the little piece of

strips at end. Then I put the iron
piece in one of the thwarts and and still
on it.

Friday. Dec 9.

I finished all the thwarts ~~and~~
and after supper Earl and I work
till 10:30 and put the gunwale on
at one end.

Saturday. Dec 10.

I put the ribs in at one end
under decks and puttied up
the inside of the Bow. In the
afternoon I made the circle
piece at the end of cockpit.
In the evening Earl + I went
out to Copper for dinner.

Monday Dec 12.

A load of wood came and
I put it away.

Wednesday Dec 14, 1910.

I rounded the piece off under the deck at one end and screwed it on and then put the nails in under one of the decks on one side.

Thursday Dec 15, 1910

I ran a couple of ramps, cut four little strips for under decks, kept a good fire up, to dry out the boat then nailed on side under one deck and also put one corner of the decks on.

Friday Dec 16, 1910

I put one piece of the decks on and putted up one bow on inside screwed the gunwales together at one end and tightened up a few screws along the gunwale.

Saturday Dec 17 -

I finished putting on the decks and we tried to bend the pieces for the

end of cock-pitts but broke 3 pieces
and had to wait till we got some more.

Monday Dec 19.

I bought a piece of mahogany, varnish
brush and color. It was too late to
do anything when I got home.

Tuesday Dec 20. Wednesday

I went down town after school then went
to work. I put all the tack in, or started
them in. ^{Wed} After supper we put talks in
and bent one end of cockpit.

Th. Thurs. Dec 22

I bought brass and putt one end
of cockpit on.

Friday: Dec 23

I finished both cockpit ends, cleaned
and smoothed inside and top of boat and
put the brass on the bows.

Saturday Dec 24.

I cut the uneven planks down and
traced up the low pieces then sanded

the boat for finish. In the afternoon I stained and oiled the boat.

Monday Dec 26.

Earl and I experimented with the frame model and figured out the cost of boats and other things.

Tuesday Dec 27.

I ordered material for the row form and also bought some oak for deck and keel. In the afternoon I put the pieces on the decks.

Wednesday Dec 28

I put the screws in one of decks, made the seat and varnished the boat and chair.

Thursday. Dec 29.

I screwed the seat together and staided it, also made the keel. I then went to Seattle to look up about material and we are able to

get most anything we want from Edlich
& Harrison; 222. ave. + conn. str. Seattle,
 $\frac{3}{8}$ " mah. ven. 9¢ sq. ft. probably 5' length special
 $\frac{1}{4}$ " " " 11¢ " "

Mahy 25 B. ft. - long lengths.

Oak ven $\frac{1}{8}$ " 6¢ sq. ft.

Spanish cedar 16¢ B. ft.

Mahy weighs about 37 lbs per cu. ft.

Dec 30-31 Jan. 2, 1911

We did nothing of importance on the
boat except put the keel on. We did
not work on acct of wait for material

Tues Jan 3, 1911

I filled the mahogany but with little
effect as the pores still show. I also
sanded-papered the boat.

Wed. Jan 4.

I smoothed up the mahogany and putted
up any places that needed it. Then after
supper I varnished the boat. It took
about $2\frac{1}{2}$ hr to put the varnish on.

Friday Jan 6.

The material for the form came but there was a little mistake out the length of two boards. I began making the patterns for the new form.

Saturday Jan 7.

I worked all day on the forms and showed the boat to Henry.

Mon Jan 9.

I worked on forms.

Tues. Jan 10

I bought a back bone for the form and finished sawing the forms.

Wed. Jan 11

I bought acid + etc. and did no work.

Thur. Jan 12.

I marked out and cut the bottoms of the forms at the ends.

Friday Jan 13

I laid out the back bone

Saturday. Jan 14.

I worked on the form, putting the forms on the back bone. We showed Ray the boat and he thought it was swell. A water pipe broke in the basement and we fixed that.

Monday. Jan 16.

I continued setting up the forms.

Tue. Jan 17.

I sandpapered the boat.

Wed. Jan 18.

I sandpapered 1 hr and worked on form 1 hr.

Thur Jan 19.

I etched out the nameplate and worked a little on form.

Friday Jan 20

I worked one hr on form but took a couple of forms off so accomplished nothing.

Sat Jan 21

I finished lining up the form and.

in the afternoon I put 2 strips on
I finished sandpapering the canoe and
we took it in the house for varnish

Monday. - T-Wed.

I was sick with a cold so did
not work.

Thursday Jan 26

I steamed two put two strips on
the form and made 2 others ready

Friday Jan 27.

I put 7 strips on and made the
brass cleats for the seat.

Saturday Jan 28.

I worked on the form, putting strips
on. In the afternoon Earl and I put
the seat in the boat and launched it
We are well pleased. -

Monday Jan 30

I put strips on one side of form
to top but found a mistake in

the linings so had to take off
some of the work that I did Sat.
Tues. Jan 31.

I put the strips on up to the
top in the middle on both sides.
Wed. Feb 1.

I worked on strips on the form.
Thursday Feb 2.

I finished putting on the strips and started
to smooth up the form. Papa came
down yesterday from Victoria.

Friday Feb 3.

I finished smoothing the form and began
plastering up joints and nail holes.

Sat Feb 4.

I finished the plastering and began
and finished one end of the box for
the form.

Monday Feb 6.

I oiled the form, made the other

end of the box for the form, cleaned out
the little shed and started to make
a platform to mix the mortar on.

Tues. Feb 7.

I ordered and paid \$1.55 for 1 sack
of M.T. Diablo cement and $1\frac{1}{2}$ yd. of sand
at Whitworth Lumber Co. I finished the
mixing box, laid down the shids
for the form and placed the form, then
made the end for the box which fits
around the middle of form.

Wed. Feb 8, '11

I finished making the form
ready.

Thursday Feb 9, '11

I poured the mortar in one end
I required 30 buckets full of sand 6:
with $2\frac{1}{2}$ buckets full of water. The
form was not beared quite right so
it slipped one in. backward and the
weight of the mortar lowered the

floor 1st causing a little trouble but
other wise it all looks good.

Friday -

I did not work.

Sat Feb 11.

I poured the mortar in the other
end. In the afternoon I straightened
up the house.

Monday Feb 13

In the afternoon I started to move
the form but had to wait till Earl
came home so accomplished nothing

Tues. Feb 14.

I made the core for one end and
poured the mortar.

Wed. Feb. 15.

I removed the core, made another
at the other end and poured the
mortar.

Thurs. Feb. 16.

I removed the core from the other

floor 1st causing a little trouble but
other wise it all looks good.

Friday -

I did not work.

Sat Feb 11.

I poured the mortar in the other
end. In the afternoon I straightened
up the house.

Monday Feb 13

In the afternoon I started to move
the form but had to wait till Earl
came home so accomplished nothing

Tues. Feb 14.

I made the core for one end and
poured the mortar.

Wed. Feb. 15.

I removed the core, made another
at the other end and poured the
mortar.

Thur. Feb. 16.

I removed the core from the other

end, plastered up the holes in
bottom of form and topped it. Then
I figured out the center part of center
form, and started to work on it.

Friday Feb. 17, 1911.

I finished shaping up the sides
to the form but made a mistake
in placing it so it must be
changed.

Sat Feb. 18, 1911.

I fixed the center form and
poured the material in it. Then
I figured out the core for the sides
and tore one end of the old form
apart to get material for the
core.

Mon. Feb. 20, 1911.

I took the forms loose from the
middle part of center section and
it looks good. Then I began work
on the core for the side forms.

Tues. Feb 21, 1911

I finished flanking and plastering the
core.

Wed. Feb 22, 1911.

We set the core for the side of
middle section and poured the mortar.
I took $3\frac{1}{2}$ sacks to fill it. We used
2^d buckets full of water to $1\frac{1}{2}$ bags of cement.

Thur Feb. 23, 1911.

I removed the form and every thing
looked good. The center part of the form
stuck at the ends so I had to break
the ends in. I began to repair the
form.

Fri. Feb 24, 1911.

I finished repairing center sect. form.
and bought 1 gal. of linseed oil.

Sat Feb. 25, 1911

I set the form and poured the last
sect. of cement. It took 3 hrs. to do it.
1 hr. to mix & pour; 2 hrs to set form.

of the specimens about 100 pages &
Manufacturing Cost by Falls
Then first 27.

of west down here and brought a lot
chief, 25^d at H. North, and began cutting
the form cut.

Nov. 25-27.

of bought a plain chisel and cutter
cutting the form.

Nov. 27.

of continuing to cut out the form as
broke on of the middle section but we
believe we got him was done the
section that broke was still to green
of threw away the sand and started the
production.

Nov. 28 &
of worked on the foundation and almost
finished it. We set the middle section
on it.

Fri. Mar. 3.

I broke the other end of the form off and I did not know what to do so did not work the rest of the day.

Sat Mar. 4.

I worked on the foundation and found that the form would do even if it was broken. Then I smoothed up a little portion of the surface and it is good.

Monday. Mar. 6.

I worked on the foundation and cut 7 ft. of the corner of the form out.

Tues. March 7.

I finished cutting out the corner.

Wed. March 8.

I set the form and began smoothing it up. Also cleaned up the shop.

Thursday.

I did not work.

Friday.

I bought 3 sheets of zinc from Crane Co. and made the blocks for under the ends of center part of center section.

Saturday.

I worked on the surface of the form till 3 p.m.

Monday, Mar. 13.

I finished smoothing the surface.

Tues. 14

I looked after getting material but found that we will have to get the long length mahogany in Seattle. We learned from Lindstrom and Berg that 15 ft mahogany veneer could be obtained from Storeman Co. in Chicago Ill. in 6" widths for from 6 to 8 cents per sq. ft. and that

The well figured wood is cross grained and kinky. Then I worked a little on the metal.

Tue. March 15.

I continued to work on the metal.

Thurs. March 16.

I continued to work on the metal and finished one end of it and spurt three pieces on the other end.

Friday March 17, 1911

I bought 54 sq ft. of oak at 6¢ and then went to work. I finished patterns on the metal. The oak was del. by Gordon.

Sat. March 18, 1911.

I fired up the steam box and dressed and bent 16 strips and scribed 7. Everything looks good.

I figured the cost of the form to be.

Labor	-----	216 hr. @ 40¢ per.	\$86.40
Cement - Sand - soap.	-----		10.90
lumber @ 6.15	-----	Price 3.55	9.70
Total.			\$107.00

Mon March 20.

I scribed and put on 8 more strips.

Tues. March 21

I was sick and so did not work.

Wed. March 22.

I scribed 5 strips, dressed and bent 5.

It took $1\frac{1}{2}$ hr. to cut out and dress them
and $1\frac{1}{2}$ hr. to scribe and trim 8.

Thur March 23.

I worked on the bow piece pattern
and made one but otherwise accomplished
little.

Friday.

I made the other pattern and
cut out bow pieces for bending.

Sat. March 25.

I fixed up the drawings of a pc.
Then I bought a 2" x 4" x 14' cedar of W. Q. C.
and brought it out on the bicycle.
At 11 o'clock I began work on the pattern.

again. After finishing the patterns
I made the bow forms for steaming
and then started to steaming. I
then marked out the Δ pc. and then
bent the bow pc. All looks good.
Earl continued to study business
Monday.

I marked out the bow pieces and steamed
them down in $2\frac{1}{2}$ hr. I made the outside
bow pieces ready, steamed ² ^{hr.} and bent them.
I marked part and cut out the
broad cut on the Δ pieces in 2 hr.
Tues. March. 28.

I finished setting down the 2 Δ pc.
It took $2\frac{1}{2}$ hr. for both, 1 hr for the
last one. I sharpened up the gouge and
draw knife and scraped the shaving off.
Then I made an outside form for
the bow pc. and began to sew
the bow-pc. together.

Wen March 29

I screwed the four bow-pc. together
in 2 hr. but about 5 or 6 screws broke.
No 8 screws will work better. I sanded
4 strips and cut the end off of 2 pc.
I sawed out 14 more inside strips, all
being done now, and began to dress
them down.

Thur. March 30.

I finished dressing the inside planks
and bent four, 2 last ones that go clear across.
One rope. Earl and I figured $1\frac{1}{2}$ hr.
on the outside planks.

Friday March 31.

I practically finished all the
inside strips. I painted the
inside strips and 4-8" strips:
 $\frac{1}{2}$ hr. to paint.

Sat March 1.

I dressed down 4-8" strips and
worked a while on the bottom strips.

I stacked up a load of wood. Earl and I worked about 3 hr on the bottom strip but had to change the line. I worked till 5 P.M.

Mon. Apr. 3.

I did not work in the afternoon but Earl and I put the rest of plk. 1 on and it was good.

Tues. Apr. 4.

I put plk. 2 on in 4½ hr. After supper Earl and I marked out plk. 2.

Wed. Apr. 5.

I went down town to see about getting material and learned from Lone Star cabinets Co. that the Eastern mill Co. had a resaw and found some 18' Philippine mah. I worked in the afternoon on Lon. Co. till 5. then began on strip 2.

after supper Earl and I finished putting
it on.

Thur. Apr. 6.

I went down to see Easter Mill Co.
and found that they would give
me $\frac{1}{8}$ " boards 8" wide from 1" for
50¢ a 100 ft. I went to work 3. and
after supper E. + I put on 2'

Fri. Apr. 7.

I went to Seattle to get material
but found that E. + H. had no
18' spanned Cedar so I did not
get any at all. Their $\frac{1}{4}$ " wash
veneers was only $\frac{3}{16}$ " full and not
figured so I did not get any. We
decided to get the phil. mah. in
Tacoma. Exp. to Seattle 55¢

Sat. Apr. 8.

I straightened up the house and
then went down town to get the
mch. but I could not find the

owner, I bought 25 ft of spanish cedar and 25 lbs lead. I went to work at 12 and dressed a 5" plank down and ripped into. I waited till E. came home to put it on. We put 3' and 3 on in after noon and evening.

Mon. Apr. 10.

In the morning I figured up material list and bought 120 ft of Rhid. mah. At noon I had it del. to Eastern mill Co. and gave directions to cut up. Then I bought some hardware and went home to work. I worked from 3-6 on 4" and put it on and began 4" c. After supper Earl + I went out to pt. L. and weighed on the boat. I weighed 96 lbs.

Tue. Apr. 11.

In the morning I went down to

the Eastern Mill Co. but the work was not done so I went to work began at 10 and put 4^c and 4² ac and fitt 43. Then I went down town to look at the mah. The planking was not turned out very well.

Wed. Apr. 12.

I finished putting on all the planking except the little top pieces. Then I cleaned up the shop. In the evening the mah. came, it cost \$1.00 expens. and \$2.00 mill work.

Thurs. Apr. 13.

In the morning I cleaned up the house and then went to meet Ruth. I did not get to work till 4 o'clock. I put the mah. up and filled in two of the little top pieces.

Fri Apr. 14.

I worked on accounts till 9.30 then went to the shop. I finished running the plk. up and began to put the finish in shape. I cut out and smoothed 2 decks and bent 2. I made the 4 oak pieces under the decks and bent 2. I smoothed up the face of 2 gun.

Sat. Apr. 15.

I made the patterns for pieces under the decks and cut out the piece and screwed one end together. Then I bent the other decks and oak pieces. In the afternoon E. & I put up a tent to sleep in.

Mon. Apr 16.

I went down town and bought some iron bands for under decks and thwart. Then I began the gunwale, measured the lengths at

different places, made patterns for the
and began to cut it down.

Tues. Apr. 15.

I finished cutting down the gunwales. It took $2\frac{1}{2}$ hr. to cut the last one down.

Wed. Apr. 19.

I read the life of Goldsmith

Thurs. Apr. 20.

I worked on the Thwarts

Fri. Apr. 21.

I continued to work on Thwarts.

Sat. Apr. 22.

I finished up the thwarts except bracing them, swept up the shavings put on of the under parts of the deck to gather and braced both of the pieces for under decks, cut groove in gunwale and oiled them.

In the afternoon Eardl marked the points for top line by measuring

from the bottom and I put a few
tracks in on the bottom. Then we
took the form out. It came out
all right but in pieces, it would
have worked alright had it stayed
together. Then we put the shop
in complete order.

Mon. Apr. 24.

I helped Ruth clean house.

Tues. Apr. 25.

I went to the library and down
town. I worked on the top lines. In
afternoon E & I started to put
the quarrels on.

Wed. Apr. 26.

I worked on the under part of decks
and found a mistake and began to fix
it.

Thur. Apr. 27.

I studied in the afternoon.

Fri. Apr. 28.

I screwed the gunwales up one end

Sat. Apr. 29.

I screwed the gunwales up the other end, then I worked on the decks.

Earl put all the rest of the screws in in the gunwales, put in a few tracks under decks, clinched some nails and helped a little with the decks.

Mon. May 1, 1911.

I finished putting the other deck on, cut out, steamed and bent the cockpitt ends and put the iron brace in the gunwale thwart.

Tues. May 2, 1911

I put the cockpitt ends in and braced the blocks at end of thwarts and out on the brass plates.