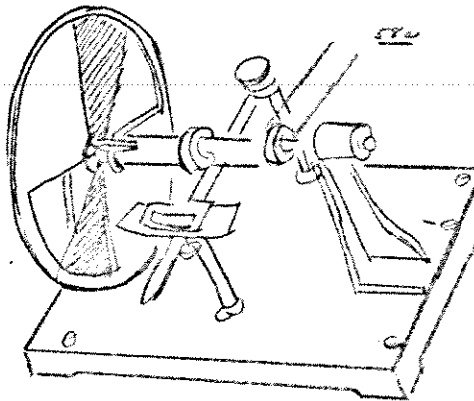


Feb 26 Left Model of variable sectors with Mr. Hoffman at the Art Museum - Estimate \$10-12
Suggests hard rubber, zinc or aluminum for sectors - screw groove in sleeve rather than shaft - thin strip on edge of sector to hold colored paper -

Write Commissioner of Education - Wash.) latest
Ministry of Fine Arts Paris) program of
" " " " Berlin) Prizes -
Director of S. Kensington London) Scholarship
in Art.

Mar 5 Attended hearing on Permanent Industrial Com. - State House - Messrs. Winship, Ellis, Chandler, Morse, Gayan, Fish, Woods, Higgins, Sayward, Cole.

12 Pd. Paul W. Hoffman (at Art Museum) for rotating sectors - \$16.



I	II	III	IV	V	Colors to X - (Tobacco Hudnutt)	Spectrums to Normal Eye
Reference Sheet No.	Wave Length	Frequency Thousand of	λ	$\frac{1}{\mu}$		
60	6730	7.3	0	0	only white spectra	Red
59	6420	32	10	.31	red called yellowish white	Scarlet
55	6000	65	38	.65	Both one color -	Red-orange Orange yellow
53	6070	91	46	.87		Orange yellow Orange
51	5920	99	50	.91		Orange yellow Orange
47	5660	97	52	.90	Gray called a little white	Orange yellow Orange
43	5420	69	62	.90		Yellowish-green Yellowish-green
40	5270	50	46	.92		Yellowish-green Yellowish-green
37	4910	8.5	9	1.16	Blue white	Greenish-blue Greenish-blue
31	4760	7	8	1.14	White	Blue Blue
26	4600	3	3	1		Blue Blue

Case of X - (Suttons) - Vision practically confined to blue and white?

I tell Mr. P. I did not know Sargent's R Y & B were put into my box. Thought the R Y & B were W & H's strongest colors.

58a.

Advise that lecture be given at request of some educational body rather than W & H.

Mar 18 Tests of new water colors in tubes.
 (Here follows description.)

60.

221 Columbus Ave. Boston.
 March 18, 1908.

Wadsworth, Howland & Co.
 84 Washington St. Boston.

Dear Sirs:-

I have tested the tube colors for their agreement with the standards, and show on the accompanying diagram in what particular they depart from them. Blue is the most troublesome, being too strong and slightly purplish. Purple is cooled by this blue and also too dark. Green is too strong, and Yellow is weak.

The colors seem to work very freely, and the only suggestion I can offer is as to the advisability of using colored labels on the tubes to save reading their names.

P	B	G	Y	R
$\frac{42}{57}$ ⊙	$\frac{20}{10}$ ⊙ +	+ $\frac{52}{57}$	⊙ $\frac{44}{57}$	

The percentage of Value (light) and Chroma (strength) written on the diagram follow the notation described in Chapter VI of the book.

Yours very truly,

 Progressive sensitiveness of the eye - (extinction 60a. of a given light.)

Time of observation at the commencement	Reading	
after	38 sec. ---	1.0 First reading is unity
	53 ---	3.2
	1 - 11 ---	4.9
	44 ---	6.9 other numbers are the <u>Inverse</u> of the Extinction Value.
2	43 ---	10.5 i.e.
3	44 ---	17.5 Eye is 100 times as sensitive to faint light after 12 minutes.
4	52 ---	43.
5	59 ---	63.
6	41 ---	78.
7	28 ---	89.
8	32 ---	96.
10	46 ---	103.
12	-----	103.

Green and Blue corrected Mar. 24.
Purple & Yellow remade - " 28.
Purple accepted as likely to fade slightly-Mar 28
Yellow returned as too warm Apr 3) Green needed to
" " " " " " 6) correct the red
in the yellow -
yet not to weaken its chroma too much.

Mar 30
1905

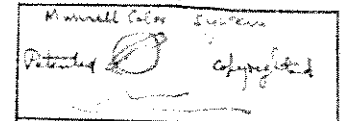
1-2 Mr Arthur S. Allen brings Mr. J. Albert Heppes - Dir. Eng. & Artists Dept. R.R. Donnelly & Sons Co. Chicago. 62
He had read book - I show the sphere - Tree - Charts - and test balance on motor. Show that the middle colors are beautiful because they balance, and find examples in Tapestry, Jap prints, pictures, etc. He knows Masatta and Maik. Thinks the latter appreciates this system.

Also shows Lumiere transparency from my study of State House in winter sunset. He experiments on color spectroscopically with Prof. Wallace - Yerkes Inst. - Speaks of the fading of his inks in 3 color printing - Must use transparent colors.

Apr 3

12:30 Mr. Putnam calls to ask advice on Label for new water color tubes.
I say that as no stamp was used on the pans, should not think a stamp necessary on the tubes - so long as "Munsell Water Colors - and Middle (Y.G. B.P.R)" are printed on each. When sending them, singly or in quantity - the package should have a regular stamped label, as for the goods of this system (patented).

It is not necessary to patent each color, but if anyone, seeing "Munsell" on the material, imitates it, in part or in whole - they infringe the patent.



He thinks I ought to lecture free to arouse interest. Also says they ask "is there any city or town where it is adopted? Hopes to get it on the list in N.Y. Brooklyn- Weleney, Collins and Goodnough are favorable - Heney adverse. Daniels will use the tubes. "Hope they will not harden in the tubes."

Apr 16

Miss O'Connor comes to talk over N.A.S. A.A. Reunion at the XXth Century Club - Apr. 24. 64.
Says she can get Munsell materials of the city by asking for them, also Miss Patterson does the same. Other special teachers seem to know nothing about it. I tell her they must first study the book - or their results will not fairly represent what is striven for.

MR. MUNSELL'S UNIVERSAL SYSTEM OF COLOR CLASSIFICATION

L.M.M.

On the evening of October 27, Albert H. Munsell delivered a highly interesting lecture on "Color" before the Society of Arts, which held its meeting at the Walker Building of the Institute of Technology, Professor Cross presiding.

An invitation having been extended to the students of the Normal Art, a goodly number attended, for, aside from the fact that it is an esteemed privilege to hear Mr. Munsell upon any subject, that as yet unsettled question of color classification is of vital interest.

In brief, following are the salient points of the discourse:-

It is important that there be found some simple form of naming colors, which can be easily understood by all persons. As it is now, there is little agreement. The painter says, "Too hot, too cold, too light, too dark," using pigment names for colors. The scientist will refer to "wave-lengths of color," while business men use most unfamiliar terms on their sample cards, it being the aim to give unintelligible names to colors in order to control them. Children, on the other hand, refer to colors as red, yellow, blue or green. Now if we could say very simply just what kind of red, yellow, etc., the problem would be solved.

It is generally ignored that color has three qualities or dimensions. It has hue, popularly defined by terms of red, yellow, green, blue and purple. Yet this does not define the value or the chroma. The value is the amount of light reflected to the eye by various hues, popularly called brightness or luminosity. This is independent of hue and chroma. The chroma is the strength of color, popularly described as intense, pure, bright, or saturate.

Mr. Munsell's system is different from preceding ones, in that it is based on measurements which may be verified. This made it necessary to invent a new instrument by which to measure color in daylight. Mr. Munsell showed a new form of daylight photometer, which he himself devised, and which is an invaluable aid to definite study.

After this the three color dimensions were brought together in an ingenious model called the "color tree," trunk and branches being so proportioned as to place every color in a measured relation to the extremes of black and white. Any color may be named by degrees of hue value and chroma.

A rotating color sphere was used to establish a balance of colors, five of the balanced colors being reproduced in enamel, to safeguard the permanence of the system.

The application of this system to practical color work is provided for in a set of charts standardized by five enamels, which serve in color as the tuning fork in music. The charts are made with a notation based on scales of hue, value, and chroma, so that any color sensation is defined by a letter and two numerals. This constitutes a color code which can readily be written or telegraphed.

The lecture was fully illustrated by models, color diagrams on the blackboard and by a spectrum thrown on a screen. Not once did interest flag, and so great a success did Mr. Munsell score that those professors who were not present on this occasion have asked for a private seance.

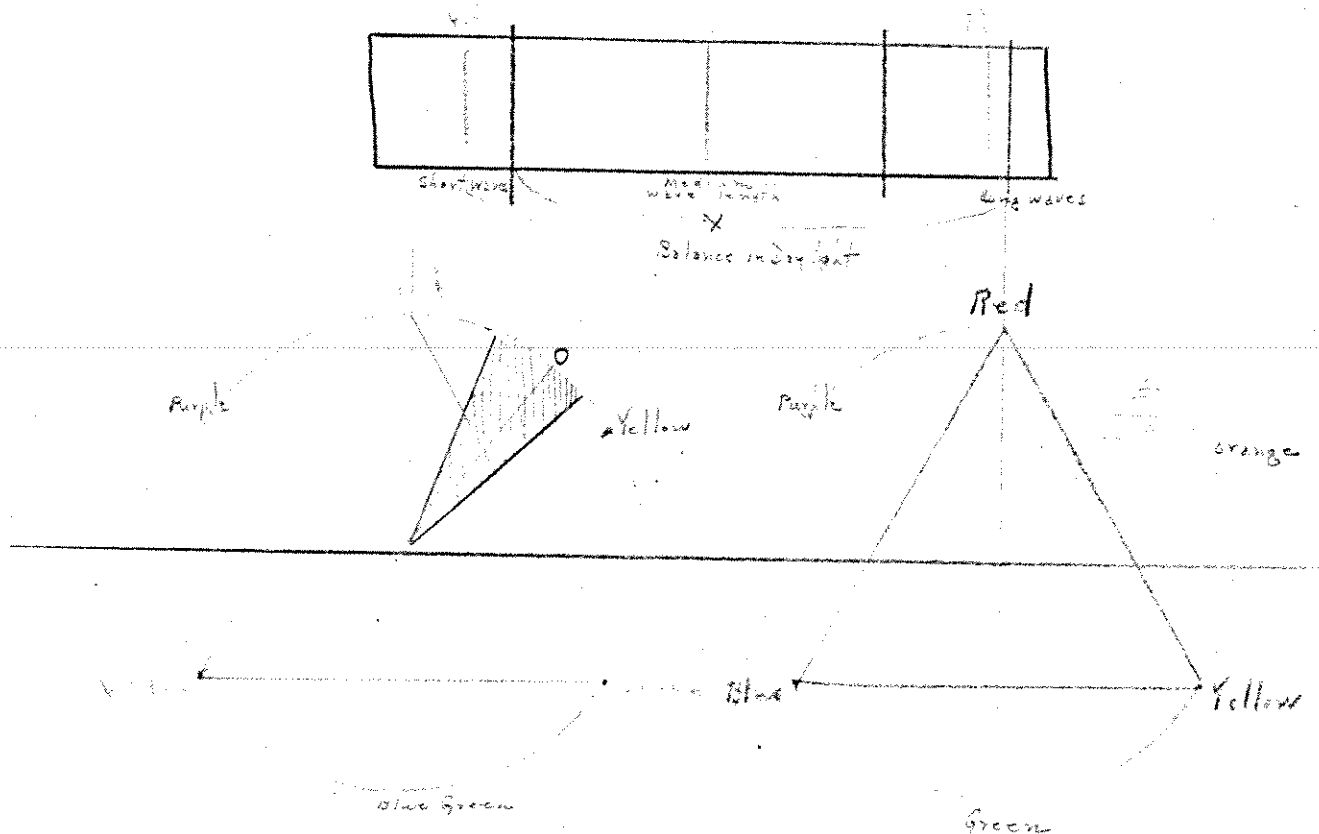
She speaks of the apathy of the N.A.S. graduates toward the ass'n and the school. They do not feel that the teachers care about them, or follow up their work- that each of the classes forms its own little group and has no interest in the others. Deplores this lack of school spirit, and makes unfavorable comparison with the Pratt Inst. graduate. Says there is outspoken opposition to Mr. B. and that the Public School graduates go out timid, feeling no powerful influence behind them. Acknowledges that drawing in the lower grades is in an unsatisfactory state - Need of special teachers.

- Apr 20 Studio 9-2 (holiday - for Patriots)
Write address on Travelling Scholarships for M.N.A.S.A.A. Test fifth sample tube of Munsell yellow. (worst yet!) Color grinder seems unable to produce in water color (moist tube) as good a result as in oil color. I again criticize it as failing to imitate the value hue and chroma of the first enamels.
Either too light - (with H & C fairly near) or "hot" - when the V is corrected.
- Apr 23 Tested Yellow and accepted it - altho' a trifle red - 66.
- 24 MacNeil & I go over to see the ruins of Chelsea.
- 29 Conversation with Prof. Clifford about Lumiere plates, (over the 'phone) shown at Soc. of Arts meeting at Victoria Hotel -
"Unsatisfactory on the whole, altho' great progress over previous work. Exhibitor complained that room was too small, - was inclined to claim it obtained what artist should see, but did not see.
"This led Enneking to say, "Well, Mr. Parkinson, you may state what the photographer sees, and had better stick to your last. Art may tell small lies, for the sake of a larger truth."
"Each of the three colors used darkens at a different rate.
- 28 Wrote Devoc-Reynolds & Co. (A. McKaig) of N.Y. warning them that the Munsell water colors are protected by patents and copyrights. This called for by the set submitted to James Hall, - and his letter to them saying as copies their colors fail, but the attempt is "questionable from the standpoint of ethics, good taste, or even good business."
- May 10 Devoc Reynolds answer "you can rest assured that our concern will not interfere in any way with

your rights or infringe any patents or copyrights that you may have."

A postscript adds, "The Munsell box we have does not say, Patented, or give the date of the patent."

4 P.M. Saw Mr. Howland at his office on above matter, and also advised making the tube w. colors as they approximated as close as I thought it likely could be done by his men - and the present stock of color bases.



Brewster's triad (R Y B) - doubles the orange field - hot color - and contrasts the blue field - cool

65.

Helmholtz triad (R G VB) - balances hot and cool. (white & black) argues a dupli-

Herring's three pairs (red & green) cation in the (yellow & blue) retina - & is not borne out by the facts.

Kuhne's theory may be found to follow Maxwell's.

May 3

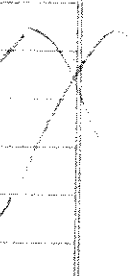
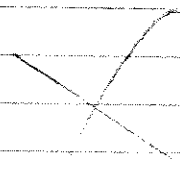
Mr. Gilman dines with me at C.H. & we discuss the popular error as to primary colors.

$$\text{avg} = 76\% \times 1.8\% (1.37\%) + 24\% \times 72.2\% (17.3\%) = 18.67\%$$

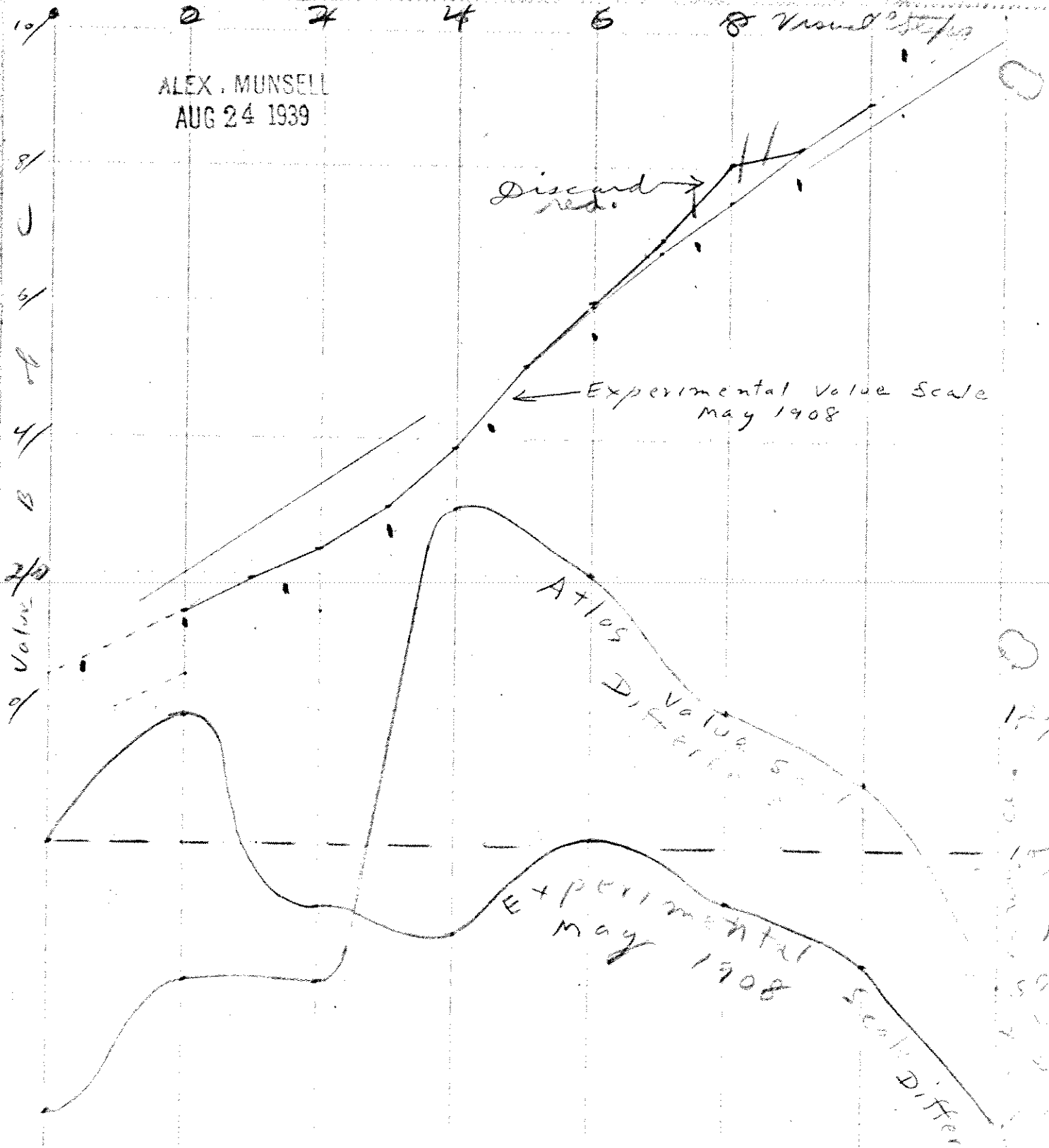
1.8%	18.67%	72.2%	1.44%
94% 1.67	6% 1.12		2.812 1.96
87.5% 1.57	12.5% 2.33		3.902 2.39
75% 1.35	25% 4.66		6.012 3.01
50% .90	50% 9.34		10.242 3.86
0% -	100% 18.67	0% -	18.672 5.08
	85% 15.88	15% 10.82	26.702 5.94
	68% 12.72	32% 23.15	35.852 6.76
	49% 9.14	51% 36.8	45.942 7.5
	25% 4.66	75% 54.1	58.762 8.3
	0% -	100% 72.2	72.22 8.97

52
43 -
62
55
1.22
56
62
74
50
57

1.8%	18.67%	72.2%	1.44%
94% 1.67	6% 1.12		2.812 1.96
87.5% 1.57	12.5% 2.33		3.902 2.39
75% 1.35	25% 4.66		6.012 3.01
50% .90	50% 9.34		10.242 3.86
0% -	100% 18.67	0% -	18.672 5.08
	84% 15.88	16% 11.52	27.222 5.97
	64% 11.12	36% 26.20	37.12 6.92
	36% 6.72	64% 47.30	54.02 8.02
	25% 4.66	75% 54.1	58.76 8.3
	0% -	100 72.2	72.2 8.97



ALEX. MUNSELL
AUG 24 1939



ALEX. MUNSELL
AUG 25 1939

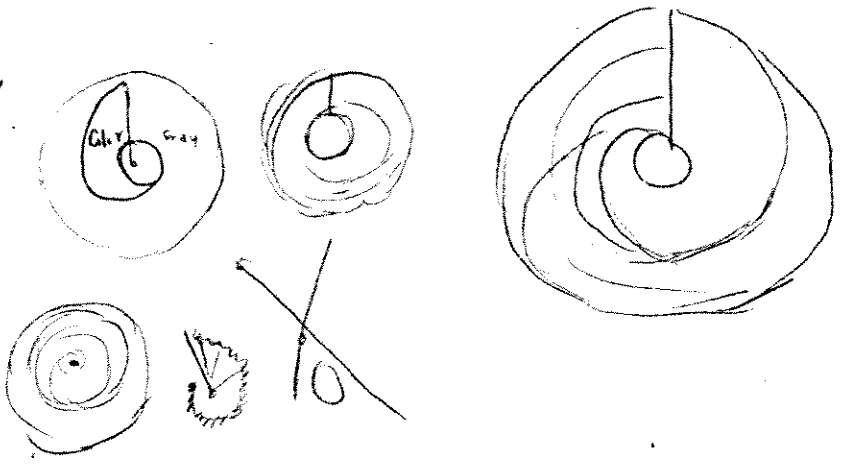
Value of Value

12/ 23/ 34 47 57 64 74

See Note Book - I pp 49-48 June 1901 43-58
 II 15-48 76-117
 III 40- Apr 1916 - 199

Each
in
gray
10
30
3:1

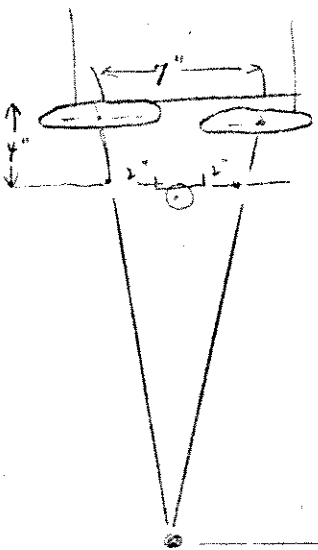
Red - 24 } balance in middle gray
 B.G. - 76



67 or -

Find - 1. Least perceptible addition of color -
 2. " " subtraction " "
 (= Area or Law of Sensations)

To fit spherical concept
 shut down on radius for weaker C.



Area		
938	1.6	1.5
930	2.4	2.35
935	3.6	3.37
935	5.4	5.05
930	8.1	7.37
935	10.8	11.35
936	18.2	17.62
935	27.8	28.53
936	40.9	38.39
	118.6	111.8

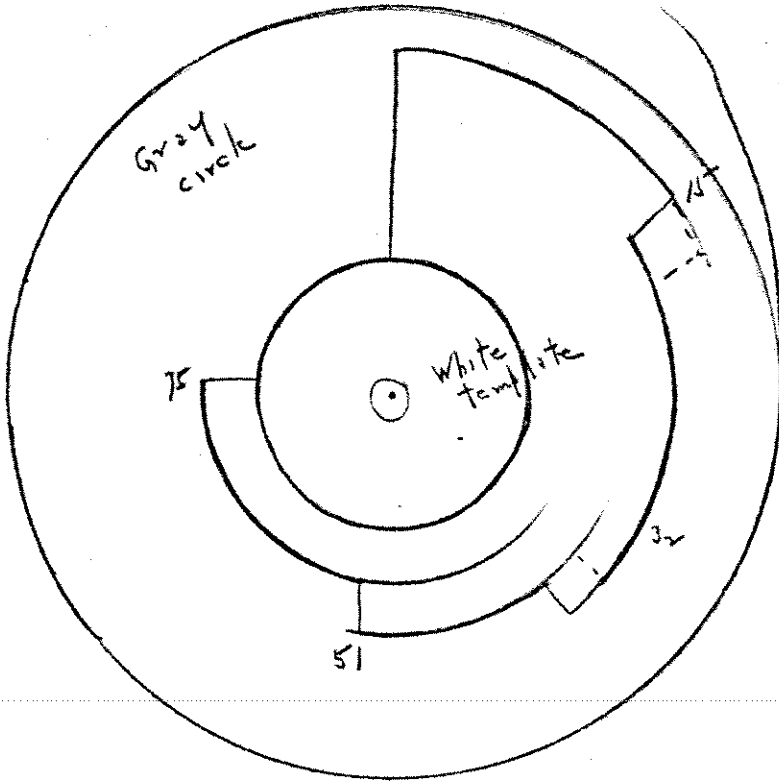
Law of sensation			
double	24d	24d	1.56
2	12	6	
4	12	8	3.12
8	18	10.2	6.25
16	27	14.1	12.5
32	40	18.8	25
64		25	50
128	105	33.3	
		115.2	98.43

May - 1968

Oct. 1968

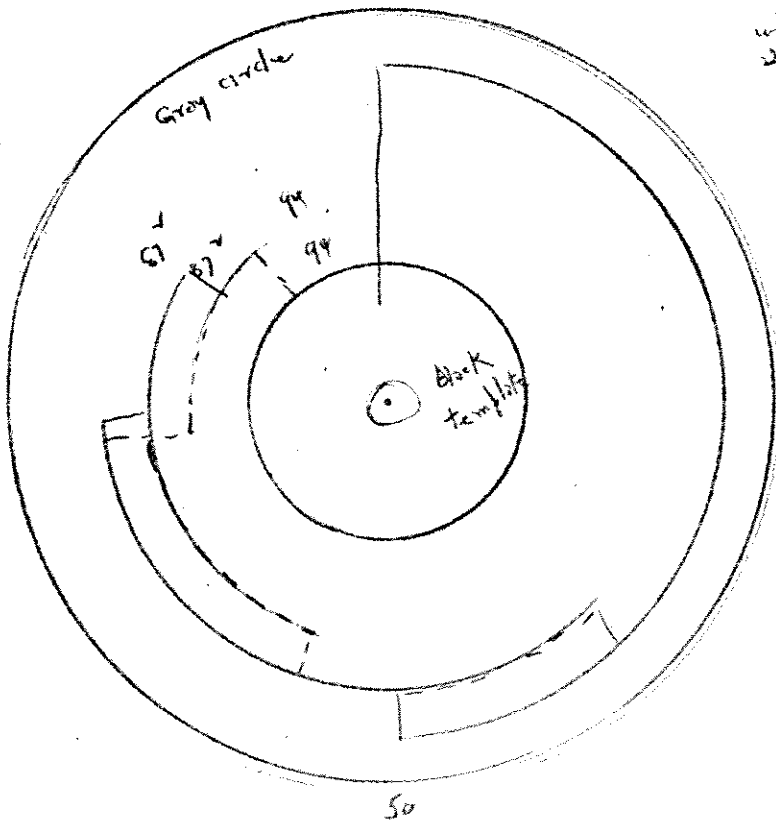
To grade 2 middle gray in each direction equally - to W + B.

Black Gray
 74 + 6
 87 + 12
 75 + 25
 50 + 50

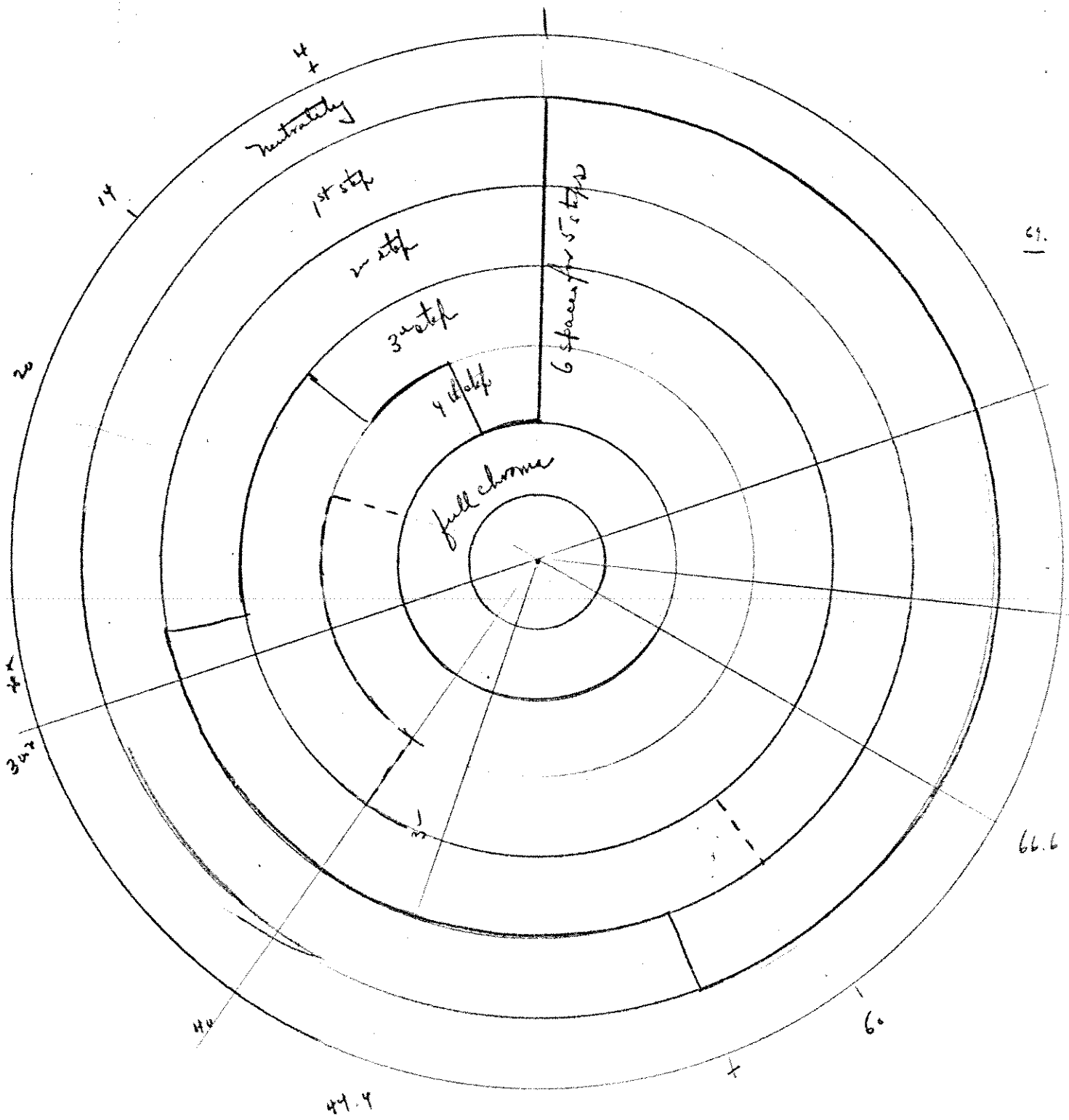


100 100
 85 + 15 (19)
 68 + 32 (36)
 49 + 51 —
 25 + 75 —

68



White +	Dim. Gray
75	25
(5) 64 (E)	49
36 (6)	64
white 16 (4)	81
24	(4) 49 (5)
49	76 Black
	↓
	148 25 (6)
	20 12 (3)
	9 6 (1)
	↑
	gray +



-1/5	100 chroma R	-1/3	100 chroma R	70.
	80		66.6 50	
	60		44.4 25	
	40		30.2 12.5	
	20		20.1 6.25	
	0 - gray		13.4	
			9.0	
			6.	
			4.	
			2.6	

Compare 5 steps of { chroma scale & value scale } in Red.

Both between same limits - 100 R and neutrality 10N
4N

First step- equal sensations.
Then V grows by increasing ratio.
C " " equal "

Gray (dim. white) 100

20% of red added leaves	80% gray	} Equal chromatic sensations.
40 " " "	60 "	
60 " " "	40 "	
80 " " "	20 "	
100 " " "	<u>all red</u>	
red		

Red

6.25% white leaves	93.75 red	10 12 20 50
12.5	87.5	120 253 2 1
25.	75.	100 411 44 11 5 2
50.	50.	80 69 1 6 3 1
100.	0.	100
<u>white</u>		

End of Book III.

See also 71-79 in
Book III

40 - 1/4	100 - 1/4	150	180	190	160
40	25 75	75	90	95	80
430	19 56	37.5	45	47.5	40
22.5	14 46	18.75	22.5	23.75	20
16.88	10.5 31.5	9.37	11.25	11.87	10
12.66	8 23.65	4.68	5.62	5.93	5
9.44	7.84 17.74		2.8	2.96	25
6.08	5.91 13.31				
4.56	4.43 8.89				
97.56	4.42 6.67				
	2.21				

4 PLUS 1/2	3.36	ADD 1/2	ADD 40%	5	5	5	
6	4.5	10	10	10	10	15	
9	6 PLUS 1/3	15	14	20	20	35	
13.5	8	22.5	19.6	40	40	75	
20.25	10.66	33.75	27.4	80	70		
30.37	14.21	50.62	38.4	6	6	7	7
45.55	18.94	75.93	53.7	12	18	14	21
68.30	25.25	113.89		24	42	28	49
	33.67			48	90	56	105
	44.89 102.73						
	59.85						
	79.8						
	106.4						

TIMES 2.1

5	5	RATIO
10.5	15.5	
23.1	38.6	
51.8	90.4	

PAGE 72 VOL 3 THRU P 75

WADSWORTH & HOWLAND - COLOR MATERIALS, SEPT 1905.
 NOV 14, 1905 THRU 11 APR 1906. DEBIT 32.28 CR 49.32
 SALES OF CRAONS, SETS OF COLORED BALLS, 5" SPHERES.

PAGE 76 VOL 3

COLOR AMBIGUITY IN ROOD - ABNEY BOWDITCH.
 CLEARNESS:- DEFINITE TERMS:- ARE THE BASIS OF EDUCATION (DEF. OF SALT.)
 OTHERWISE CONFUSION AND AMBIGUITY BECOME FATAL.
 MUSIC HAS SUCH TERMS. MEASURED, FICED:- BUT COLOR NOT SO.

TINT	R	MODERN CHROMATICS
SHADE	"INTENSITY AND PURITY" (DIFFERENT)	P 16
tone	"TINT AT END OF SPECTRUM (V)	120
INTENSITY	"SPECTRAL BLUE A FEEBLE TINT (C)	121
	"INTENSITY OF VISUAL SENSATION DEPENDS ON BOTH <u>AMPLITUDE AND LENGTH OF WAVE (V AND H)</u>	194
	"SATURATION OR INTENSITY, SYNONYMS FOR V AND C)	232
	"SHADE-TINT (CONTRADICTION & IN TERMS)	274

(O V E R)

* <u>A</u>	"X COLOR MEASUREMENT"
"INTENSITY OF LIGHTS (V)	P 16
"BRIGHTER SHADE	115
"LUMINOSITY VALUE (V)	139
"ILLUMINATION VALUE (V)	78
"INTENSITY EQUIVALENT TO LUMINOSITY (V)	159
"TRUE DEPTH OF TONE	172
"TONED DOWN	173
"SHADE (USED FOR HUE)	22
"RELATIVE BRIGHTNESS OR HUE (CONFUSION OF C AND HX)	XX 18
"SAD OR AESTHETIC COLORS	

* <u>B</u>	"PHIS: OPTICS"
"INTENSITY OF STIMULUS	P 785
" " OF ILLUMINATION (TWICE XX USED)	786
"COLOR IS MORE INTENSE AND MORE SATURATED (V AND C)	792.

COMPARE MEANINGS.

PAGE 77 VOLUME 3
ADDRESSES

PROF WILHELM OSTWALD - UNIVERSITY OF LEIPZIG - GERMANY ASKS FOR
COPY OF MY BOOK (THRU PROF CLIFFORD OCT 1904).

DO PROF C. P. DAVENPORT, COLD SPRING HARBOR, LONG ISLAND, FOR XXX
COLOR TABLES. (THRU PROF F R LILLIE AT WOODS HOLE)

PROF PETER COOPER HEWIT

R. M. COMEY & CO CAMDEN N J

OTHER ADDRESSES IN BACK OF
BOOK.

PAGE 78 VOLUME 3

"MR. PACKARD'S COLOR LIST" PIGMENTS

PAGE 79 VOL 3

"RYTHM" "A SUCCESSION OF SIMILAR UNITS, COMBINING UNLIKE ELEMENTS"
B. J. GILMAN. ALSO OTHER NOTES.

"IMMODESTLY SMEARING FROM MUDDLED PALLETES, AMAZING
PIGMENTS MISMATED" KIPLING (THE OLD MEN).