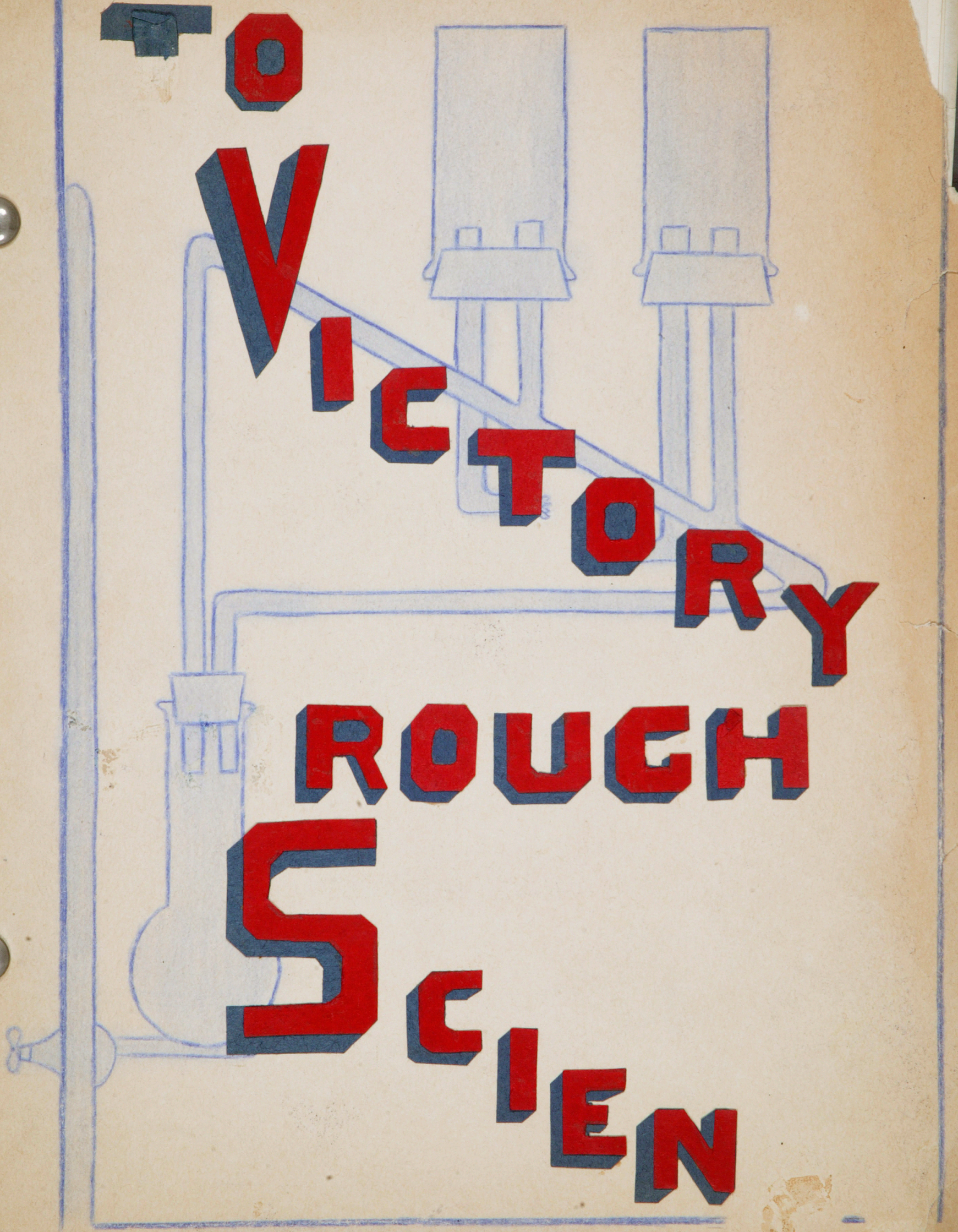
TO VICTORY ROUGH SCIEN



24cm x 30cm

Book 1

Name: ..... Tommy Joe Dennison

Subject: ..... General Science

Year: ..... 1942 - 43

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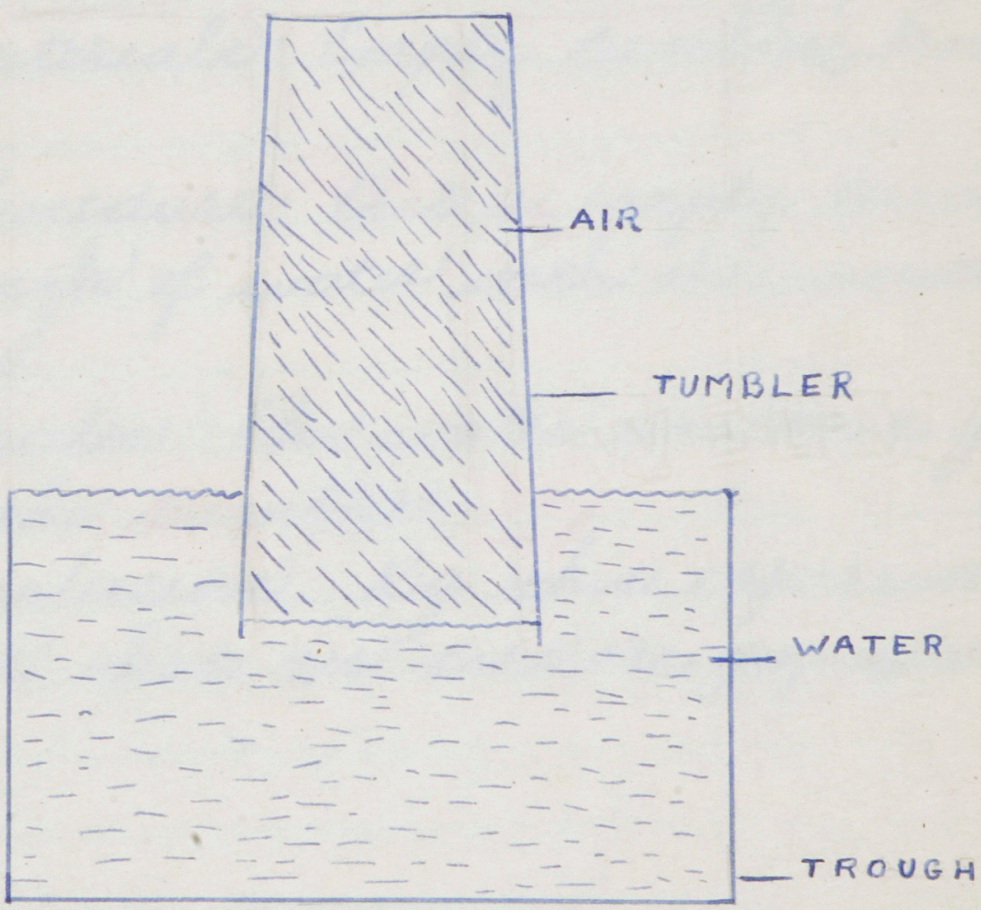


T. J. DENNISON

24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
September 18, 1942

Experiment 1

Question: Does air occupy space?

Materials: Empty tumbler, trough of water.

Procedure: Put an empty tumbler in a trough of water with the mouth downwards.

Results: The water wouldn't go up into the tumbler. Why?

Conclusion: By this experiment it proved that air does occupy space.

B

24cm x 30cm

Corrections

Results: We put the empty tumbler into the trough of water and the water did not go up into the tumbler because it was filled with air.

24cm x 30cm

Tommy Joe Stenneson
Freshman

St. Mary's School
September 22, 1942

Experiment 2.

Question: Does air have weight?

Materials: A football, a bicycle pump, a football needle, a set of balances.

Procedure: We put the football needle into the football, then we fastened the pump to it, then we started pumping air into the football. When the gr. football was filled we sat it on the scales, on the balances and then we took it off and let all the air out of the ball. After we had gotten all of the air that we could out of the football gr. we sat it on the balances again.

Results: Our results were that the balances did not balance with the air out of the ball. Which was lighter

Conclusion: By this experiment we have been taught that air does have weight.

C

24cm x 30cm

Corrections

we then, we then, we then.

we then set it on the scales.

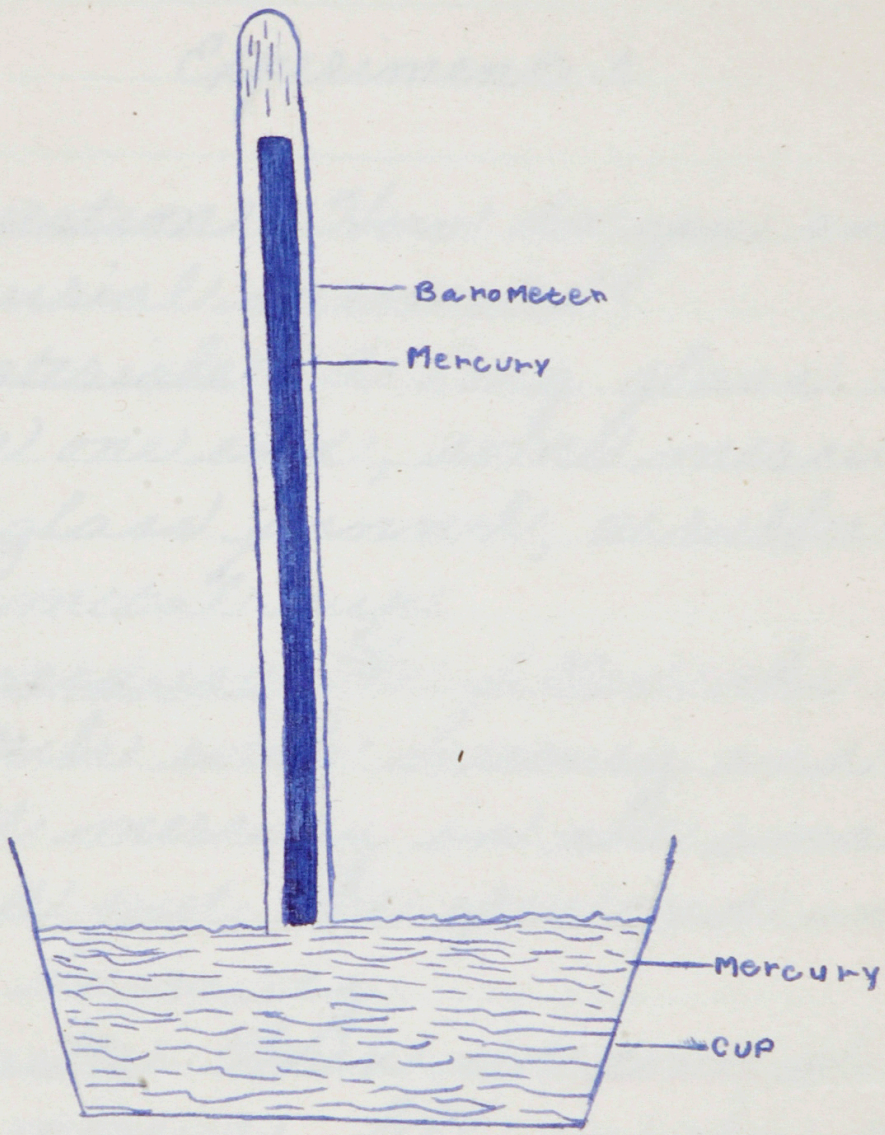
we set it on the balances again.
balances, balances, balances

the ball without air in it was
lighter.

✓

24cm x 30cm

24cm x 30cm



T. J. Dennison

24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
September 22, 1942

Experiment 3

Question: How do you construct a mercurial barometer?

Materials: a long glass tube closed in one end, some mercury, a small glass funnel, a rubber tube, a small metal cup.

Procedure: We filled the long glass tube with mercury and then we put mercury in the small metal cup and put the open end into the cup of mercury.

gr. Results: When we done this some of the mercury fell in the tube because there was not enough air pressure to hold it all up in the tube.

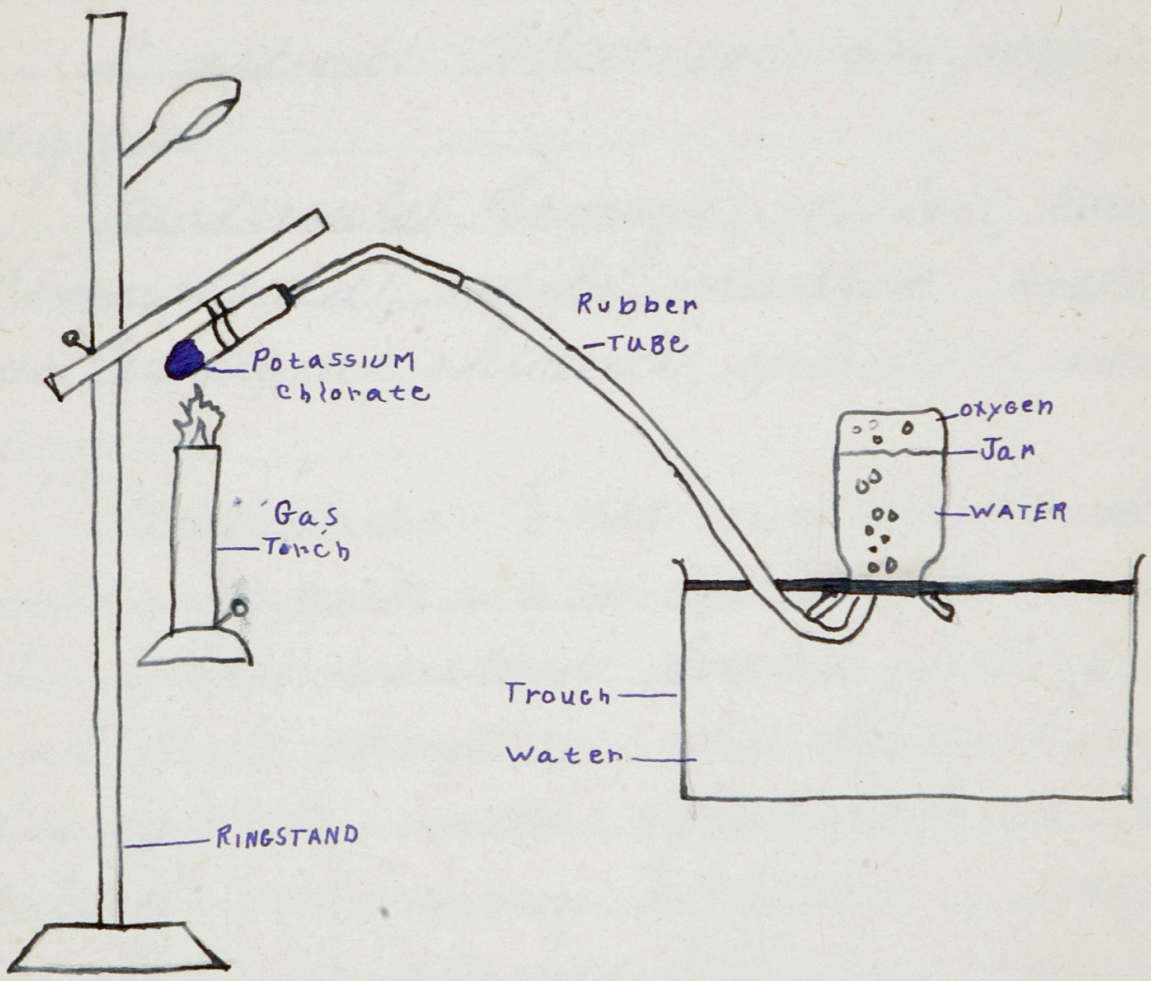
Conclusion: the air pressure on the outside caused the mercury to stay in the tube up to about thirty inches.

B

Corrections

when we had done this

24cm x 30cm



T. J. Dennison

24cm x 30cm

Tommy Joe Dennison — St. Mary's School
Freshman — September 24, 1942

Experiment 4

Question: What are the properties of oxygen?

Materials: Trough, tubes, torch, gas, ringstand, wide mouthed bottles, water, potassium chlorate, splinter, match, and oxygen.

Procedure: First we took the trough, and we put water in it. Then we filled the wide mouthed bottles full of water and put them on the bridge in the trough of water. After that we took the tube of potassium chlorate and put it on the ringstand. Then we turned on the gas, lit the torch and heated the tube of potassium chlorate. After that, we put the small rubber hose that was connected to the tube in the trough of water. Then we took the bottle of oxygen and put a glowing splinter in it.

Results: (a) The oxygen got into the bottles and gradually the water came out of them.

(b) The glowing splinter immediately burst into flames showing that oxygen supports combustion.

Conclusion: By this experiment we came to the conclusion that oxygen hasn't color, taste, or smell and

a-

Corrections

Conclusion: By this experiment we came to the conclusion that oxygen is a colorless, tasteless, and smelless gas that supports combustion.

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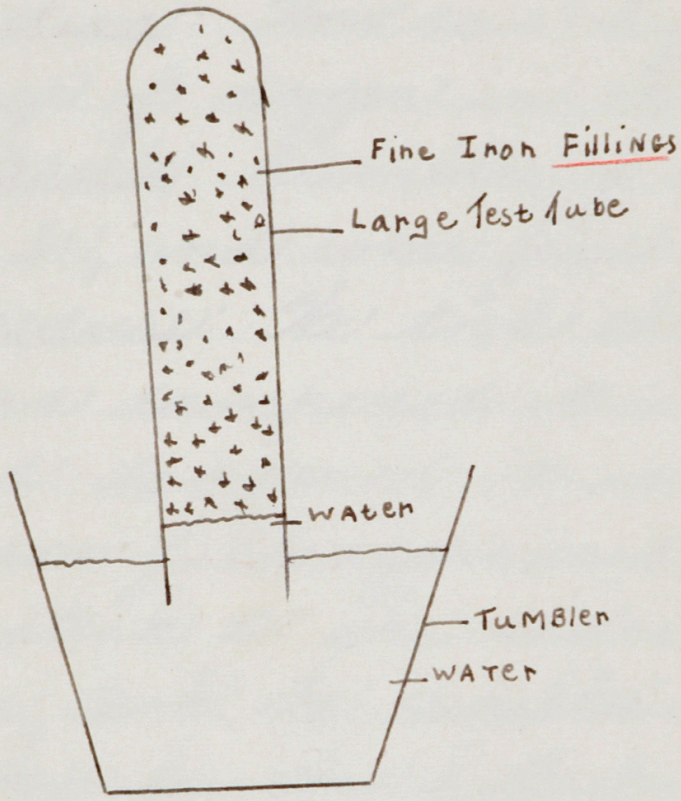


24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
September 30, 1942

Experiment 5

Question: How can I find out the percentage of oxygen in the air?

Materials: Tumbler of water, large test tube, and some fine iron fillings.

Procedure: We took the large test tube and dampened it inside. After we had dampened it we put the fine iron fillings inside so that they could stick to the sides of the tube. We then took the tumbler and filled it about three fourths full of water and then we put the test tube upside down into the water and left it that way for three days.

Results: After the three days were up we found that the iron fillings were rusted and that the water was about one fifth of the way up into the test tube. Why?

Conclusion: We can find the amount of oxygen in the air by the amount of water that is in the tube. What is this amount?

B+

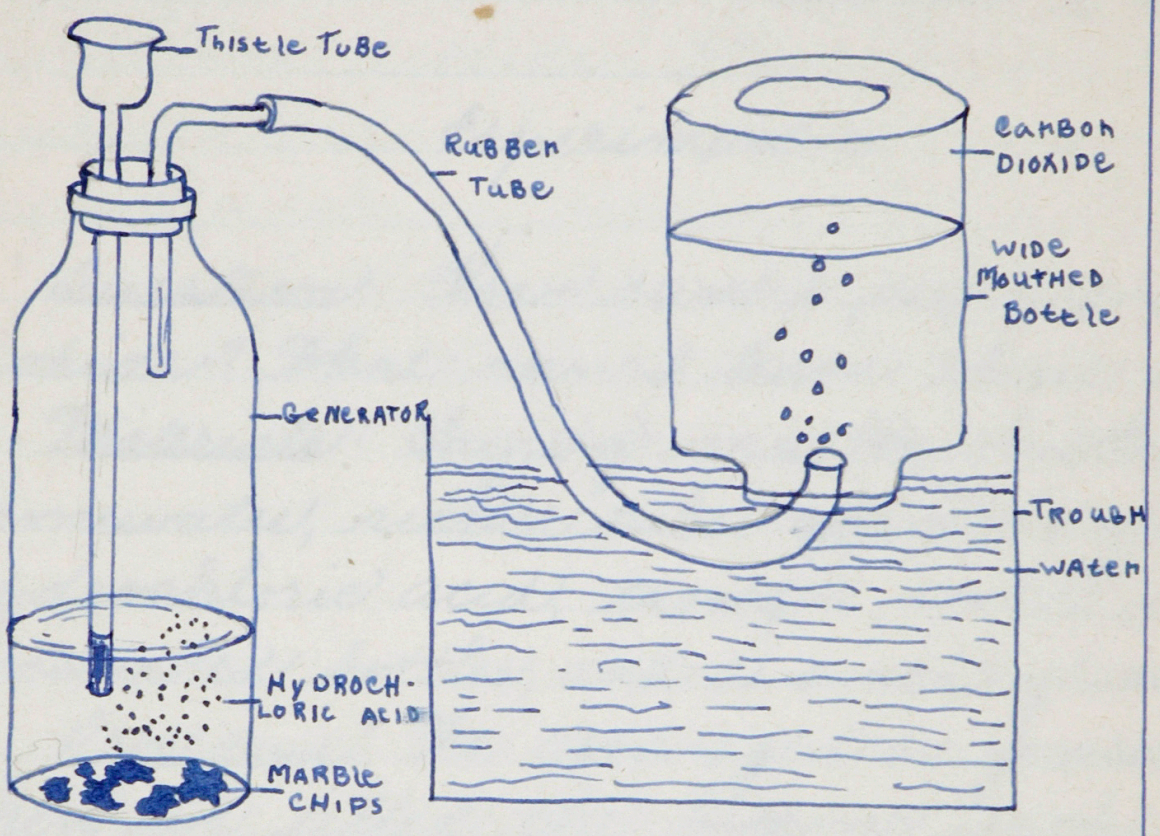
Corrections

filings, filings, filings.

filings, filings, filings.

The water was about one-fifth of the way in the test tube because the oxygen that was used was used to rust or oxidize the iron filings. The amount of oxygen in the air is about one fifth.

24cm x 30cm



T.J. Dennison

24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
October 2, 1942

Experiment 6

Question: How can I prepare carbon dioxide? What can I learn about it?

Materials: Chips of marble, thistle tube, limewater, rubber tube, splinters of wood, hydrochloric acid, trough, water, wide mouthed bottles, and a small glass cup.

Procedure: We arranged a generator, then we filled the bottom with the marble chips. Next we took the bottle of hydrochloric acid and poured it in the thistle tube. After doing this we took the rubber tube and stuck it up through the water in the trough up into the wide mouthed bottle filled with water. After the bottle was filled with carbon dioxide we took a match and lit one of the splinters of wood. We then took the rubber tube and put it in the cup of limewater.

Results: When we poured the hydrochloric acid into the generator on the

chips of marble they both formed the gas carbon dioxide. When the carbon dioxide had formed in the generator it began pushing, and as the tube was a opening the gas pushed its way up through the tube and in that way pushed the water out of the bottle. When s.l. He inverted the burning splinter into the bottle of carbon dioxide it immed- cns iately went out, this was because carbon dioxide does not support combustion. When the carbon dioxide mixed with the limewater, the limewater turned milky color.

Conclusion: By this experiment we came to the conclusion that carbon dioxide is a colorless, tasteless, gas that does not support combustion.

B

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Collections

When we inverted the burning splinters into the carbon dioxide it immediately went out.

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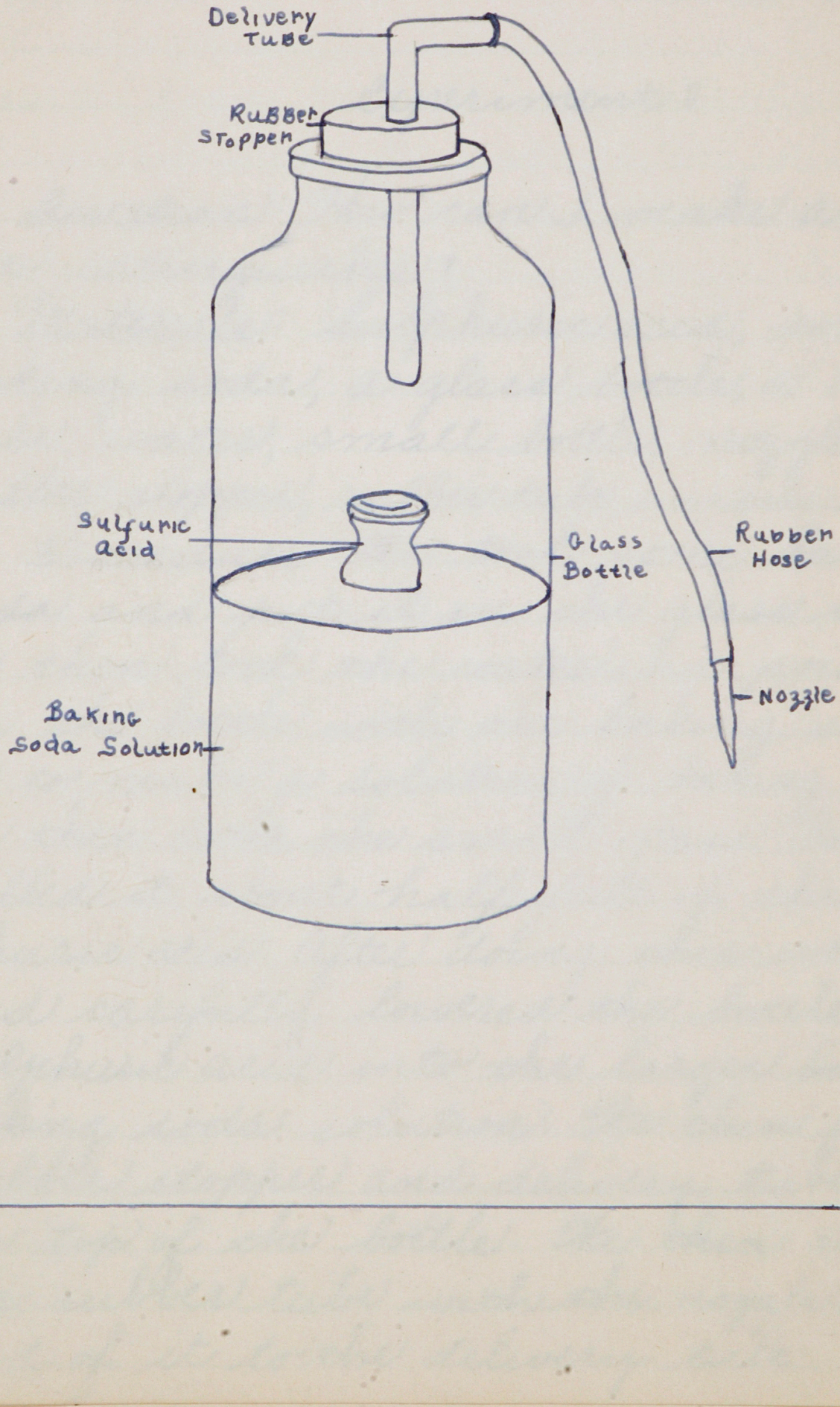
24cm x 30cm



24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
October 7, 1942

Experiment 8

Question: How can I make a model fire extinguisher?

Materials: Sulphuric acid, some baking soda, a glass bottle, a delivery tube, water, small bottle, nozzle, a rubber stopper, rubber tube, matches.

Procedure: We took some baking soda and put it in the glass bottle. We then took the water and poured it in the bottle with the baking soda, so as to make a solution of baking soda. We then tooke the small glass bottle and filled it about half full of the sulphuric acid. After doing this we slowly and carefully lowered the bottle of sulphuric acid into the larger bottle of baking soda solution. We then put the rubber stopper and delivery tube into the top of the bottle. We then attached the rubber tube with the nozzle on the end of it to the delivery tube.

24cm x 30cm

Results: When we turned the model fire extinguisher upside down the sulphuric acid mixed with the baking soda solution formed carbon dioxide which formed water and then the gas pushed the water out through the delivery tube and then through the rubber hose, and finally out through the nozzle on to the fire.

Conclusion: By this experiment we learned how fire extinguishers work.

1-

24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
October 5, 1942

Experiment 7

Question: Does air contain water vapor? How can I illustrate the formation of dew?

Materials: Cool water, ice, and a glass tumbler.

Procedure: I took the glass tumbler and filled it about a eighth full of cool water. I then took the cube of ice and droped it into the water.

Results: When I done this, after about two minutes a kind of sweat appeared on the outside of the glass tumbler. Why?

Conclusion: By this experiment I came to the conclusion that air does contain water vapor. That is the way the formation of dew takes place. When the grass gets cool and the sun sets the water vapor forms on the grass.

B

Corrections

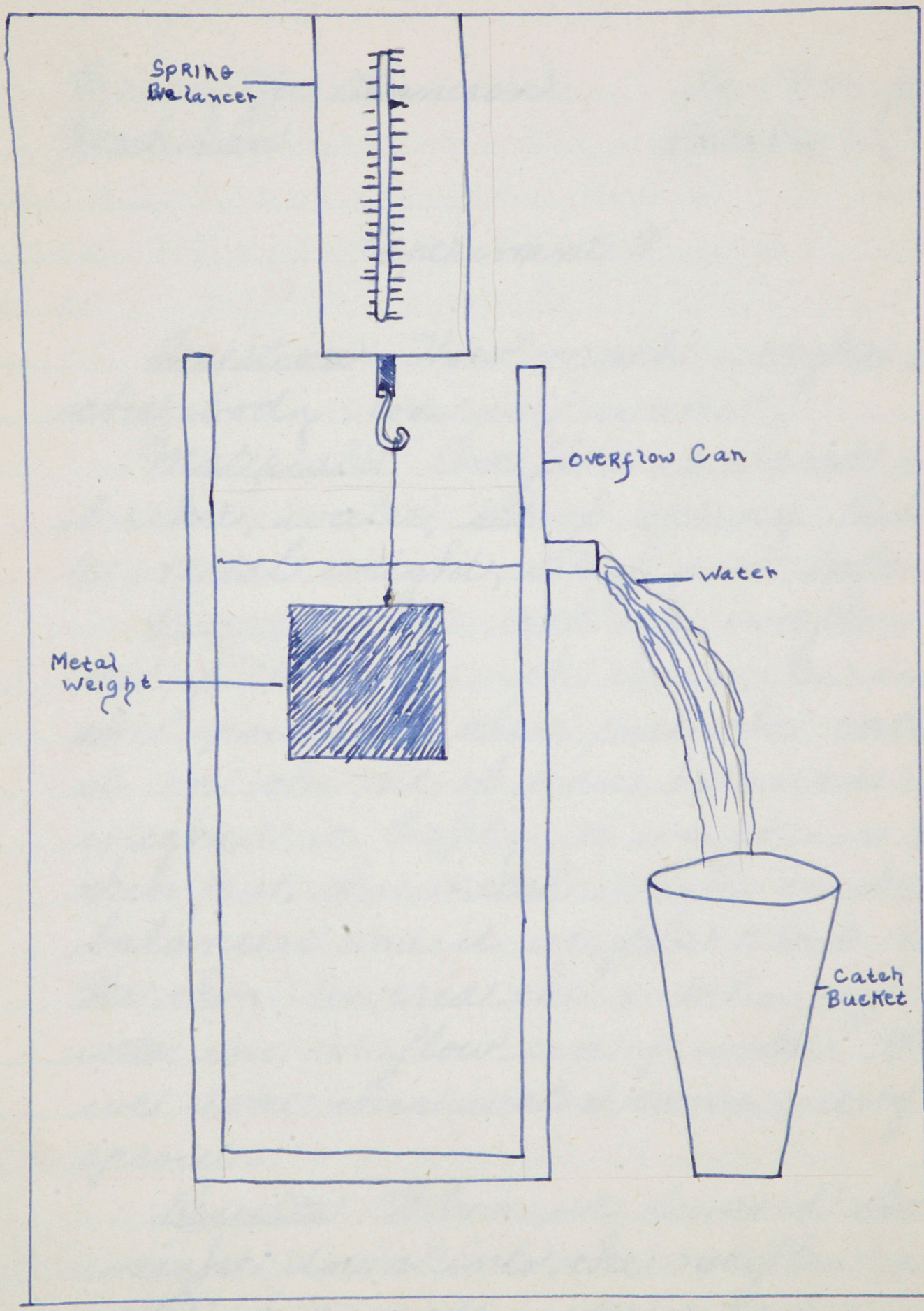
an eighth, an eighth, an eighth.

dropped, dropped, dropped.

When I did this.

The mist formed on the tumbler because the water vapor in the air settled on the tumbler when the tumbler became cooler than the air.

✓


Spring Balancer
overflow Can
water
Metal Weight
Catch Bucket

Tommy Joe Dennison
Freshman

St. Marys School
October 12, 1942

Experiment 9

Question: How much weight does the body lose in water?

Materials: Overflow can and catch bucket, water, set of spring balances, a metal weight, set of pan balances.

Procedure: We took the overflow can and filled it with the water even to the spout. We then put the catch bucket on the set of pan balances and weighed it. Empty it weighed 11.2. We then put the metal weight on the spring balances and it weighed about 190 grams. We then lowered the metal weight down into the overflow can of water. When we done this water came out of the sprout.

Results: When we lowered the metal weight down into the overflow can of water it caused water to come out of the sprout. When we done this the spring balances went from 190 grams to 125

Corrections

balances, balances, balances.
balances, balances, balances

balances, balances, balances.

When we did this water came out of the spout.

When we did this the spring balances went from 190 grams to 126 grams.
spout, spout, spout.

grams. This was because the metal
sp. weight in liquid loses a weight equal
to the weight of liquid displaced. When
we weighed the catch bucket of water
it weighed 80.3 grams. This was a loss of
69.1 grams, which was in water.

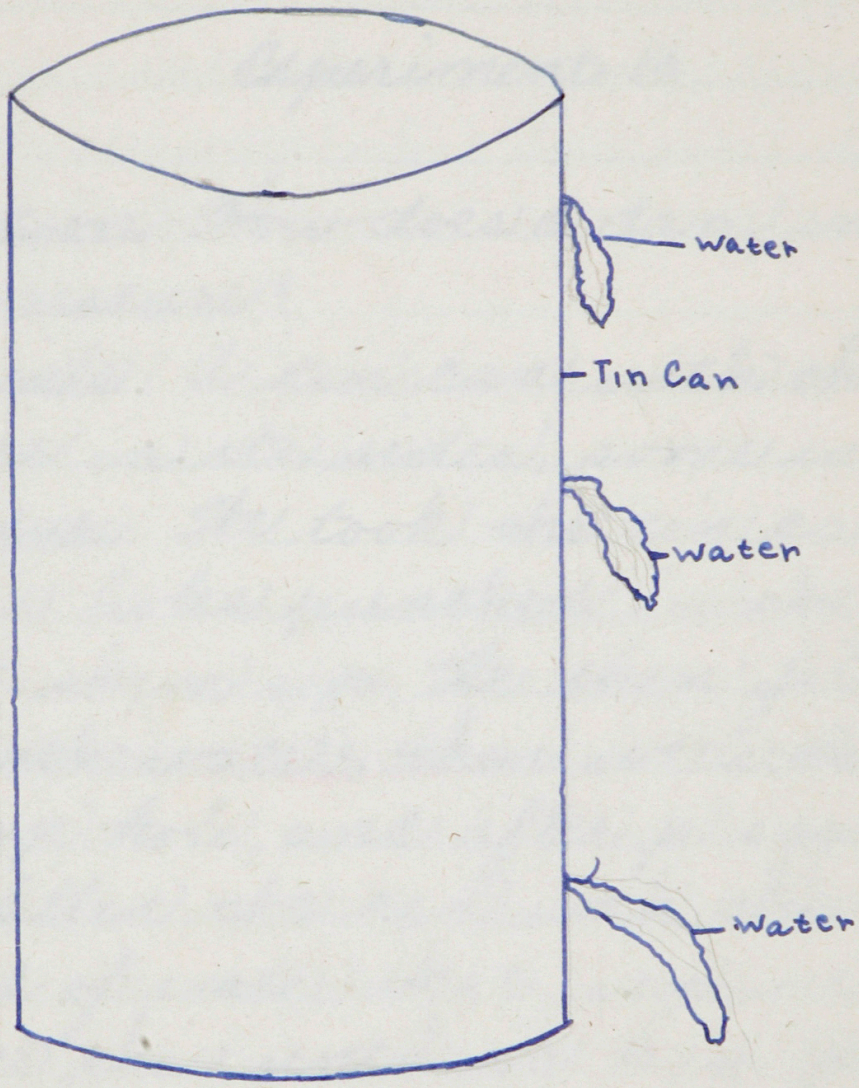
Conclusion: By this experiment we
came to the conclusion that in water
the body loses a weight equal to the
weight of water displaced.

a-

Corrections

lost, lost, lost.

24cm x 30cm



24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
October 12, 1942

Experiment 10

Question: How does a dam increase water pressure?

Materials: A tin can with three holes punched in its sides, some water.

Procedure: We took the tin can with the three holes punched in the side and stopped them up. We then filled the can with water, then we unstopped the top hole, and after plugging it up again filled the can with the same amount of water that was in it before. We done this until we had got to all three of them.

Results: When we unstopped the top hole the water came out just in a small stream. When we unstopped the second hole it came out in a larger stream. But when we unstopped the bottom hole it came out with much more force than the first or second holes.

Corrections

He then unstopped the top hole.

He did this until we got to all three of them.

24cm x 30cm

Conclusion: By this experiment we came to the conclusion that a dam increases water pressure because there is more water pressure on the bottom then there is on the top.

a-

24cm x 30cm

24cm x 30cm

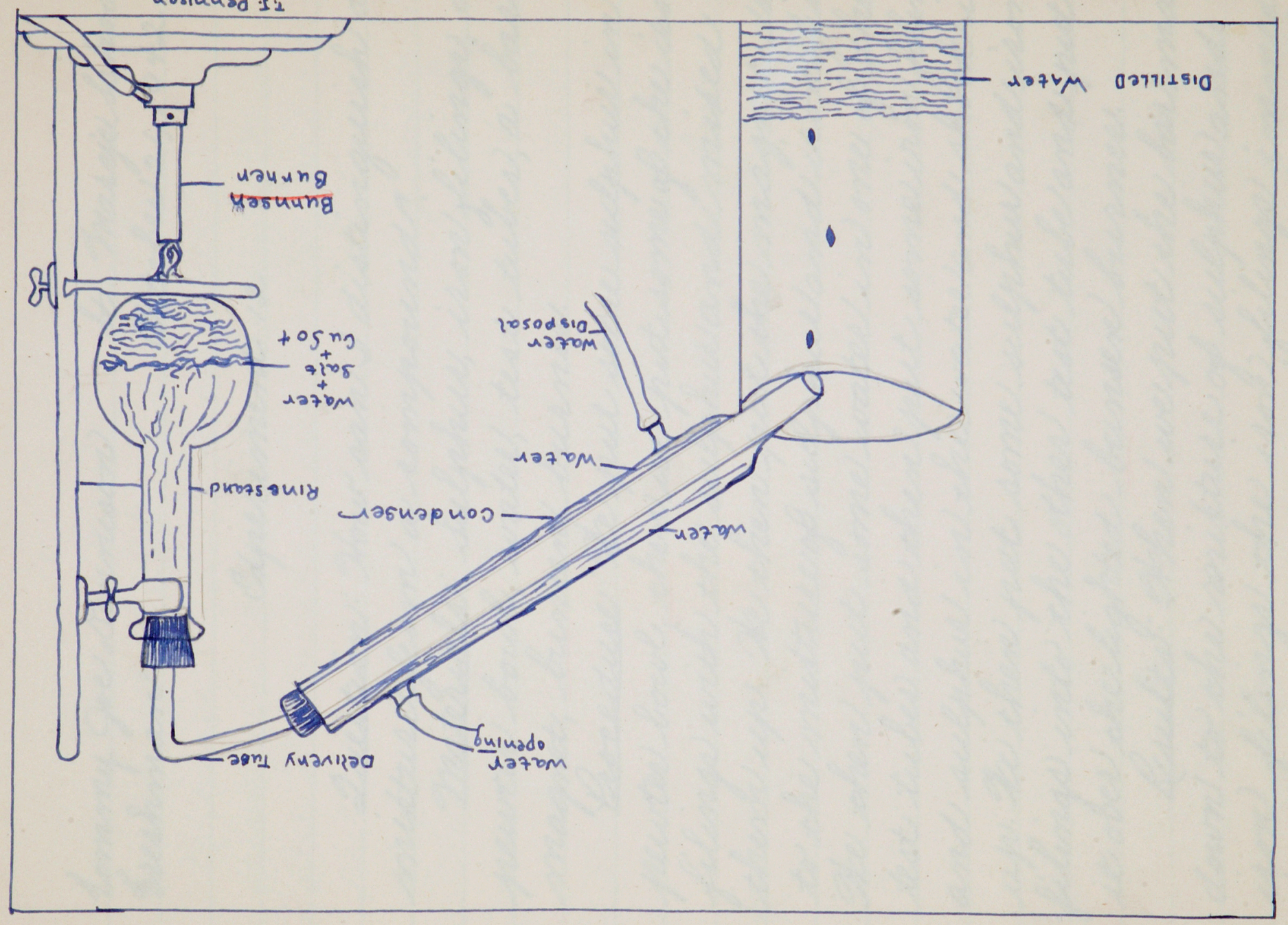
Corrections

Bunsen, Bunsen, Bunsen.

24cm x 30cm

24cm x 30cm

24cm x 30cm



Tommy Joe Dennison
Freshman

St. Mary's School
October 21, 1942

Experiment 12

Question: How can I distinguish a mixture from a compound?

Materials: Sulphur, iron filings, a pewter bowl, water, test tubes, a bar magnet, bunsen burner.

Cap

Procedure: We put some sulphur in the pewter bowl, then we put some of the iron filings with the sulphur and mixed them up. We then put the magnet down to the mixture of sulphur and iron filings. We then put some water in one of the test tubes and then put some iron filings and sulphur in the water and shook it up. We then put some sulphur and iron filings into the other test tube and put it over the lighted bunsen burners.

Cap

Cap.

Results: When we put the bar magnet down to the mixture of sulphur and iron filings the iron filings immediately parted from the sillphur. When we put the sulphur and iron filings

Corrections

Bunsen burner

He then put some of the iron filings with the sulphur.

in the test tube of water the sulphur all came to the top and all the iron filings went to the bottom. Explain When we put the mixture into a test tube and cap put it over the bunsen burner it began to glow. When it was glowing we took it away from the burner and took it out of the tube. When we touched the same bar magnet to the mixture, after it had been heated, it took no effect. Explain

Conclusion: By this experiment we came to the conclusion that we can distinguish a mixture from a compound by seeing if it will separate. If it will separate it is a mixture, and if it does not separate it is a compound.

B

Corrections

All the iron filings went to the bottom because they are heavier than water.
Bunsen burner.

It took no effect and didn't come up to the magnet, because when it was heated it became a compound.

✓

re

Tommy Joe Dennison
Freshman

St. Marys School
October 23, 1942

Experiment 13

Question: What is meant by solution?

Materials: Copper sulphate, water, mustard spoon, test tube.

Procedure: We took the test tube and put some water in it. We then took the mustard spoon and put some copper sulphate in the tube of water. Then we shook it up. Next we put more copper sulphate in the solution we had made already. We shook this up as we did the first time.

Results: When we made the first solution it was a weak solution, so it was a dilute solution. Then we added more of the copper sulphate and shook it up we seen some copper sulphate left in the bottom of the tube. This was a concentrated solution. Incomplete

gp.

Conclusion: A solution is a uniform mixture of two or more substances that do not separate even on long standing.

B

24cm x 30cm

Then we added more of the copper sulphate and shook it up we saw some copper sulphate left in the bottom of the tube. This was a concentrated solution because all the copper sulphate didn't disolve.

sf

dissolve, dissolve, dissolve.

✓

Tommy Joe Dennison
Freshman

St. Mary's School
October 27, 1942

Experiment 14

Question: How can I show the minute particles that make up matter?
1. That they are very small;
2. That they are in motion?

Materials: Large beaker, water, test tube, copper sulphate, potassium permanganate.

Procedure: He took the test tube and filled it about half full of water. He then took a few crystals of copper sulphate and put them in the tube of water. He then took the large beaker and put water in it until it was about half full. He then put a few crystals of potassium permanganate in the beaker of water and stired it up well.

Results: After we had put the crystals of copper sulphate in the tube of water the copper sulphate gradually worked their way to the top. This showed that the minute particles that make up matter are always in motion. When we put the crystals of

24cm x 30cm

potassium permanganate in the beaker of water and stirred it up all the water became pinkish color. This shows that the minute particles that make up matter are very small.

Conclusion: By this experiment we came to the conclusion that matter is built up of many small particles and that these particles are always in motion.

a

24cm x 30cm

Corrections

He took the red litmus paper and did the same.

He then put the tip of our finger in each and tasted it.

Tommy Joe Dennison — St. Mary's School
Freshman — October 28, 1942

Experiment 15

Question: How can I detect an acid?
Materials: Three beakers, hydrochloric acid, sulfuric acid, vinegar, strips of red and of blue litmus paper, water, some pieces of mossy zinc.
Procedure: We took the three beakers and filled them about half full of water. We then took the hydrochloric acid and put it into the water. We then took the sulfuric acid and put some in another beaker of water. We then took the vinegar and put it in the other beaker of water. We then took the strips of blue litmus paper and inverted a piece into each of the beakers of acid and water. We took the red litmus paper and done the same. After this we put a piece of the mossy zinc in each of the beakers of water and acid. Tasting it!
Results: When we inverted the blue litmus paper into the beakers of water

The taste was sour.

and by tasteing it.

tasting, tasting, tasting.

and acid the litmus paper immediately turned red. When we inverted the red litmus paper into the same beakers it remained red. After we put the pieces of mossy zinc in the beakers of water and acid the acid instantly began eating the zinc, and caused a gas to come off.

taste?

Conclusion: By this experiment we came to the conclusion that we can detect an acid by its taste, and by inverting litmus paper in the liquid.

and?

B

Tommy Joe Dennison
Freshman

St. Mary's School
October 29, 1942

Experiment 16

Question: How can I detect a base?

Materials: Three beakers, ammonia, lime-water, potassium hydroxide, strips of red and of blue litmus paper, water.

Procedure: We took the three beakers and filled them about half full of water. We then put some ammonia in one, lime-water in the other, and potassium hydr-oxide in the last. We then put the tip of our fingers in each and tasted it. We then rubbed a little of each between the thumb and finger. We then inverted the red and blue litmus paper into each beaker.

Results: When we tasted the ammonia, limewater, and potassium hydroxide it tasted bitter. When we rubbed a little between our thumb and finger it felt soapy. When we finally inverted the red and blue litmus paper into the solutions of ammonia, limewater, and

24cm x 30cm

potassium hydroxide it turned the red litmus paper blue. When we inverted the blue litmus paper into the solutions it remained blue.

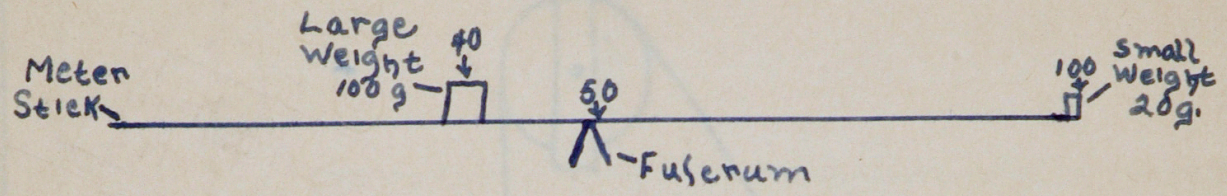
Conclusion: By this experiment we came to the conclusion that we can detect a base by its taste, which is bitter, by its feel, which is soapy, and by inverting red ~~or blue~~ litmus paper in the liquid.

a

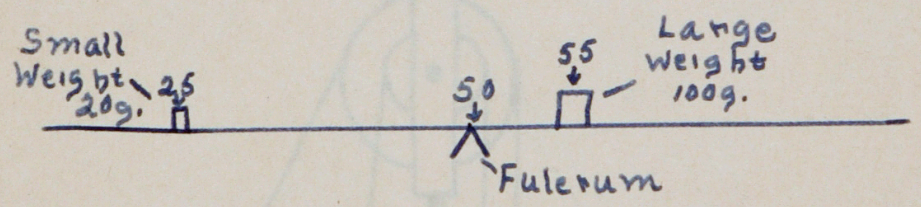
24cm x 30cm

Experiment 17

The Law of the Lever.



$$E \times D = R \times D'$$
$$20 \times 50 = 100 \times 10$$
$$1000 = 1000$$



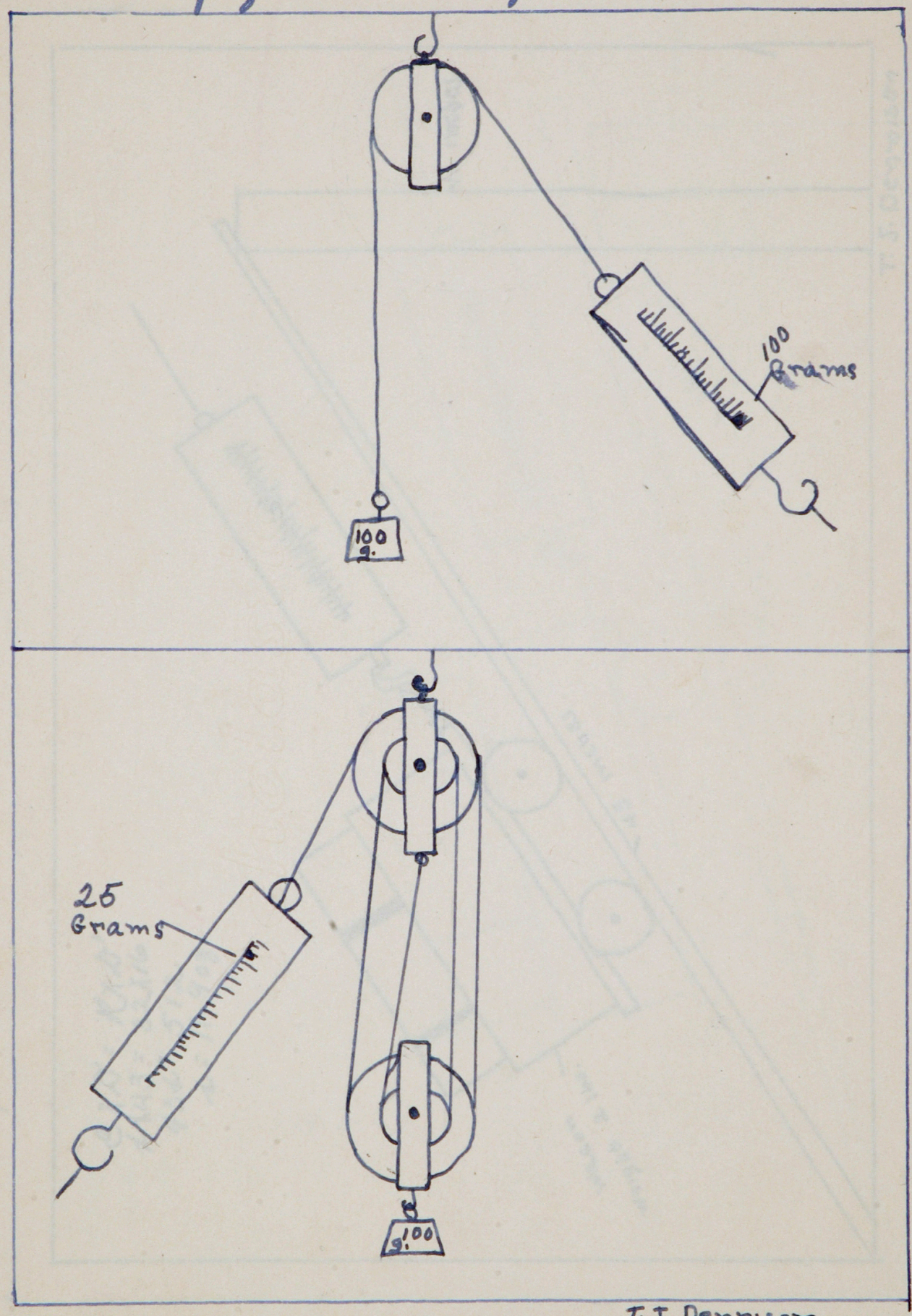
$$E \times D = R \times D'$$
$$20 \times 25 = 5 \times 100$$
$$500 = 500$$

T. J. Dennison

a-

Experiment 18

Study of the Pulleys.



T. J. Dennison

1

Experiment 19a

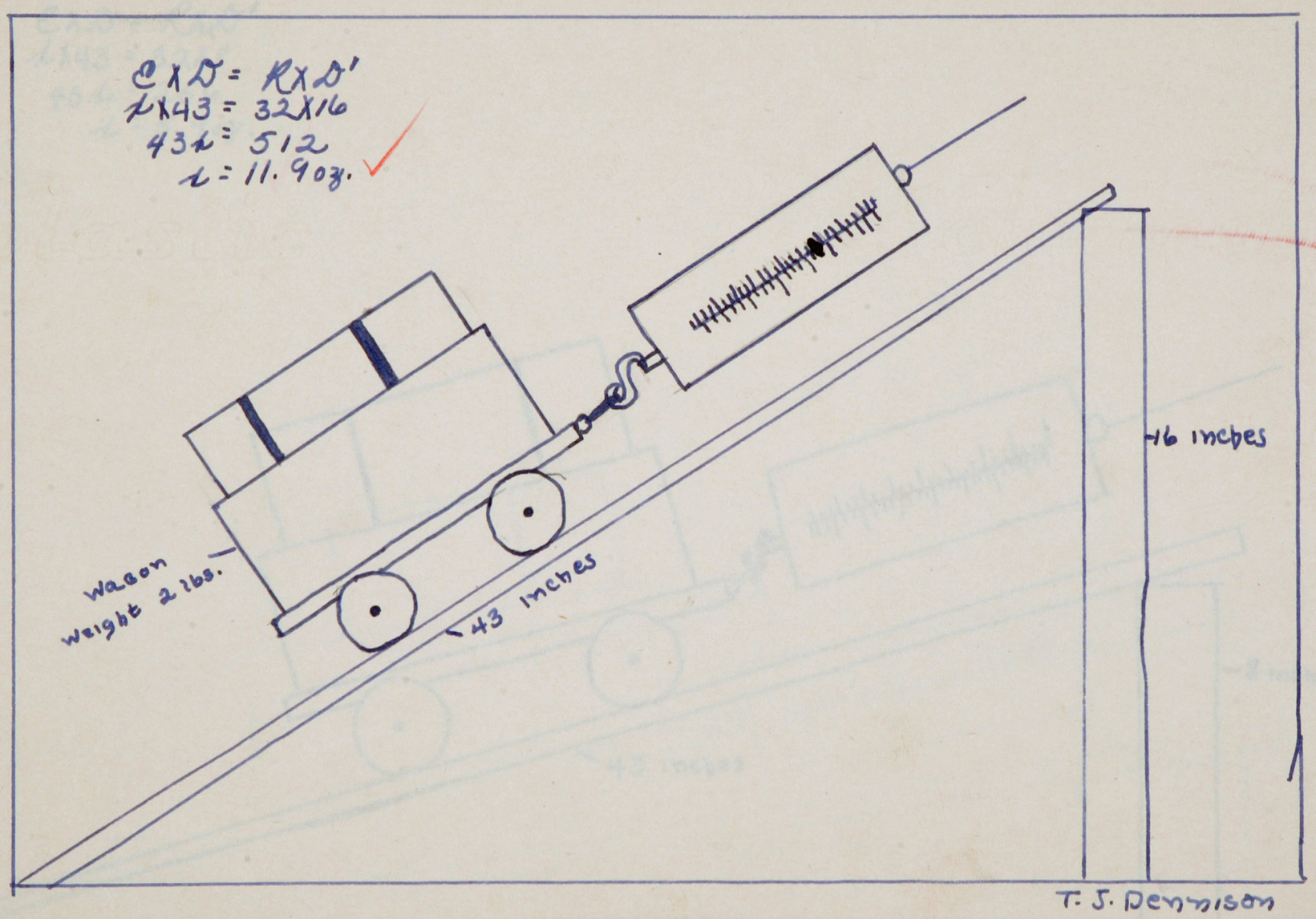
Experiment on Inclined Plane.

$E \times D = R \times D'$

$x \times 43 = 32 \times 16$

$43x = 512$

$x = 11.9$ oz.



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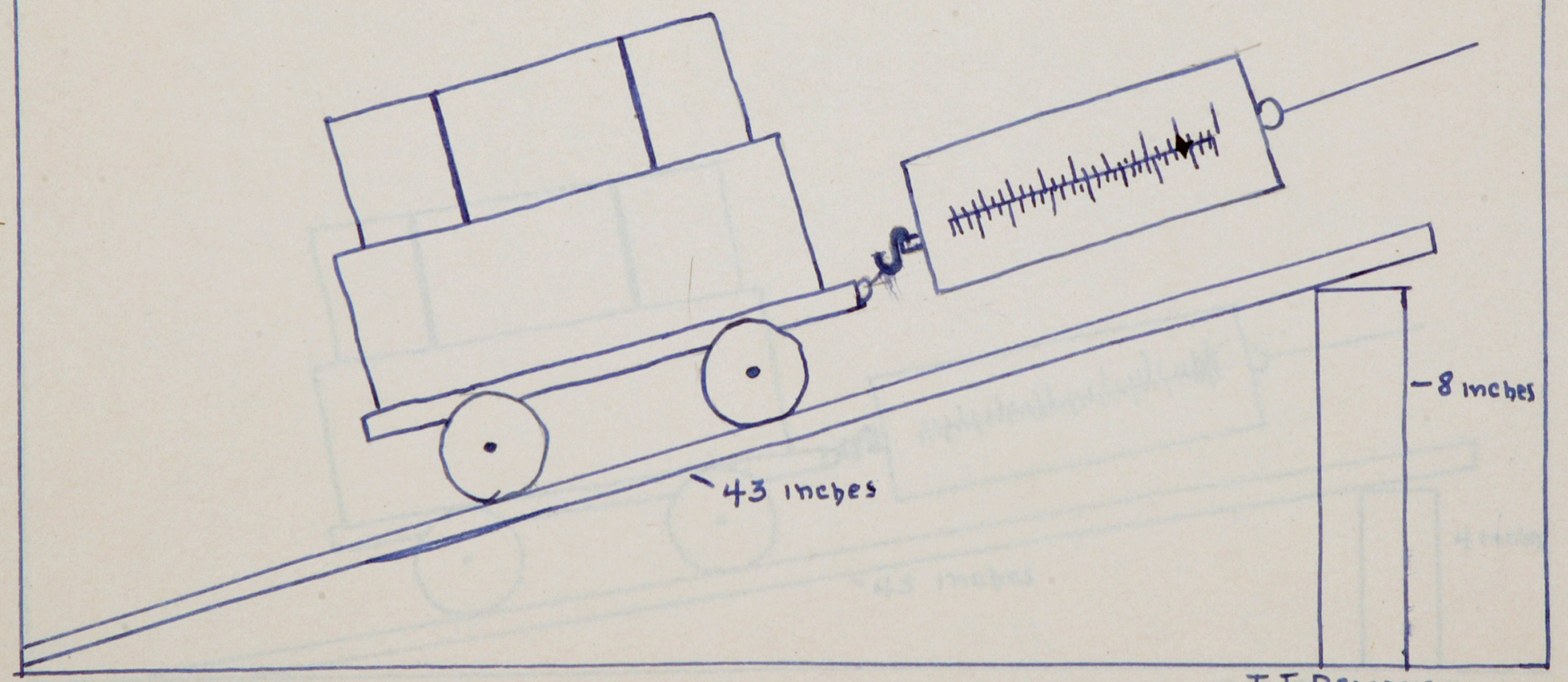
Experiment 19b

Experiment on Inclined Plane

C x D = R x D'
1 x 43 = 32 x 8
43 1 = 256
1 = 5.9 oz.



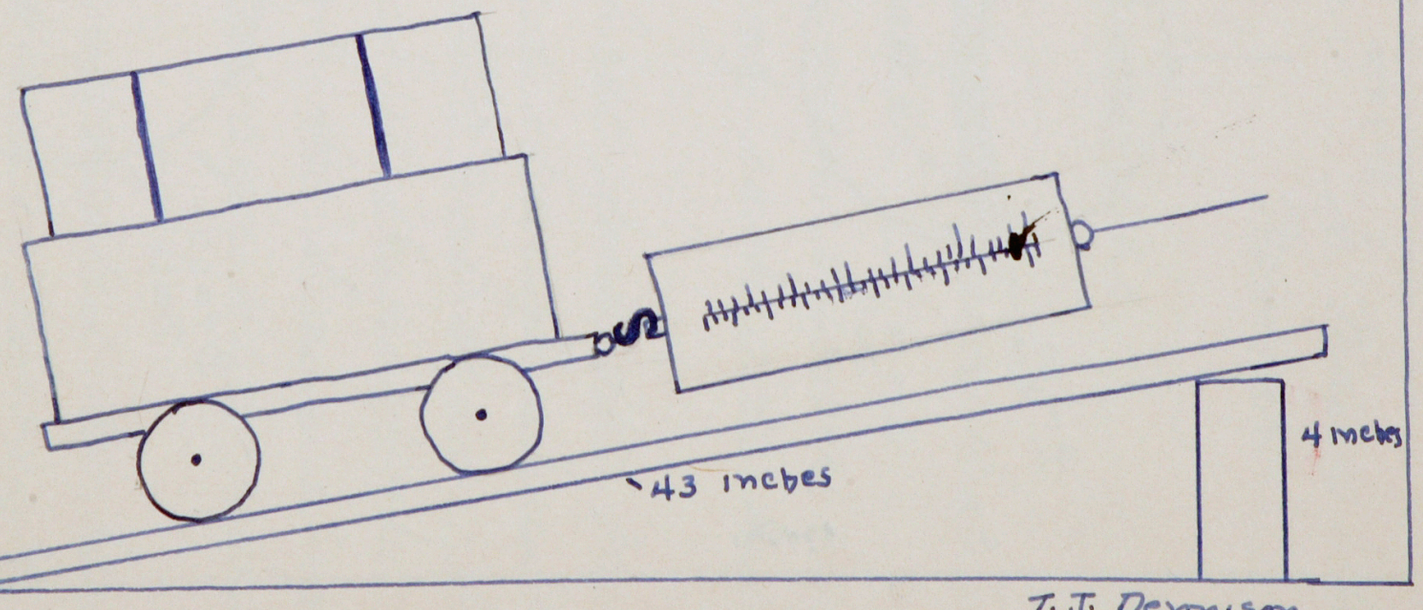
T. J. Dennison

24cm x 30cm

Experiment 19c

Experiment on Inclined Plane

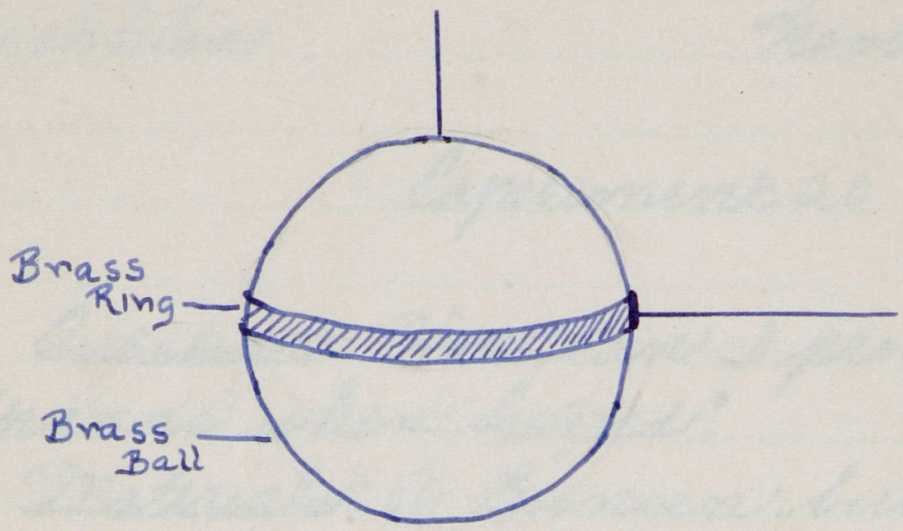
C x D = R x D'
1 x 43 = 32 x 4
43 = 128
1 = 2.9 oz.



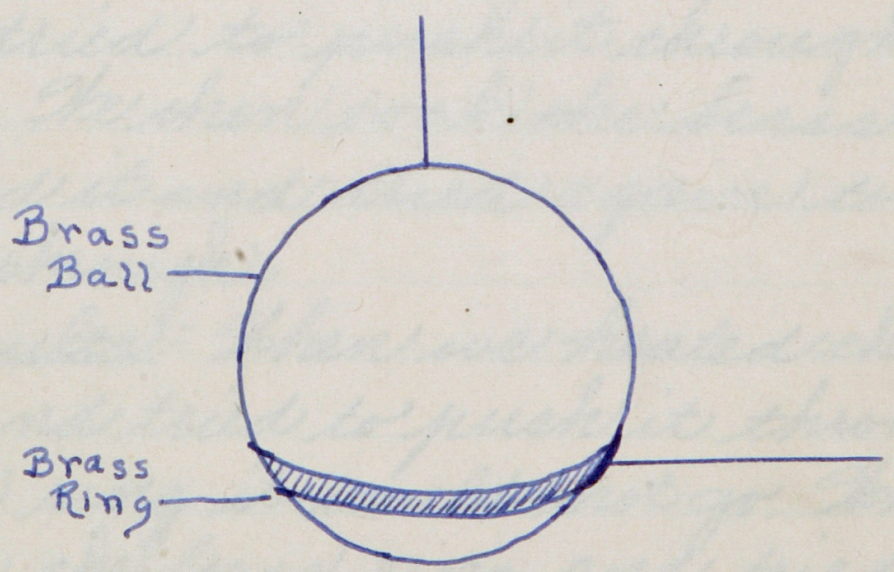
T. J. Dennison

24cm x 30cm

Before Heating



After Heating



T. S. Dennison

24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
November 12, 1942

Experiment 20

Question: How can I prove that metal expands when heated?

Materials: A Bunsen burner, a round brass ball and ring each attached by a handle.

Procedure: We first took the brass ball and pushed it through the brass ring. We then heated the brass ball and tried to push it through the brass ring. We then took the brass ring and heated it and tried again to push the ball through.

Results: When we heated the brass ball and tried to push it through the brass ring it would not go. When we heated the brass ring and tried to push the ball through it, it went through.

Conclusion: By this experiment I came to the conclusion that metal expands when heated.

a

24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
November 18, 1942

Experiment 21

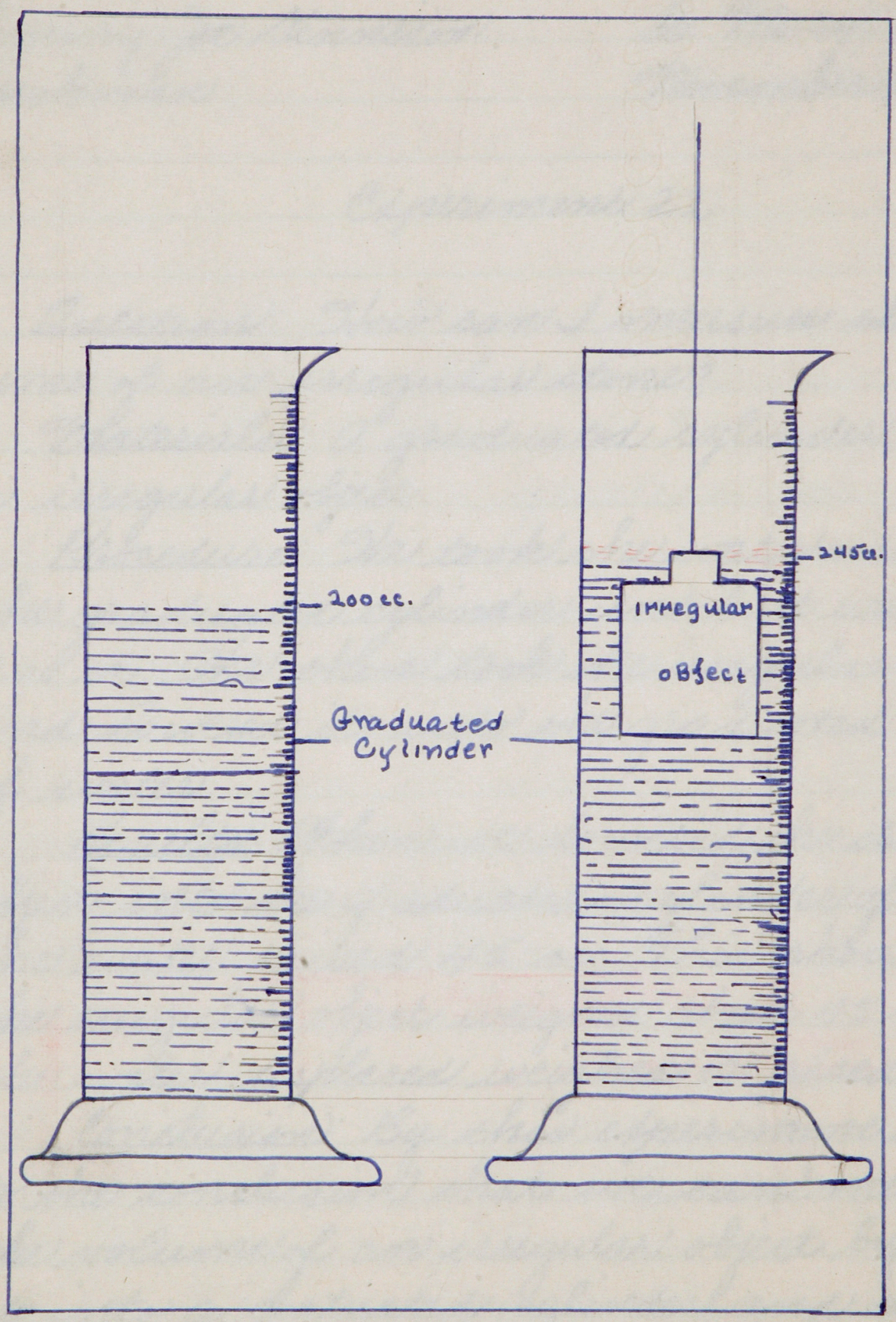
Question: How can I prepare crystals?
Materials: Tumbler, water, string, and a mixture of potassium dichromate, copper sulphate, potassium nitrate.
Procedure: We took the tumbler and filled it about half full of water. We then put the mixture of chemicals into the tumbler of water until we had a saturated solution. We then put the string on a small stick across the top of the tumbler ~~so as to~~ and let the end of the string hang down into the solution. We then let the solution stand for about three weeks.
Results: When we let the solution stand without being bothered the water began to evaporate. When some of the water had evaporated, it made a super-saturated solution. When this was a super-saturated solution there was too much solute for the amount

of solvent, so the solute formed the crystals on the piece of string and on the edges of the tumbler.

Conclusion: By this experiment we came to the conclusion that we can make crystals by making a solution of water and chemicals and letting it stand until all the water has evaporated.

a

24cm x 30cm



24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
November 30, 1942

Experiment 22

Question: How can I measure the volume of an irregular stone?

Materials: A graduated cylinder, water, a irregular object.

Procedure: We took the water and filled the graduated cylinder until it was about 200 cc. We then took the irregular object and lowered it into the graduated cylinder of water.

Results: When we lowered the irregular object into the graduated cylinder of water the water raised 45 cc. This showed that the irregular object ~~weighted~~ had a volume of about 45 cc. because the water displaced ~~weighed or~~ was raised 45 cc.

Conclusion: By this experiment we came to the conclusion that we can measure the volume of an irregular object by lowering it into a graduated cylinder and the amount of water displaced is the ~~weight~~ volume of the object.

B-

Corrections

an, an, an.

When we lowered the irregular object into the graduated cylinder of water the water rised 45 cc.

Tommy Joe Dennison
Freshman

St. Mary's School
December 1, 1942

Experiment 23

Question: How can I show that dark, rough surfaces are better absorbers of heat than light, polished surfaces?

Materials: Two square pieces of polished copper sheeting, a wax candle, Bunsen burner, desk apparatus.

Procedure: We took the Bunsen burner and lit it so as to give off a yellow flame. We then held one of the square pieces of copper sheeting over the flame so as to coat one side of it evenly with a layer of soot. We then took the wax candle and lit it and let the melted wax drop on each square of sheeting. We then put the two squares of copper sheeting on the desk apparatus. We then put the Bunsen burner under the two plates of copper sheeting.

Results: When we put the lit Bunsen burner under the two pieces of copper sheeting the wax on the shinly one

melted and began running before the wax on the one with the layer of soot on the back. The dark, rough surface absorbed the heat quicker but the light, polished surface conducted the heat quicker.

Conclusion: By this experiment we came to the conclusion that dark, rough surfaces absorbs the heat quicker than light, polished surfaces, but the light, polished surfaces conducts the heat more rapidly than the dark, rough surfaces.

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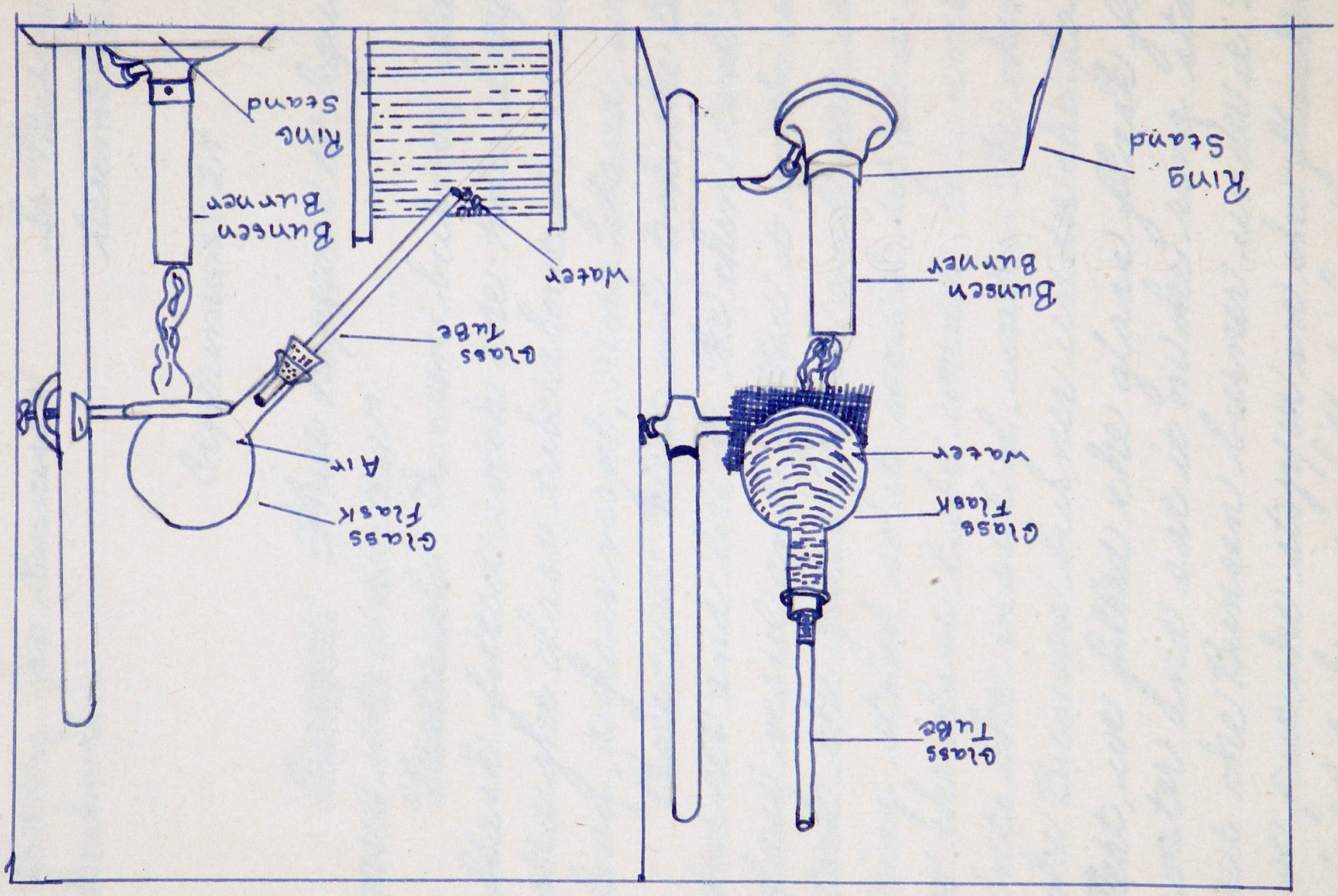
24cm x 30cm


Ring Stand
Bunsen burner
water
Glass flask
Glass Tube
Ring stand
Bunsen Burner
water
Glass tube
Air
Flask
Glass Flask

Tommy Joe Dennison
Freshman

St. Mary's School
December 1, 1942

Experiment 24

Question: What happens to liquids and gases when heated?

Materials: Bunsen burner, glass flask fitted with one-hole stoppers and straight glass tube about four inches long, a glass vessel, ring stand, water.

Procedure: First, we took the Bunsen burner and lit it. We then took the glass vessel and filled it with water. We took the glass flask and sat it on the ring stand so it would sit at a angle so the glass tube would be inverted into the vessel of water. We then put the Bunsen burner under the glass flask. Next, we filled the glass flask full of water and sat it on the ring stand and put the Bunsen burner under it. Then we put the stopper on the flask the glass tube was filled about a inch with water.

Results: When we put the Bunsen

Corrections

9

an, an, an.

burner under the glass flask, the air in the flask heated and started expanding. The air came out through the glass tube which was inverted into the vessel of water and caused bubbles to rise. When we heated the flask of water, the water began expanding. As it expanded it slowly rose in the glass tube which was inverted through the stopper.

Conclusion: By this experiment we came to the conclusion that when liquids and gases are heated they expand.

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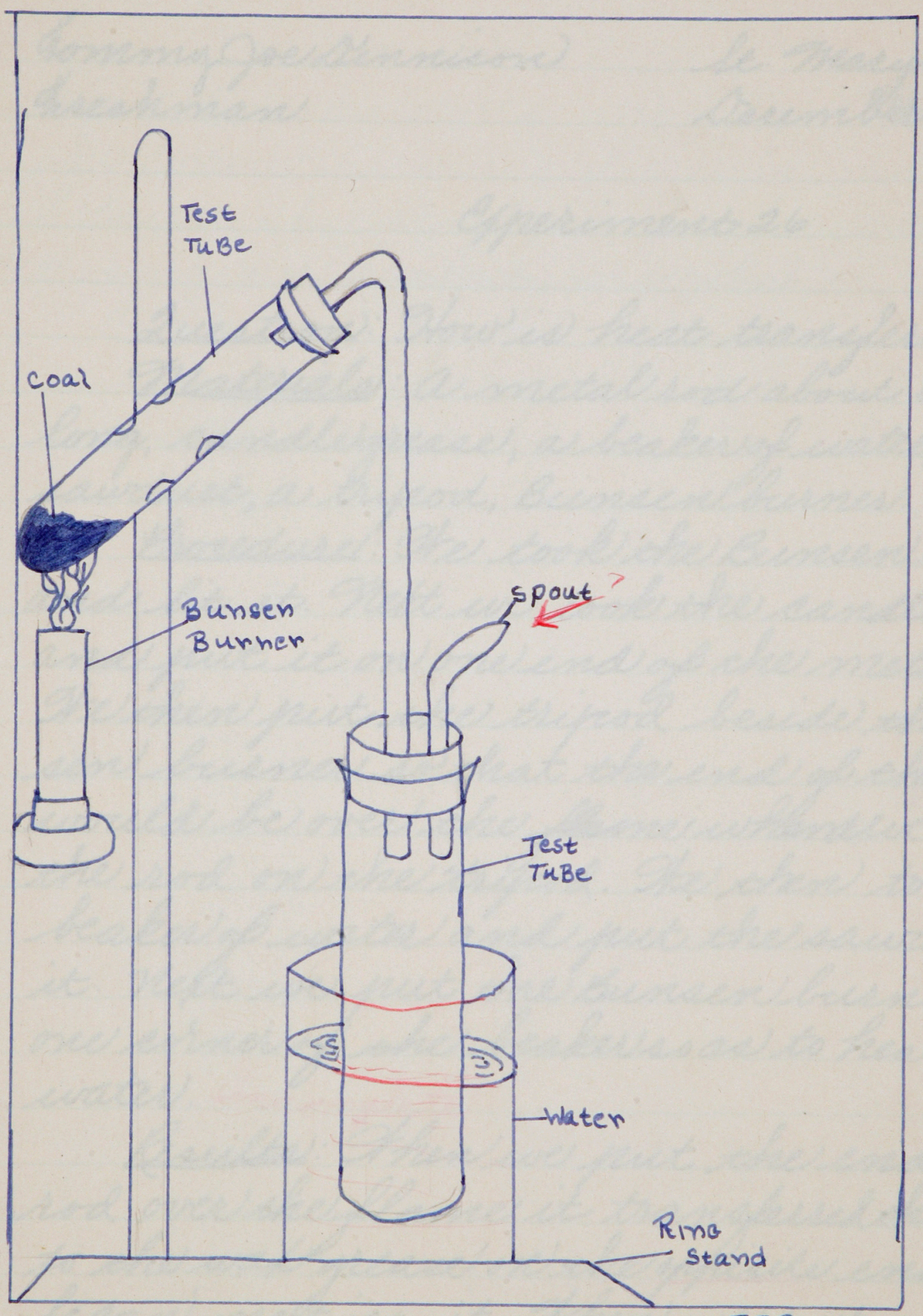
24cm x 30cm

Experiment 25
How Illuminating Gas is Made



T. J. Dennison

a-

Tommy Joe Dennison
Freshman

St. Mary's School
December 2, 1942

Experiment 26

Question: How is heat transferred?

Materials: a metal rod about 8 inches long, candle grease, a beaker of water, some sawdust, a tripod, Bunsen burner.

Procedure: We took the Bunsen burner and lit it. Next we took the candle grease and put it on one end of the metal rod. We then put the tripod beside the Bunsen burner so that the end of the rod would be over the flame when we put the rod on the tripod. We then took the beaker of water and put the sawdust in it. Next we put the Bunsen burner on one corner of the beaker so as to heat the water. Incomplete

Results: When we put the end of the rod over the flame it transferred the heat to the wax grease on the opposite end and began melting it. When we put the Bunsen burner under the beaker of water with sawdust in it, it started the

Corrections

around, around, around

opposite, opposite, opposite.

convection currents moving. We knew the convection currents were in motion because the sawdust in the water went around the beaker in circles.

Conclusion: By this experiment we came to the conclusion that heat is transferred by radiation, convection, and conduction.

What happened to this part of your experiment:

Corrections

We set the flask on the balance and got it balanced.

Because when air is heated it expands.

✓

Tommy Joe Dennison
Freshman

St. Marys School
December 2, 1942

Experiment 27

Question: Does heated air weigh the same as cold air?

Materials: A flask, balance, Bunsen burner, ring stand.

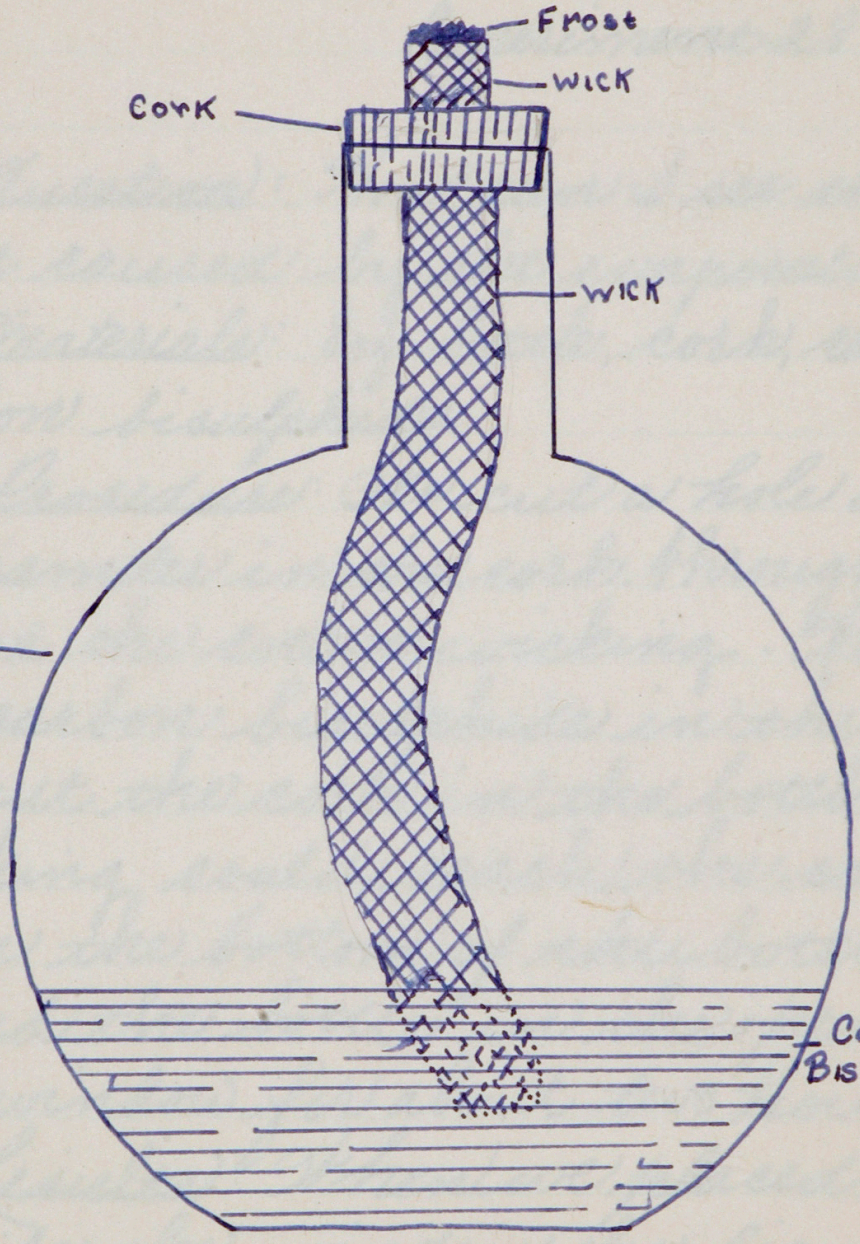
Procedure: We sat the flask on the balance and and got it balanced. We then put the Bunsen burner up to the side of the flask.

Results: When we heated the flask the pointer on the Balance went down about one point. Explain

Conclusion: By this experiment we came to the conclusion that heated air weighs less than cold air.

13

24cm x 30cm



T. J. Dennison

24cm x 30cm

Tommy Joe Tennison
Freshman

St. Mary's School
December 4, 1942

Experiment 28

Question: How can I see the cooling effect caused by the evaporation of a liquid?

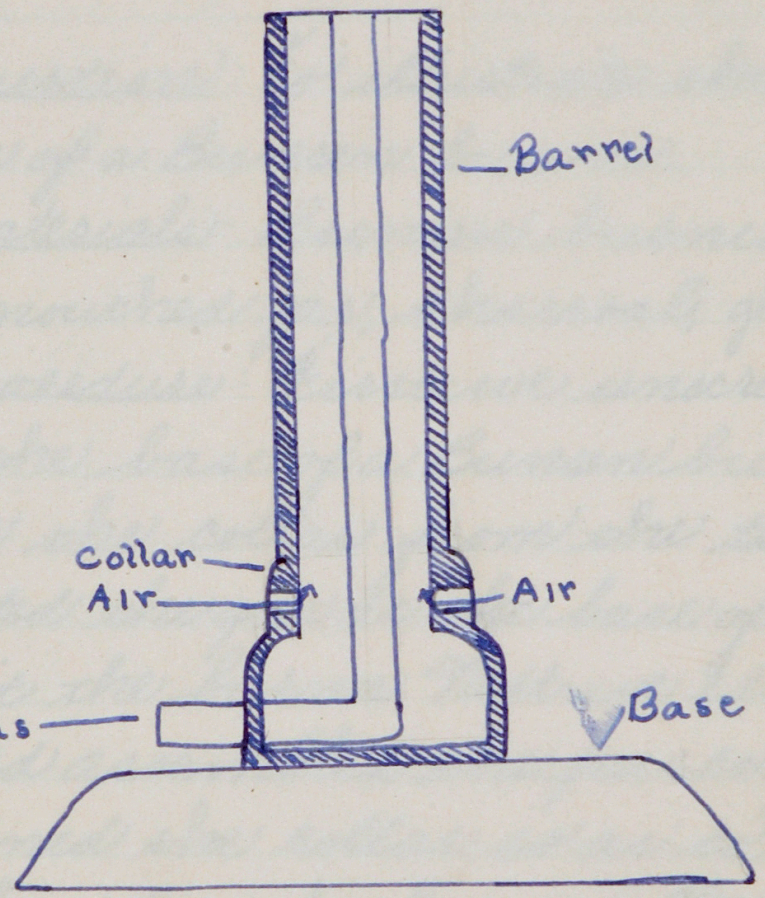
Materials: 8oz. bottle, cork, cotton wicking, carbon bisulphide.

Procedure: We cut a hole about 3/4 inches in diameter in the cork. Through this we pulled the cotton wicking. We then put the carbon bisulphide in the bottle. Next we put the cork in the bottle so that the wicking could reach the carbon bisulphide in the bottom of the bottle. We then placed the bottle in the open air outside the window for about two hours.

Results: When we placed the bottle outside the window the liquid turned into a gas and when it came up through the cotton wicking it froze and so formed frost on the top of the wicking.

Conclusion: By this experiment we came to the conclusion that we can see the cobling effect caused by the evaporation of

a liquid by doing this experiment.



T. J. Dennison

24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
December 10, 1972

Experiment 29

Question: To illustrate the construction and use of a Bunsen burner.

Materials: Bunsen burner, limewater, wide mouthed jar, charcoal, glass rod.

Procedure: First we unscrewed the barrel from the base of a Bunsen burner. We then slipped the collar from the tube. We then connected the gas at the base of the burner and lit the burner. Next we extinguished the fire and assembled the parts of the burner. We turned the collar so as to close the holes and then lit the burner. We then opened the holes by turning the collar. Next we took a piece of charcoal and tapped it against the open holes. We then closed the holes again and held a glass rod over the flame. We then opened the holes and held the same glass rod over the flame. We then took the wide-mouthed jar and inverted it over the blue flame for a few seconds. We then took the limewater and put it into the jar and shook

24cm x 30cm

Because

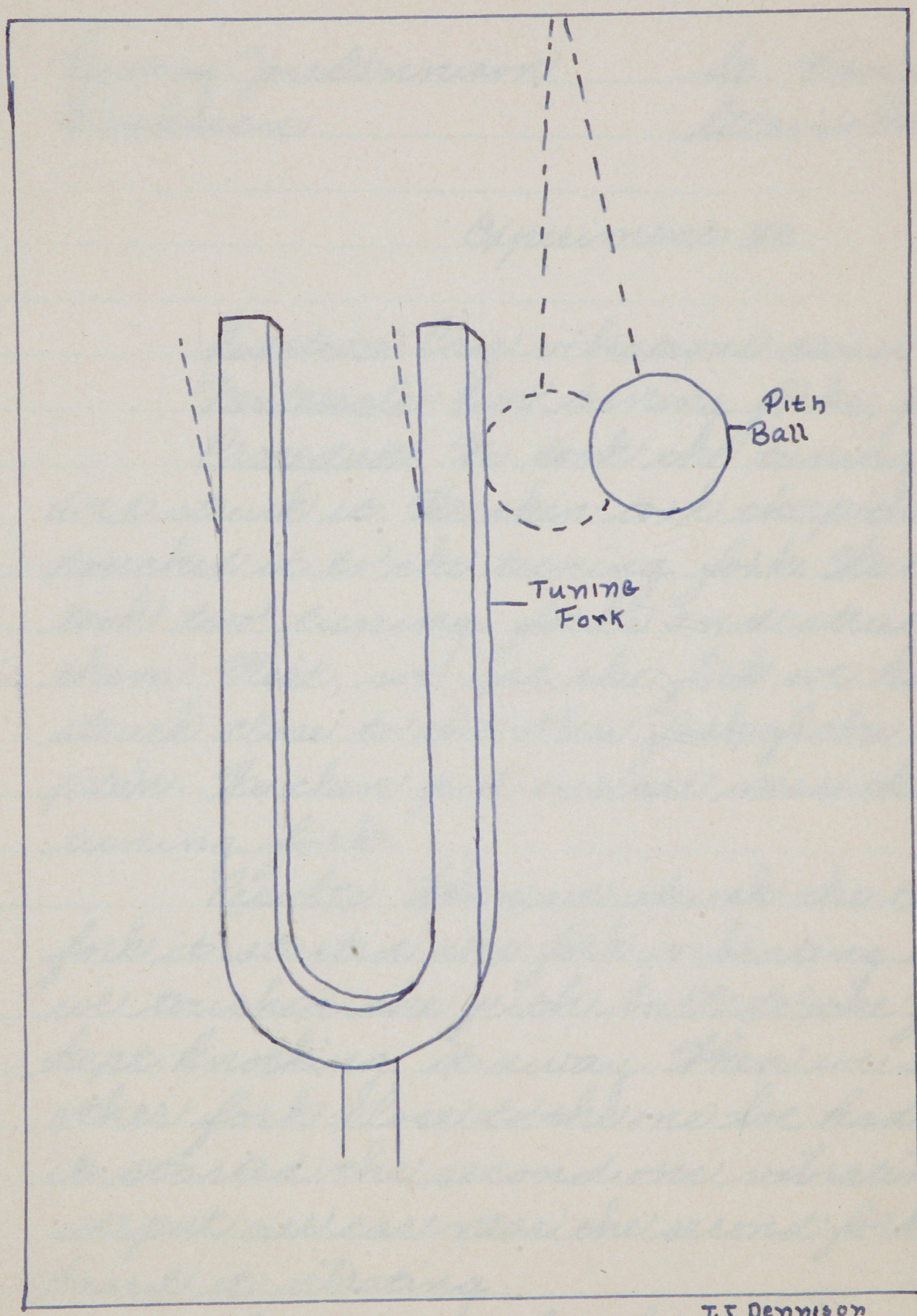
it up. Next we took a cold, dry, wide-mouthed jar and held it over the flame.

Results: When we lit the burner with the barrel and the collar off, it gave off a yellow flame. Why? When we assembled the burner and lit it again with the holes closed it gave off a yellow flame & When we opened the holes flame it gave off a blue flame. When we took the piece of charcoal and tapped it against the open holes the flame turned yellow. Why? When we closed the holes and held the glass rod over the yellow flame it deposited soot on the glass rod. Why? When we put the glass rod over the blue flame the soot burned off. When we put the limewater into the wide-mouthed jar and shook it, it turned milky color. This showed that carbon dioxide was present. When we held the cold, dry, wide mouthed jar over the flame water formed on the inner surface of the bottle. Why?

Conclusion: By this experiment we came to the conclusion that we can illustrate the construction and use of a Bunsen burner by doing this experiment.

B-

24cm x 30cm



T. J. Dennison

24cm x 30cm

24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
December 10, 1942

Experiment 20

Question: Can vibrations cause sound?
Materials: Two tuning forks, pith ball.
Procedure: We took the tuning fork and struck it. We then took the pith ball and touched it to the tuning fork. We then took two tuning forks and struck one of them. Next, we sat the fork we had struck close to the other fork of the same pitch. We then put our ear near the second tuning fork.

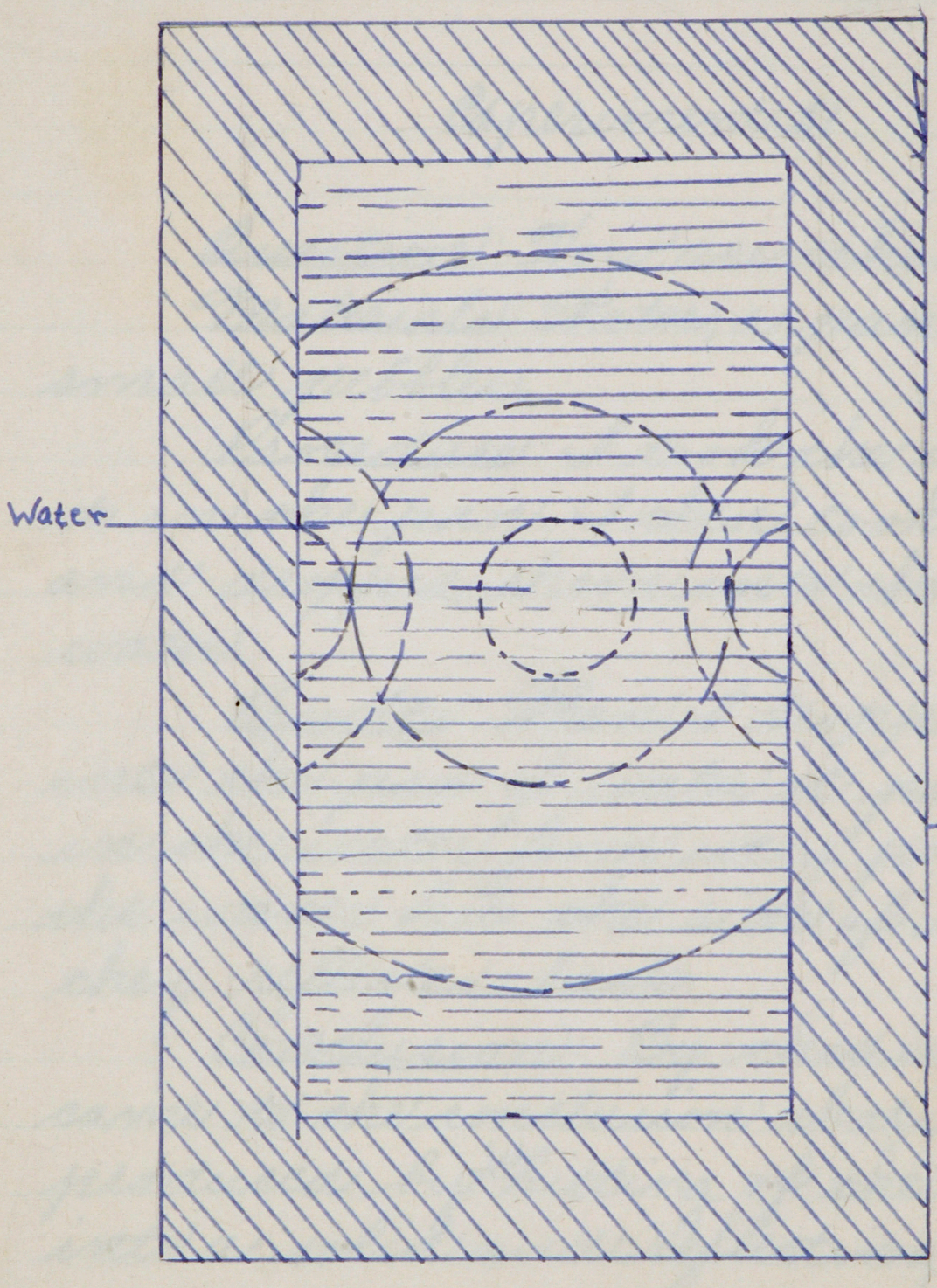
Results: When we struck the tuning fork it started the fork vibrating so when we touched the pith ball to the fork it kept knocking it away. Then we sat the other fork close to the one we had struck it started the second one vibrating. Then we put our ear near the second fork we heard it vibrating.

Conclusion: By this experiment we came to the conclusion that vibrations can cause sound.

Corrections

Next we set the fork close to the other one.

24cm x 30cm



T. J. Dennison

24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
December 14, 1942

Experiment 21

Question: How are echos produced?

Materials: Water, a pan, a couple of small pebbles.

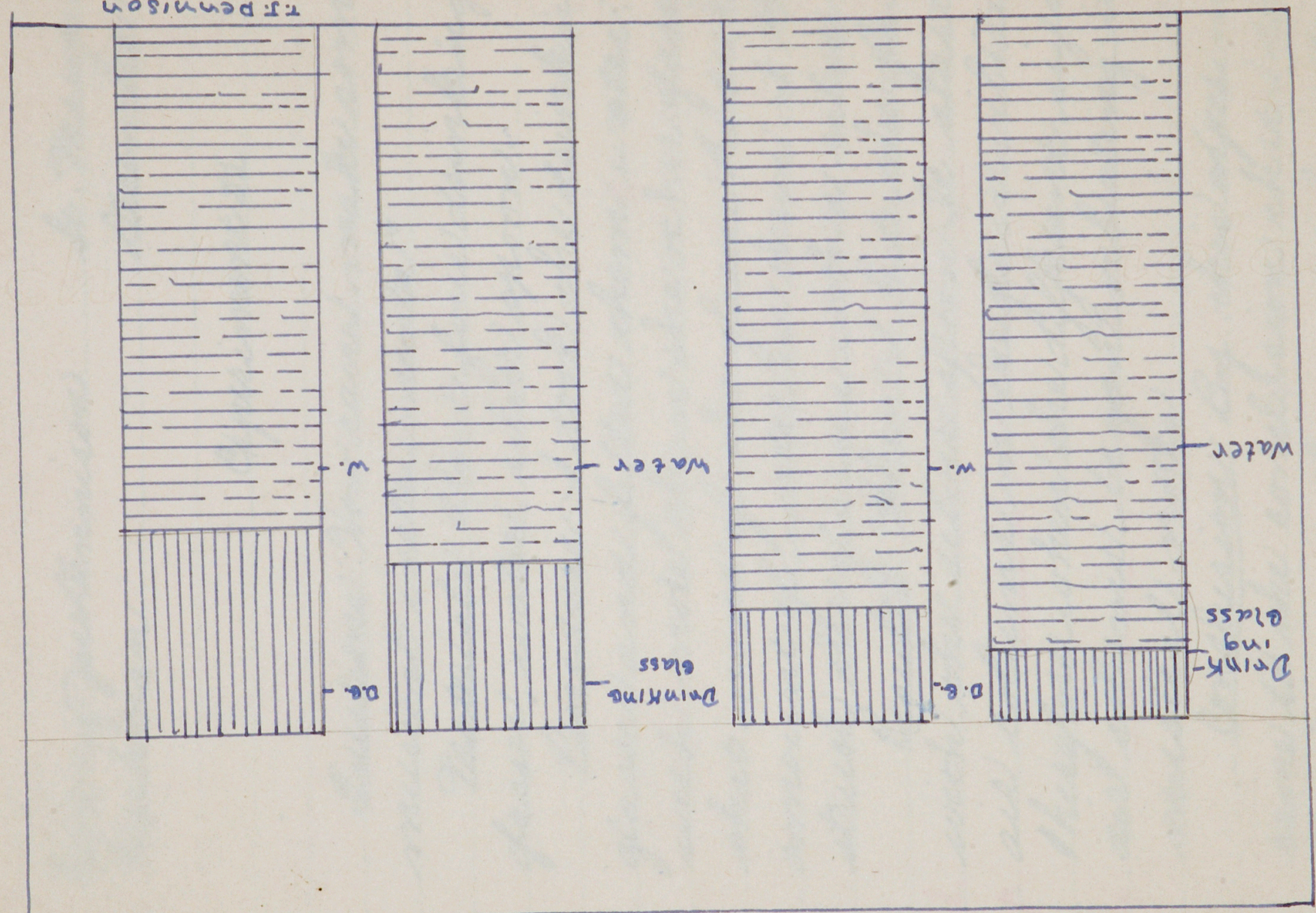
Procedure: I took the water and put it in the pan. I then took the pebbles and dropped them into the pan of water.

Results: When I dropped the pebbles into the pan of water it produced waves in the water from every point. When the waves hit the side of the pan they reflected back.

Conclusion: By this experiment I came to the conclusion that echos are produced by the hitting of the sound wave into a solid and reflecting back.

a

24cm x 30cm



24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
December 18, 1942

Experiment 22

Questions: How can I make some musical instruments?

Materials: About four drinking glasses, water, silver spoon.

Procedure: I took the drinking glasses and filled them with water, some with more than the other glasses so that none of the glasses had the same amount of water in them. I then struck the glasses with a silver spoon.

Results: When I hit the glasses s.l. with the silver spoon It started the sp. air column in the glass vibrating. Therefore when the different sizes of sp. air columns began vibrating it made musical notes.

Conclusion: By this experiment I came to the conclusion that I can make a simple musical instrument by the above method.

a-

Corrections

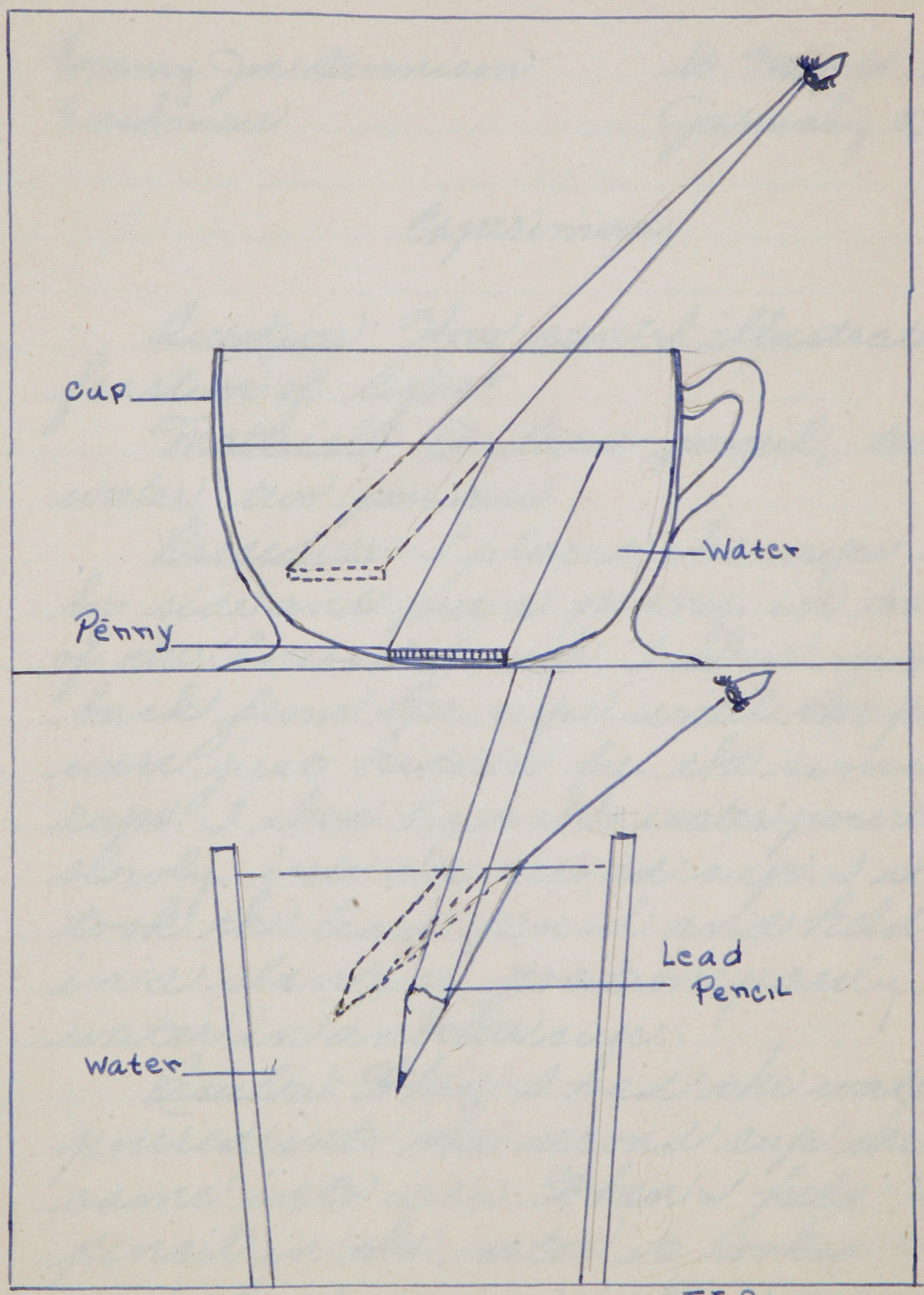
it, it, it

columns, columns, columns

columns, columns, columns

✓

24cm x 30cm



T.J. Dennison

24cm x 30cm

Tommy Joe Dennison
Freshman

St. Mary's School
January 5, 1943

Experiment

Question: How can I illustrate refraction of light?

Materials: A lead pencil, two cups, water, two pennies.

Procedure: I placed the cups side by side and put a penny in the center of the bottom of each. I then moved back from the cups until the pennies were just hidden by the rims of the cups. I then had the water poured slowly into the second cup. I then took the lead pencil and held it in a slanting position partly under water in another cup.

Results: When I had the water poured into the second cup the penny came into view. When I held the pencil in the water it looked like it was slanting more than it really was. Explain

Conclusion: By this experiment I

Corrections

The penny and the pencil reflected so because when the light rays hit the water they bent. This is called refraction.

24cm x 30cm

came to the conclusion that I can illustrate refraction of light by doing this experiment.

B

24cm x 30cm

24cm x 30cm