65a.

	Night				Day	
	Electric		Electric			
Red	41	45	51	63	40	50
Green	35	36	49	49	41	51
Yellow	41	44	50	58	40	50
Blue	35	34	51	47	~~40~~	50 60 58

Samples furnished
Adv. B - Mar. 27 -

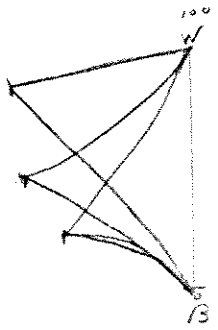
65b.

Subject	Eye	Red 5°	Red 40°	Green 5°	Green 40°	Blue 5°	Blue 40°	Yellow 5°	Yellow 40°	Gray 5°	Gray 40°	Red 5°	Green 5°	Blue 40°	Yellow 5°	Remarks
1	R	58	44	38	28	36	19	47	41	41	36		82		77	after 23
	L	45	43	36	22	44	44	43	29	34	28		82		70	
2	R	43	38	42.5	33	22	11	58	36	47	22		81.5		25	"
	L	47	39	42.5	31	31	16	56.5	35	45	24.5		71		24	
3	R	49.5	42.5	57	41	39	39.5	49	39	51	33		74		24.5	" 24
	L	47.5	39	51	40.5	46	38	49.5	40	49	35		37		38.5	
4	R	54	48	51	31	46	42.5	55	35.5	47	33		85		72	
	L	51.5	45	50	38	44	44	51.5	33	49	38		80		76	
5	R	60	56.5	48	44.5	54	46	67.5	42.5	74	38.5		89		74.5	
	L	56	60	49	38	55	45	67.5	38	45	34		83		79	

	+	+	+	+	/	/	/	/	/	+
	+	+	+	+	/	+	/	/	+	+
	+	—	+	+	+	+	/	/	/	/
	/	+	/	/	+	+	/	/	/	
	+	+	/	/	/	/	/	/	/	/
	+	+	+	+	/	/	/	/	+	+
	+	+	+	+	/	/	+	+	/	/
	+	+	/	/	/	/	/	/	/	+
	/	/	/	/	/	+	/	/	/	/
	/	/	/	/	/	/	/	/	/	/

Red ~~—~~
~~—~~
Green
Blue
Yellow
Gray

Log - of Wave



65d.

Feb 26, 1904.

Dear Munsell:

Grippe laid me low - hence silence 64E
and absence from your color talks -

I enclose my figures on the color blind men - they were all blind in reds and greens.

Sincerely yrs,

(Signed) Allen Cleghorn.

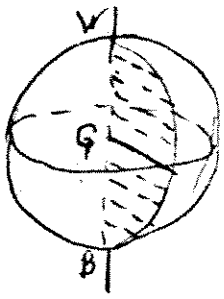
Apr. 27, 1902.

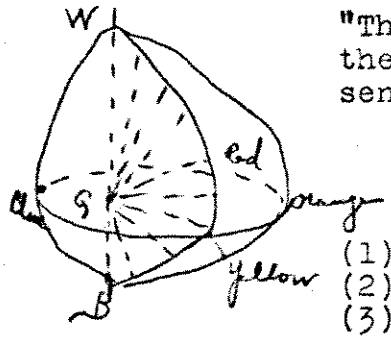
Dear Mr. Munsell,

I read your card re Lumenometer, yesterday - Of course you can have it - I want to talk to you - I have had four "redgreen" blinds in it and they read red and green to beat the band- But they all find blue difficult - I will be in the 64c.
laboratory about 11 on Monday morning-

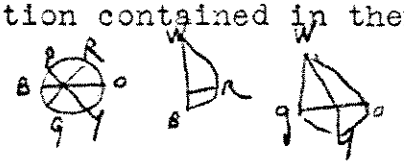
Thine

(Signed) Allen Cleghorn





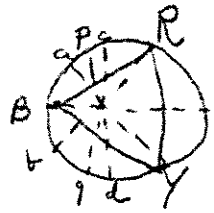
"The length of lines represents the number of units of color sensation contained in them.



(1) Hue proceeds clockwise from Red
(2) Chroma is radial distance from Gray
(3) Value is distance on curve toward black and white

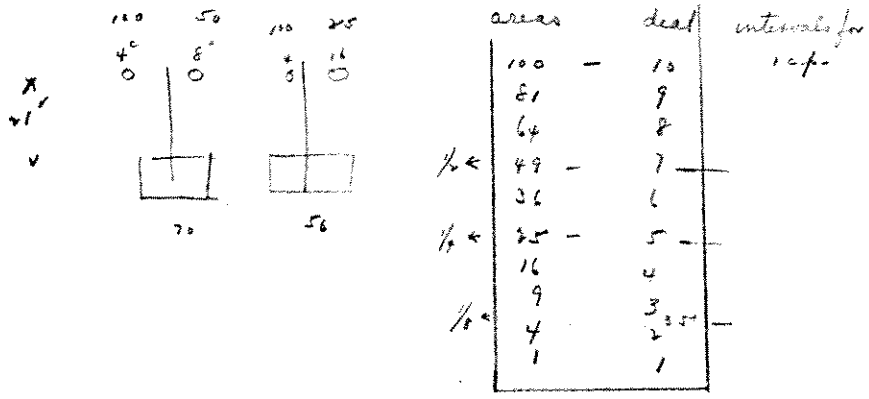
Is CHROMA to be measured) perpendicularly to WB-) ?
or radially from G)

a complement of Y
b " " R
c " " G
d " " P



Mr. Briggs' diagram of cross-section of all colors of value = neutral gray

See Church - p.80 - who quotes Rood, p.146



c.p. = area of diffuser

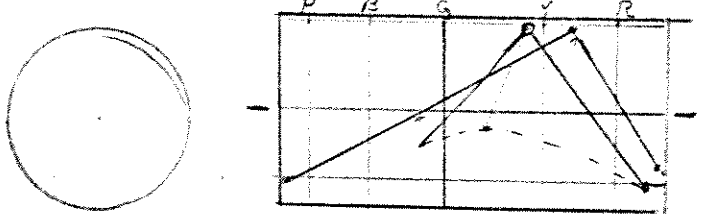
100 - 2°4'

70 - 1°4' (4° + 4' c.p.)

50 - 3/4° (1/4 " ")

Questions - Is there an accurate basis for color (as in chemistry)?
Will the enamels prove safe and adequate?
Will it help artists and designers?
Would like to write 1500 word article for the Studio Magazine.

Mar 4 Donald Tucker of Chestnut Hill on train and at studio - asks about Slipper type (boat) ----
---(description of model of boat)



66a.

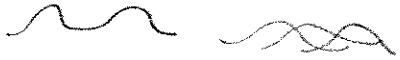
Area and disposition of color elements conspire to give a "tone" - to pictorial effects.

Mar 7 Mr. Gilman at studio - to see portrait.
Wants a color tree as coloristic as possible. 66.
(Strongest chromas obtainable)
?Herring - A local color sensation (as strong red)
"Draws away from the surrounding parts of retina."

Mar 17 Mr. Pritchard sees new parts of Chap.I-
Discusses (lunch at Parkers') A Manual - $1 (cost .23
An Atlas locked in Case - $50 Or .24)

Mar 18 Mr. Jenkins describes make-up of a book.
Signatures (12,16,24 fold, etc) and where color must fall to be on same side of sheet-
End-paper, fly leaves, frontispiece, title, dedication, half-title, contents, illustration - Chapt.I. - 16 point type - paper 60 lbs to ream (500 pages) 80 leaves in book.

Apr 8 Prof. Dolbear calls - sees my portrait -
Sees set of charts, and Notation -
Discusses terms - wave length, amplitude and complexity, - suggests a picture of the waves.



Energy as square of their height -
2 times as high - 4 times the energy-
One wave retarded one-half can destroy the next.
Show him attachment to photometer for reading candle powers.
Does not think Chevreul's charts of much value.
Thinks Rood's book brings in too much for the patience of the ordinary student.
Says I may furnish a track across what is now a desert between practical and scientific color work.

Apr 8 P.M. Left samples with Miss Chaffee - 140 Boylston St. - to be made in enamel on white metal - and fitted in a circle -$2.00

Apr 13 2:30-4:30 Mr. Pritchard, Mr. Lord, and and Mr. Chapin (Scribners). Latter sees system for first time. (Pritchard saw it first in 1900). 67.

1 First asks about the Color Tree (seen in studio corner.) I describe extremes of light and color

white
|
|
black ——— chroma } visual limits of sensation

Then show 3 small color spheres -one sectioned to show inside colors.

2 Then asks how interior color is displayed -
Exhibit set of small charts
Explain Three Scales: - HUE, VALUE, CHROMA
Show two large charts - 30˚and 60˚
and masks to group colors.

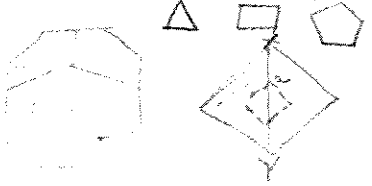
3 Asks how fading can be avoided.
Show "Tuning Fork" and describe enamels.
Tell Quantitative test of Fading - for Prof. Gill(M.I.T.)
Brilliant Green changes 30˚-20˚ and 2 steps of Hue in three weeks.

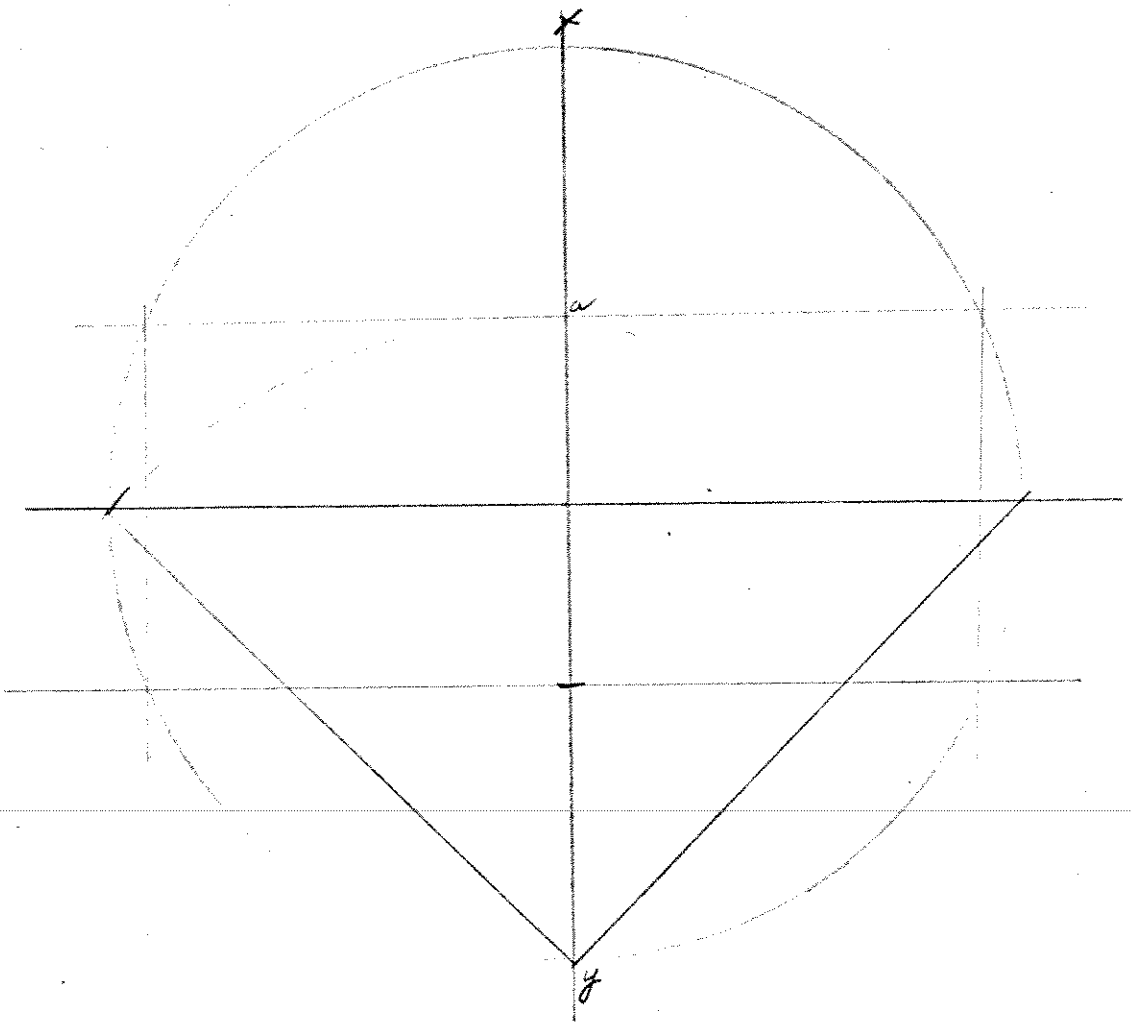
4 Asks how Values are determined.
Show Photometer - We all measure grays and black.
Asks if it is on the market-
" " " " patented.

5 Discusses Imperfect state of 3 color work-
Is attempting to suggest color now, rather than strong effects.
Tells of Maxfield Parrish's schemes.
" " Jay Hambridge's curves.
Thinks G----- (expert lithog) should try one of my charts - May need a separate stone for each line of color.

Apr 18 At Bancroft's studio -155 West 54th - N.Y.
Describe progress of system, notation, and enamels.

19 Go with Mr. Chapin to studio of Jay Hambridge- 137 West 34th- See his Parthenon diagram.
Simple methods of proportion for stone cutter necessary- Ratios alone can measure the Parthenon.
These the basis of architectural proportions. Ratio of AY:XY gives a series of inscribed squares, which make every mass & detail of the P. commensurate.





Shows Mexican cathedrals treated by same theory. Finds these same ratios in Botany, Conchology - and Crystals. We are struck with points common to both our investigations. Platonic solids all inscribe and exscribe a sphere.
Advantages of a circle as point of departure.

Apr 20 At Scribners, 157 Fifth Ave.
Mr. Chapin introduces me to Mr. Burlingame- who discusses color effects, - artists' preferences, etc. - Sees my charts and little sphere -
Lunch with Mr. Chapin and Mr. Lord at Hoffman House.

	Yellow	Green	Red	Blue
Vanishing distances with white at 9100 feet.	.580 528	.385 350	163 148	
M's photometric reading(daylight)	.54	.34	.19	
	76			30

79.

(Pages 69 through 78 are missing from notebook)

(On page 79 there is a newspaper clipping which speaks of Albert Lavignac's "Music and Musicians". This book is divided into five parts, viz: "A Study of Musical Sound," "The Materials of Sound," "Grammar of Music," "Esthetics," and "History of the Art of Music." It was this that suggested the names "Grammar of Color"
"Esthetics" "
"Materials" "

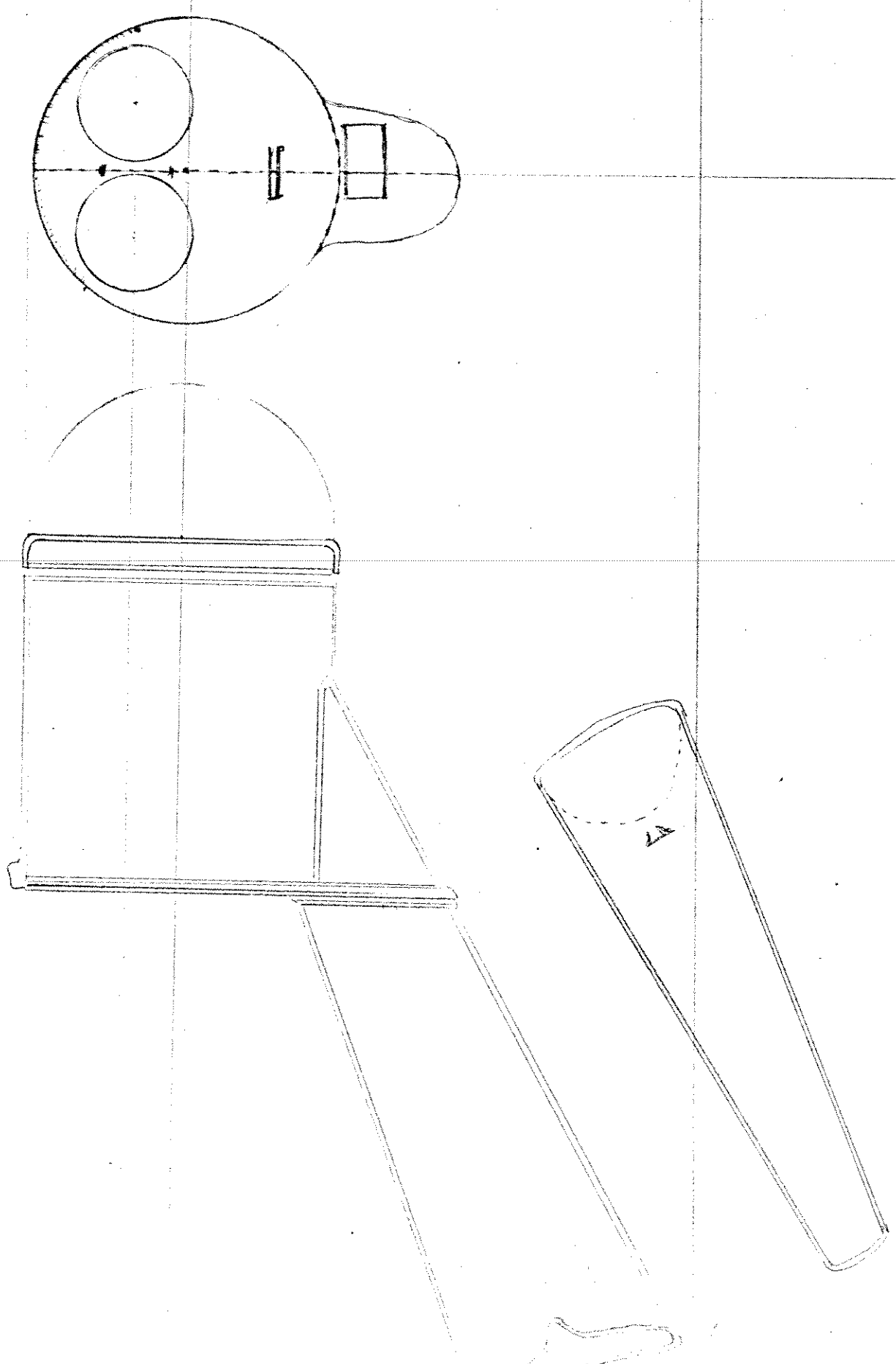
Page 79b consists of a record of photometric readings.

On Page 79 there appears the following note:

"See 'Nature' for March 1901 - Abstract of lectures on color at Royal Institute."

Page 79i consists of the diagram on the next page.

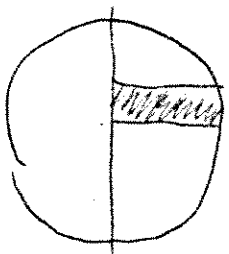
End of Book II



see p 60
see p 108
see p 191

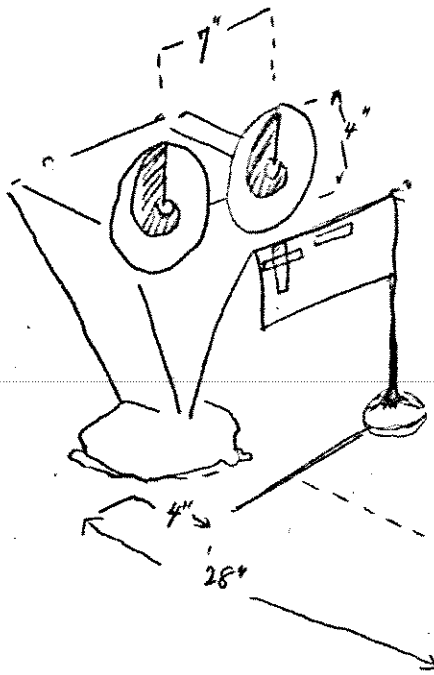
Same disc in color reverses gradation

Gray disc -to graduate chroma built by geometric areas.



-no lighter)
only grayer)less chroma

CHROMA
relative grayness
(distance out from neutral axis)

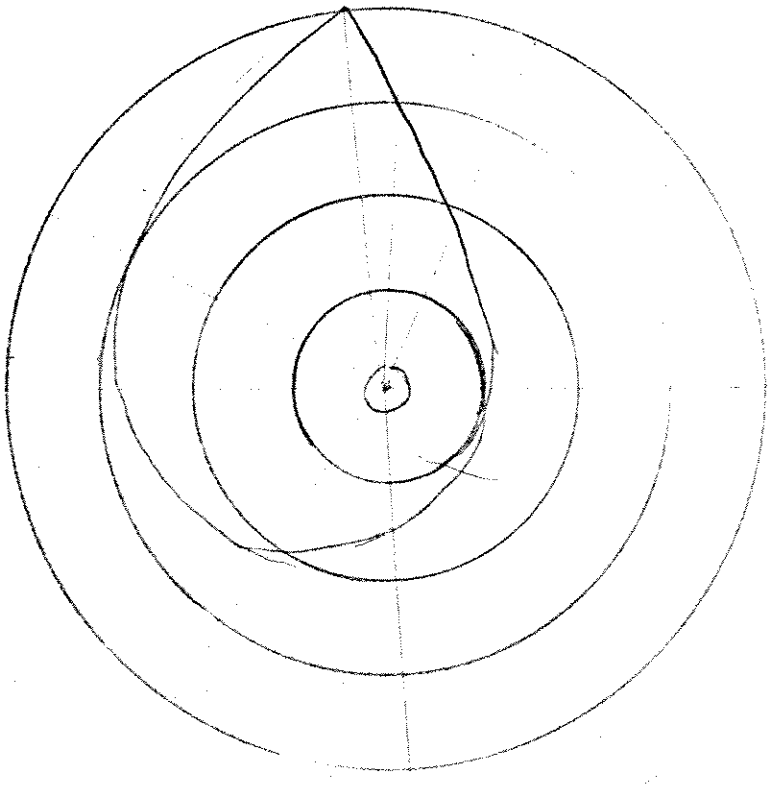


Methods of determination

I. Union with compl. to form gray, inversely as areas of discs
II Least perceptible addi-)of tion or subtraction) C.
III. Radius as a scale of C.

On acct.$1.00

10
9
8
7 2
6
5
4
3
2



p 212

May 2 1904 — Mrs. J. H. Chapin (Scribner & Co) at studio and to lunch at Berkely Cafe - meeting Frentz, Sawyer, Hardy, Coffin and Francis. Asks about individual bias in photometric and chromatic readings. Asks about graying of a color - if lightening is involved. Show him charts again: to illustrate one flat level of value. His color printer -Grignard- says he can print the charts - only is in doubt just how many stones may be needed. 1.

May 12 — With Mr. Pritchard at Homeopathic Hospital. Show him enamel disc of 5 middle colors - Discusses a simple teachers' handbook arranged for Primary and Grammar Schools -"The Munsell Color System."

Primary
1 Names- examples found all about us - Hue & Value
2 Review and expansion - Chroma
3 " " "

Grammar
4 Scales of Color -Selection by name. To know a color.
5 Matching colors -
6
7 Complements - Enhancing color -
8
9

May 16 — Mr. Lyon at studio to help on new charts - 9-5:30
Vertical Sections - 10 - around neutral axis-
1 Establish maxima of light scale) for each
" " " chroma ") p-
2 Grade to neutrality from each maxima.
3 Test by photometer.
" " chroma top.

May 18 — 12:30-1:30 At Mr. Pritchard's ward in Homeo.Hospital. 2.
Discuss Color in Primary Schools -

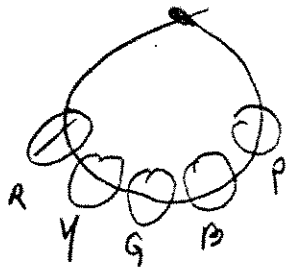
1st year — ten lessons with five colors - one each month

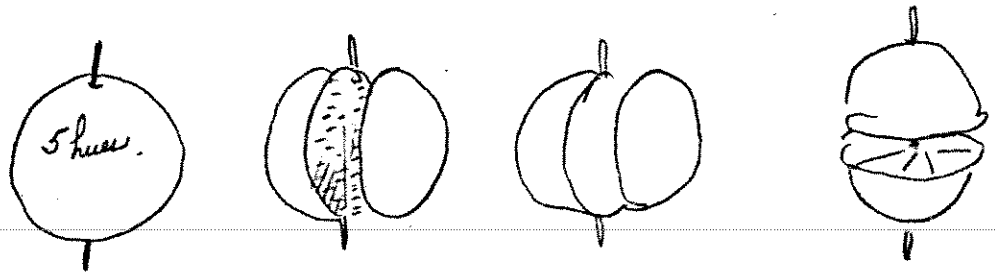
Names - already learned in kindergarten
Red, Yellow, Green, Blue, Purple.

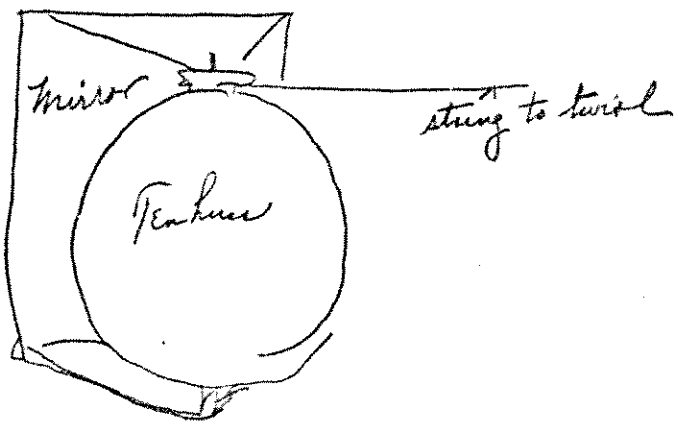
Order of names - by stringing on a wire.
Sensation matched by worsteds & papers
" fixed in the mind, through the eye rather than through the ear.

2nd year — 10 lessons with 10 colors

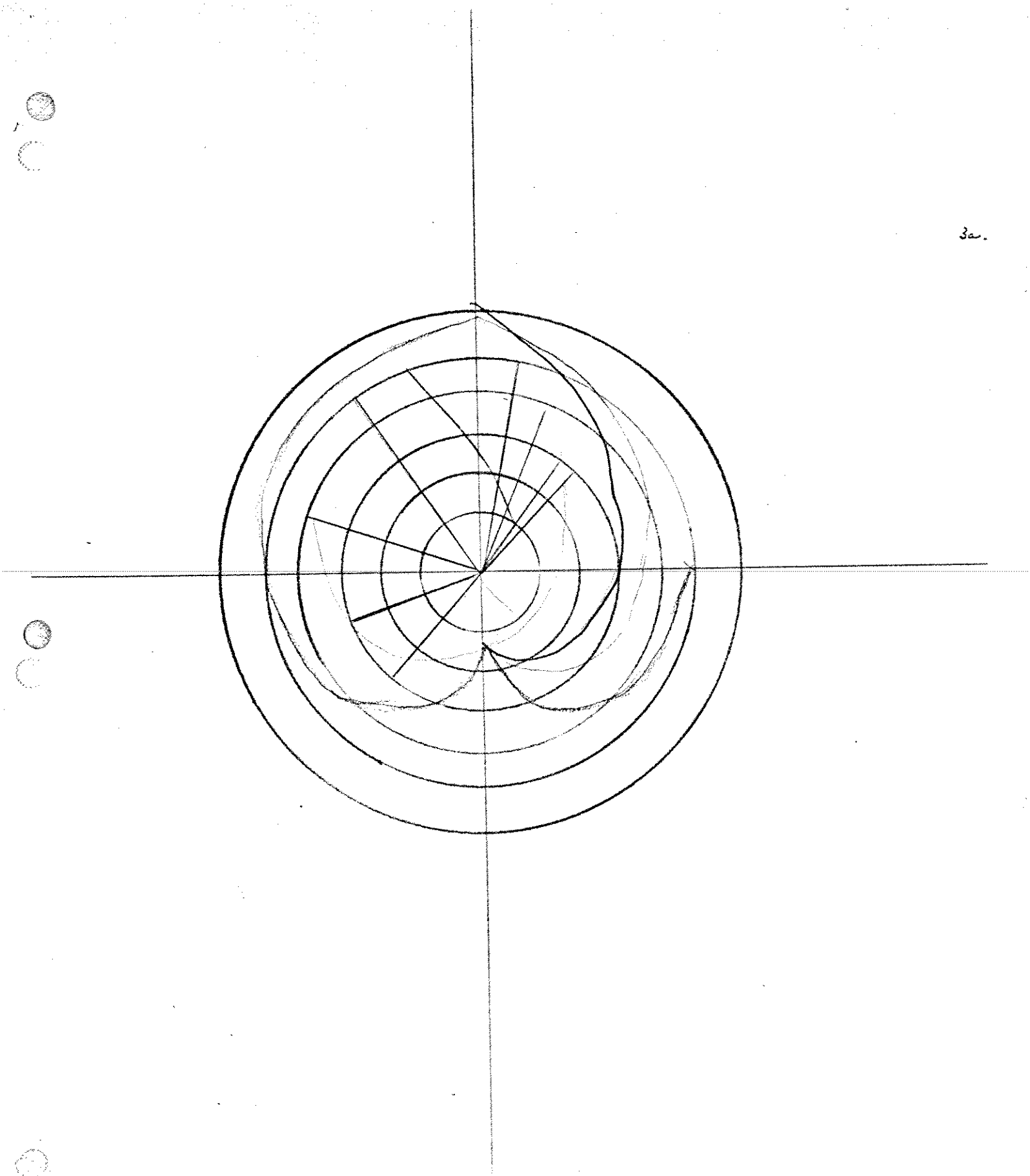
Spheres to convey solid notions of color
3 qualities - Hue
Value Light of colors
Chroma Strength "
Double the number of colors.
White and Black as limits of Value.
Strong color & gray as limits of Chroma.


R
Y
G
B
P

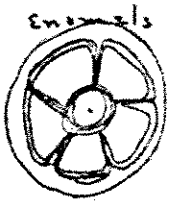

5 hues.


Mirror
string to twirl
Texture

3a.

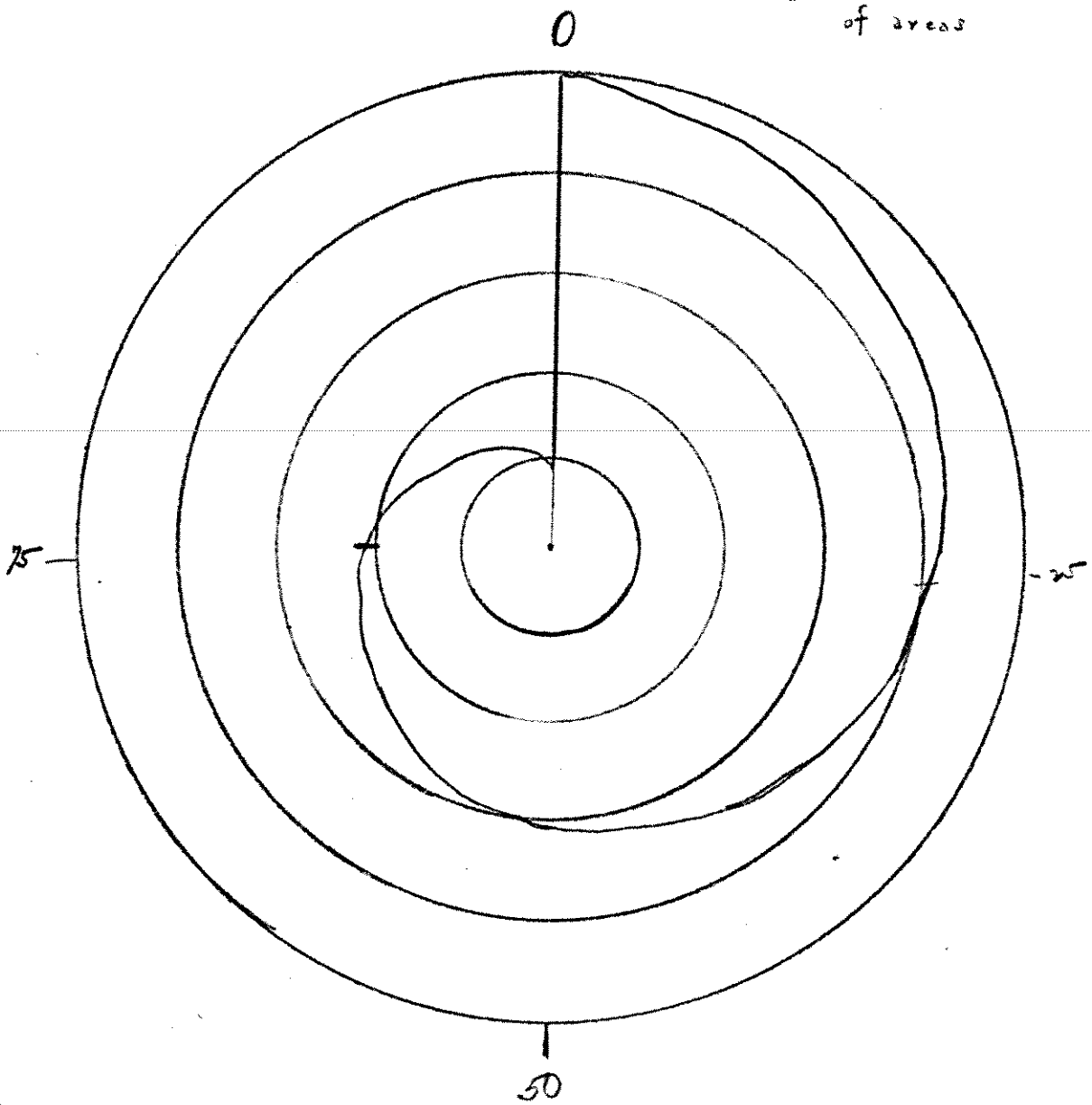


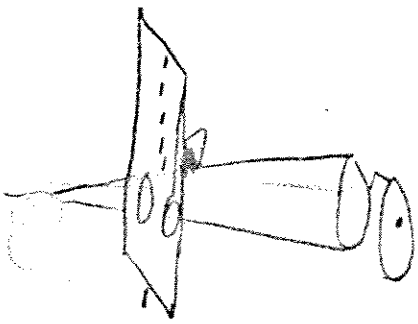
Shut down circ. by diaphragms.

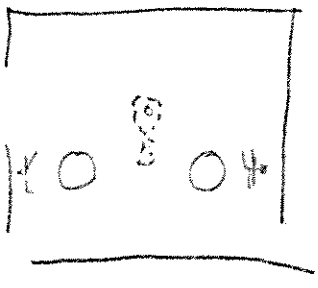


3a.

Curve of areas







3rd year Review - and fixing of solid idea of color
1. Names (10)
2. Order
3. Light
4. Strength
5. Minglings

May 18 Mr. Lyon 2:15 - 5:30
19
20 "
23
25 Pd. $2. on account
26
27

May 27 At Institute - Room 16 - Mr. Drisco and Mr. Swan. 3.
Used spectroscope in sunlight - extremes of slit- (wide open - shut) to study change of color dispersion. This results from impurity (over-lapping of spectra as slit widens)- Used Diffraction (Apfel-Murdock - Chicago)
Query - Ought not this to be studied by a variable source, not by a variable slit?
Mr. Swan suggests superposed spectra. -

June 1 Miss Fiske calls to ask permission to use the color sphere - in a course of lessons at the Ind. and Educational Union on both dressmaking
Suggest waiting for book issue.

June 3 Louis G. Monté and Mr. Nelson at studio.
Show small set (glazed) charts - photometer, and vertical set.
Mr. M. questions personal equation in color estimates
" standard of white
" possibility of printing colors twice alike
" loss of terms "orange" - and violet.

June 8 Miss Jennie C. Peterson - at studio - to arrange course of color study for Boston Schools.

COLOR SENSATIONS

1st grade HUES of colors. Recognize five principal colors - Red, Yellow, Green, Blue, and Purple.
a. matching of Hues
b. recognition of difference of hue
c. naming hues.
d. order of hues
e. expression ofsensations by 5 crayons

(20 minutes per week - circle of five hues, colored sticks, papers and crayons to match -)

2nd year VALUES of each hue
a. Review with intermediate hues named
YR-GY-BG-PB-RP
b. 3 values of a hue- 1, middle; 2, lighter;
3, darker;
c. matching 3 values
d. expression of these sensations of VALUE
by crayons and pencil

3rd grade VALUES in different hues. 4.

4th " CHROMA - scale of chroma

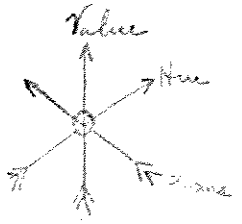
5th " SPHERE - uniting HUE, VALUE, and CHROMA.
all preceding material specially
devised to build up the color solid-
five colors taken from surface of sphere
made in sticks, papers, crayons-

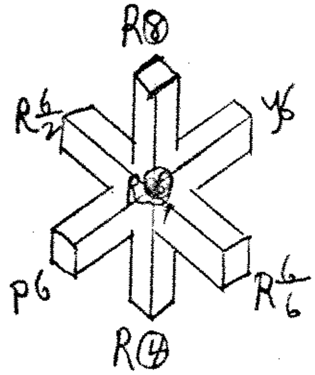
(Mr. Pritchard advises a simple preliminary statement - addressed to the primary grades-but outlining the entire course so that each teacher sees where her work fits into the scheme.
Pamphlet, 50 p. -linetype - 200 copies -$30.)
"The Camel's Nose."

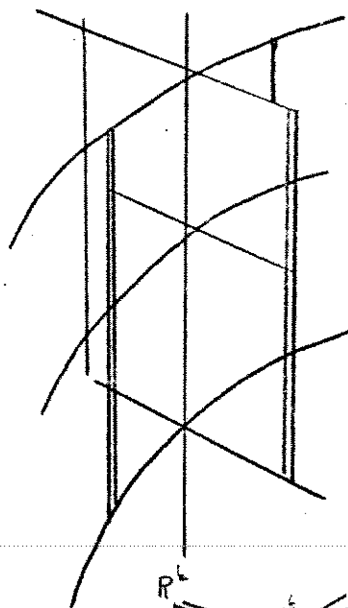
June 10 Miss Peterson at studio - Mr. Pritchard comes at 12:30.
Discuss course of study and new Prang book -5th year-
Accept five central enamels as typical -(After rejecting present colors)
Mr. P. advises beginning in primary and grammar grades at once - materials can be had if Masters want them.
Talk with Mr. Conly - Find some town nearby to introduce it - (Milton, Quincy, Ws---)
If a normal school takes it, it must be accepted.

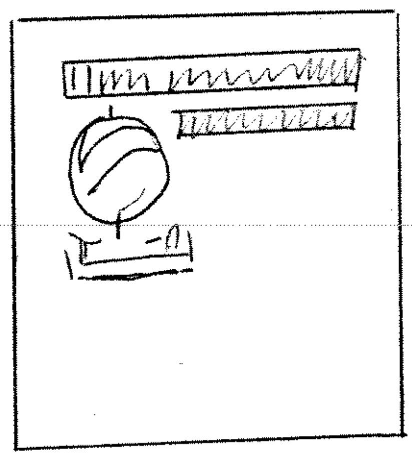
June 12 10:15-1 Miss Peterson at studio.
Discussing plan for color in nine grades.

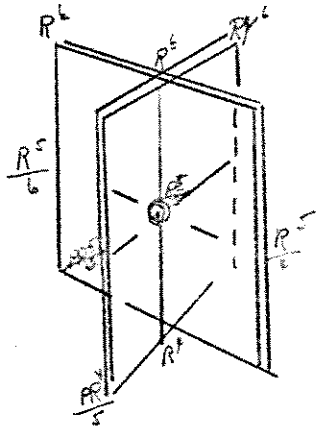
1	Hue	5 principals	principal
2	Hue and Value	5 intermediates -3 Vs. of each	
3	Value	3 values of interm.-and compound in	
4	Value and Chroma	3 chromas of 5 principals	different hues.
5	Chroma	3 " " " intermediates	
6	Balance	of Value	
7	" & Rythm	" Hue and Value	Harmony inevitable by the Spectrum
8	" "	" " Value & Chroma	
9	" "		







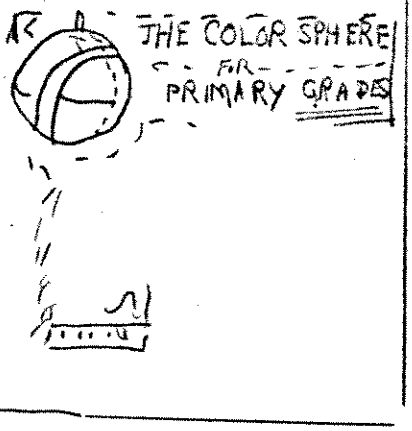


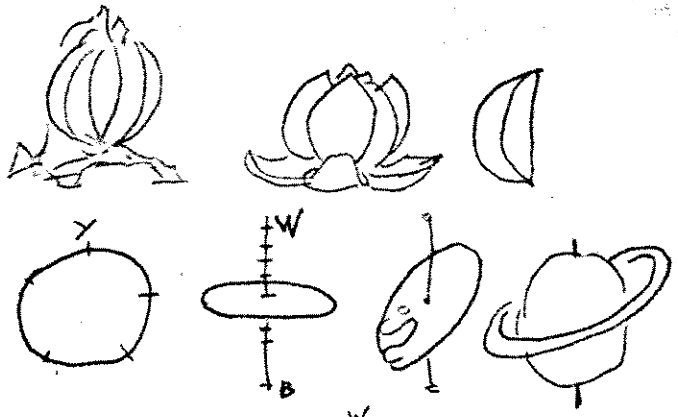


Balance	Tone	?
Rythm	Measure	
Harmony	Shape	

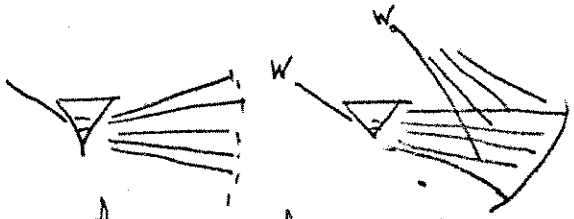
Name $H\frac{V}{C}$ } Balance
How much — quantity or area

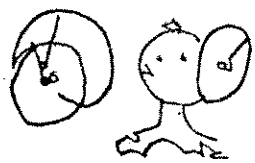
Query: Is tone significant color term? Does it not belong to the ear, rather than the eye. Shall musicians retaliate by using hues to describe a sound?

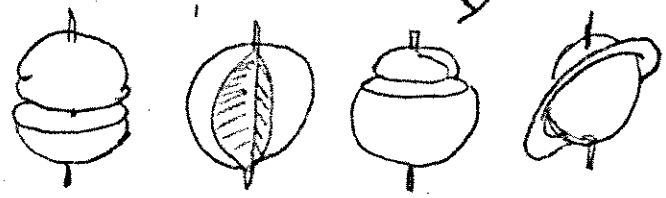


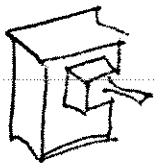


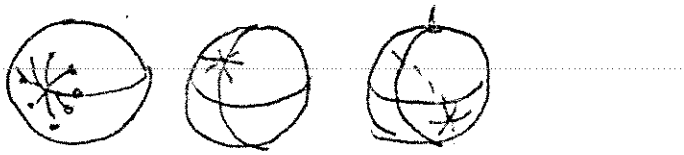
5a.

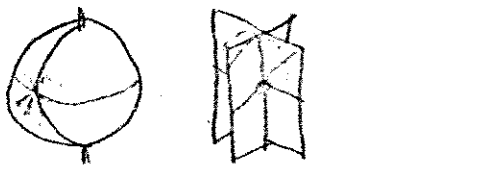










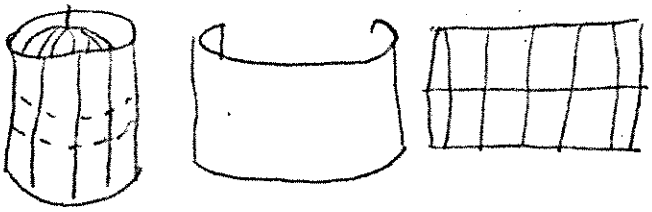


$R\frac{6}{5}$

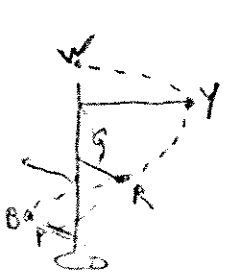
$7\,R\frac{6}{5}$

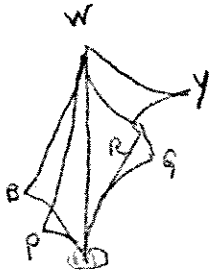
$7.2\,R\frac{6.3}{5.9}$

R - BG
Y - PB
G - RP
B - YR
P - GY



$\left\{\begin{array}{l} R - BG \\ YR - B \\ Y - PB \\ GY - P \\ G - RP \\ BG - R \end{array}\right\}$





$\left\{\begin{array}{l} P - GY \\ AP - G \\ R - BG \\ YR - B \\ Y - PB \end{array}\right\}$

June-12-1904

June 13 10-1 Mr. J. Fred Hopkins and Miss Peterson. Discuss course of study and materials - work to begin in February-

Color	Grade	1) 2) 3) 4) 7)	20 lessons 12 " 8 "	of 20 m.) " " 30 m.) " " 45 m.)	) to precede) work in) design

Grades

Recognition of Colors.

1. Hue rythm in 5 steps.
2. " " " 10 "
3. Value " " 3 " of 5 hues.
4. " " " " " " 10 "
5. Hue " " " " " " "
6. Chroma " " " " " 5 "
7. " " " " " " 10 "

Application of colors recognized

6. Balance of Hue
7. " " Value
8. " " Chroma
9. " " Hue, Value and Chroma

Notation of colors

5 Principal Hues, made in paper (Forbes Lith.Co.Chelsea) and " crayon(Geo.Reed-Dixon Co. Jersey City)

Course of 20 lessons.

1 (Assorting like colors - are then alike? can you find
2 (any other like it - let us make 5 piles of colors. (paper included)
3 (
4 (Finding individual color - Bring me all the things
5 (and naming them like this in color.
6 (
7 (
8- Find for me the red, yellow, gree, blue & purple.
9 (
10 (
11 (Can you make this color with a crayon, - red, etc.
12 (
13 (
14
20 (Recognition of likeness in the differences-
(Expresses this with crayon (which color is most like red, - which is least?)

June 15 Miss Peterson - 8:30-10:30
Discussed rainbow,-prism, irridescence - Showed my color-top. 6.

Rewrote lessons for 1st and 2nd grades
Went to see Jap. prints at Kobashi's-
Miss P. says I ought to have a good profit on the materials as the book would not pay. How to control this, and yet not go into the business? Mr. Doherty could suggest ways and means.

June 15 Mr. Gilman sees new vertical charts - and model of equal color steps.
"A new purpose - ideal instead of real."
His theory of ease - "the continuation of a habit already formed. This is a special case of visual ease.

Equal color steps (equal hue steps)
" value ") equal degrees
" chroma ") of color difference

This new departure - is a change from the indicative to the imperative. (is to shall be)

June 20 Miss Peterson - later Mr. Swan and Joe Decamp -
Review plan of 20 lessons - debate "middle value"
white light-------darkness
white paint black paint
Mr. Swan (Tech) sees H & V sets of charts and sphere (also Decamp) Discusses "purity" of color - Suggests variable arm to carry source of light back and forth instead of a variable source (because latter would change color with degree of intensity.)

DeCamp quotes Rood and the Impressionists.

Sept 19 Called with Mr. Pritchard on Miss Peterson, 112 Newbury - and left MMS for her to read. (Tel. 21848 Back Bay) 7.

22 Mr. C. C. Birchard - shows me the new Prang books and wishes to take lessons in color - Suggests that together we might get out some text books.
I ask if Prang has not pre-empted the field? Says the appetite is always ready for fresh books: would defy any publisher to prevent success of a really good publication. I find traces of abnormal perception in the YG - P field. Show him the color tree and color sphere. He discusses color as contrasted with musical sound - acknowledges he has no adequate names for fixing his color sensation.

23 Miss Peterson thinks color is not to be treated as a solid: its qualities are to be described first - and a solid for classification given later. Orange seems to excite other ideas not kindred with color. We call on Mr. Pritchard - who suggests

that she write a course of lessons (10 pages) to precede my handbook.

Sept 23 Mr. Louis G. Monte - Just back from Berne congress - Met Dr. Callahan (oculist -Yonkers- speaks of Zeis) on steamer - interested in photometer.

24 Mr. Pritchard and Miss Peterson at studio.
Pass on plan of color study and course of lessons for 1st and 2nd grades - 30 lessons each -
Discuss materials - enamels, papers, crayons, sphere -6"-
Mr. P. returns to studio after lunch -
Sketches a book of 50 pp. (250 words each) 4"x5"- paper cover - 500 copies.-
Asks "how does this marry itself to the present work of 6.7.8 grades and answers "It puts <u>science</u> back of their <u>art</u>.

Sept 27 Prof. C. R. Cross at studio 3:15-4:15 8.
Sees Color-Sphere-Color Tree and Color Notation- also vertical and H. charts of the system.
Discusses HUE, VALUE, and CHROMA and accepts latter. questions "different lights" as meaning two or more <u>kinds</u> rather than degrees of the same <u>kinds</u>. questions "crossing" of ether waves - and suggests grays or chromas are white light with slight excess of one hue element.
Considers what audience would care for this subject- Whether one talk would draw them for another.
Offers use of his lecture room with apparatus, and will speak to Exec. Com. of Soc. of Arts - for some evening (avoid near Xmas)
Is cordial when I ask permission to attend his course on Prismatic color-
Suggests a talk on "Color Nomenclature" showing the sphere, photometer, tree, and charts, with Notation - 45 m.

Sept 28 4:30-5:45 Mr. Pritchard and Miss Peterson at studio. See "Dummy book" - discuss definitions of chroma.
Review 1st grade no crayons until <u>end</u> of year, borrowed from 2nd grade- colored papers in <u>middle</u>
Mr. P. suggests aliteration to fix order of R Y G B P

2nd " find colors in <u>objects first</u> - crayons to imitate later
Mat.-ten papers, five crayons & <u>sphere</u>.

3d " Questions 15 papers for 50 pupils (3 values of five hues) better to find them on a sphere.*