Claims

1 In a spinning top - A rotatable support having means provided thereon for detachably securing cards or discs thereon
Combined with one or more cards or discs (d) having colored surfaces,
mounted on said support at an angle to a plane which is perpendicular to the axis of rotation and having a different color than that of said cards or discs (d), and rotated therewith
and located so as to be observed through the color effect produced by said card or discs (d)

2 In a spinning top - The combination of a shell open at the top to form the body section
---
and supported in said shell so as to be observed---

3 In a spinning top - a shell consisting of a hollow hemisphere
---
a central spindle extending through and secured to the same, said spindle being provided with means ------

Dec. 18 Made disc to imitate spectrum - radiating sectors from the end of card -both sides. 51.

19 Geo. E. Morris
Comes to leave values of woodwork and wall tints which he advised for new High School Building.

wood	67	in day	65 at night (elec.bulb)
green	68	" "	65 " "
blue	70	" "	65 " "
buff	88	" "	88 - not much affected

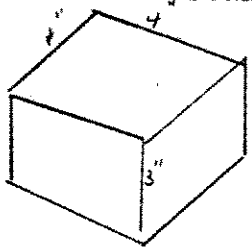
Agrees not to repeat these percentages.
Show him color-top and color models for schools.

Dec 22 Take Photometer No. 7 to New York Navy Yard Equipment Dept.
Meet Commander R. P. Rodgers

Supt.	Mr. ~~Speehier~~	Walling Testing Dept.
Experts	Mr. Spochier	"
	" Farmer	"
	" Newman	"
	" Millwood	Chemists Dept.
	" Joe Costello	"
	" Hirsch	"

Difficulty in finding a good daylight installation because opposite buildings are strong yellow with strong red roof. I suggest a higher location to obtain unbroken sky illumination from the north. Electric light readings are with 89 volts - 16 candlepower - ground glass bulb, of short life -

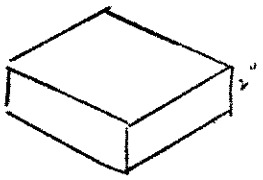
Find they depend on a Lumner-Brodheur type, with readings of voltage, when the lamp to be measured is equal to a standard lamp. (Tertiary standard based on one at the Reichanstatt).



Best test has been with two solids of clear crown glass made by the Corning Co. This glass absorbs light in the rate of about .6 of a candlepower per inch of thickness. Reduces 16. candlepower light to 12.65. Make rough trial of this glass

both fields white - 20% absorption)
" " middle gray- 6% ") ? ratio
" " black velvet-10% ")

52.



Mr. Spochier in describing instrument to the chemists(Mr. Costello and Mr. Hirsch) says
"It acts by varying the volume of light, instead of (like the Bunsen) varying the distance between two lights.
"It reads in percentages of full light.
"Astatic in principle" unaffected by changes in the color or intensity of the light - because of its construction: both halves affected alike.
"simple, portable.
The chemists ask if it will measure "tinting power" of pigments, dyes, illuminating oils -
I suggest a flat flask - to contain the liquids.

Dec 24 Dr. Chas. H. Williams - at studio 10:45-11:45
Reads colored glasses by daylight and electric bulb. Also middle grays -
Says "This opens up a very interesting field"
"I congratulate you on the instrument"
"May I come again?
arrange for 10 a.m. Dec 30.

Dec.27 Mr. Orr at studio from 10:15-12:45
Show him the color top - and make charcoal sketch for portrait.

53.

Dec 31 Dr. C. H. Williams 4:30-6 at studio
Brings wedge photometer made at Harvard (King)) to show and wax designs (ceiling) melted) me
Speaks of logarithmic curve to make scale-
I show him Chart 3. and kindergarten model(sectional) to explain interior of sphere -
Then show color-top (to create a color solid) and rainbow effect-
He suggest cutting edges of card serrate
We then read signal glass (red and green) by

mushroom bulb. Speaks of his tests for railroad employees - by lanterns and colored yarns - also a new wedge being made.

Jan 6 1903 — Mr. Joseph Smith (Agent of Caselle Color Co.) at studio with Mr. Jepson 8:45-10
Brings colors for me to distinguish.
two blues - two blacks - two pinks (slightly different in chroma and hue)
Discussion proves that he needs only what would appeal to a business competitor -viz: means to imitate what is fashionable at slightly less cost. Not the absolute light of a color, but its strength, and the most economic means of matching what is asked for.
He sees Photometer, Charts and Color-Top -
Says he had absolutely no color education; thinks this system invaluable for education of the color sense. Appreciates an exact scale of value, but thinks it not required in his work.
Measures of the process (mechanical, chemical, etc.) wanted, rather than of the result.

Jan 11 — Called on Prof. Clifford and met Mr. R.R. Lawrence at Elec. Lab. of Tech. 51a.

Jan 13 — Read from sunlight in SE studio window to darkest corner - and then up to NE window, using a 28° reflector bulb as basis of comparison - on Edison Elec. Light Co. current - 110 volts. 54.

9:30 a.m.	sun	- 90.3 candles	)sunlight through
11:30 " (true noon)	"	103.7	)haze and smoke,)wind N, on pleasant winter day (also dirty windows)

diffused light in various parts of studio
with shades drawn - from .4 - 6.3 candles
" " open " 3.5 - 18. "

Jan 15 — Anson K. Cross at studio 12-12:45
Sees color-top: It seems to him a perfected Maxwell disc, permitting mixture in any plane, and without obliterating the component colors. Believes it will greatly stimulate color perception, and become valuable in education. Says art education has drifted away from disipline - into sentimental haziness: and must come back presently.
Sees color charts: - and thinks 3 color work should soon be able to reproduce them.

Jan 20 — Mr. Chandler (Chandler & Barber) at studio 8:30-9
Sees color-top and photometer - Admires both, especially latter - Reads values of gray easily,

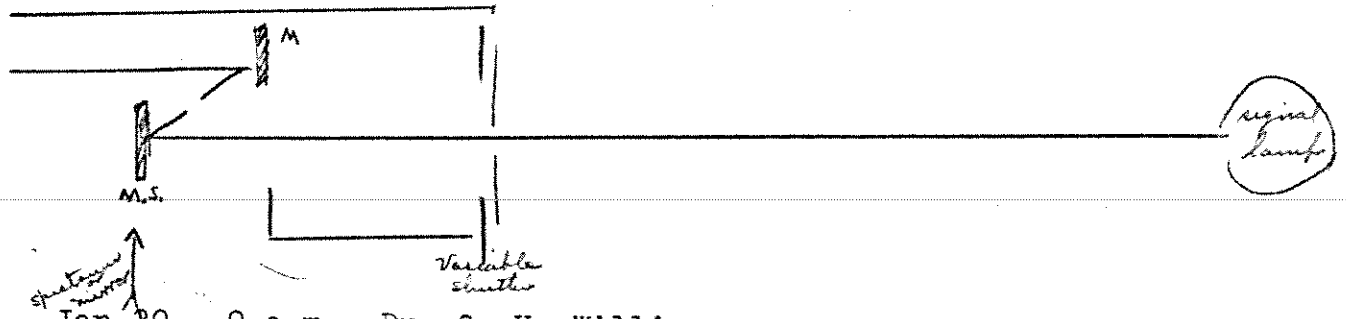
finds red against gray difficult.

Ordered antique frame of Foster Bros - 43x33 $15.

"Sensitiveness of readings is measured by diminishing the amount of light reflected from screen: this reflecting screen may be graded from white to black. - 55a.

"Brighter light is admitted to the variable opening of photometer so that it may be regulated ("choked down") by the shutter.

Jan 21 Shipped No. 8 by Adams Ex. to F. W. Willcox, Asst. Mgr. Incandescent Lamp Sales Dept., General Electric Co.- Harrison, N. Y.

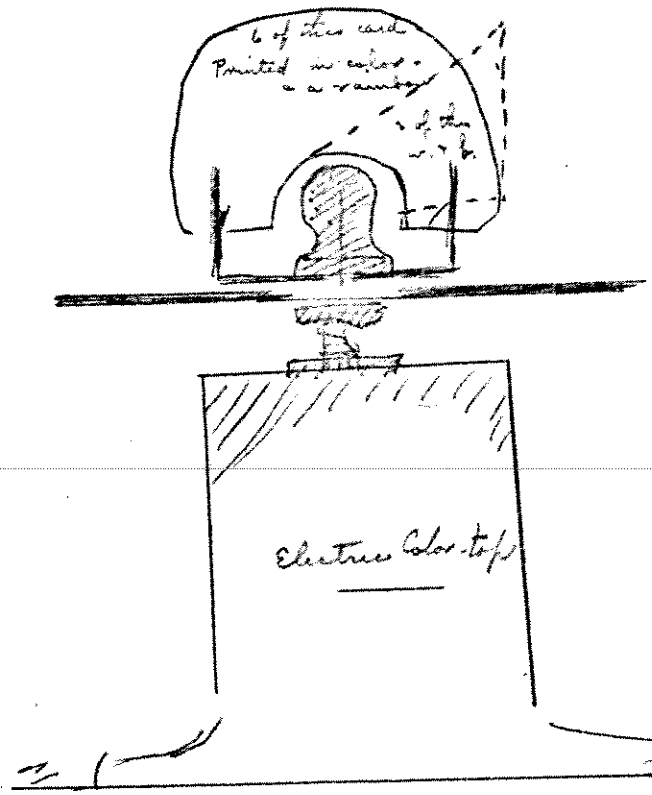


Jan 20 9 a.m. Dr. C. H. Williams- 55.
Reads smoky sunlight -(60 candle) and then a series across studio - and up to North-east window - ranging down to 2.6 candles - and back to 18 candles- Experiments with colored glass to neutralize redness of electric bulb -(cobalt solid) and finds it makes comparisons easier.- Tells me how to rig a telephone bulb with two 110 volts lamps in circuit. - Is pleased with my small photometer (Justice's make) and wishes me to bring it to his office for a test Wed.- 21st- after 3 P. M.
Suggests speaking to Dr. Earnst about having me speak before the Med. Soc. on Color. Believes this method a convenient one for ascertaining amount of light which reaches each child in a school-room.

Jan 21 4-5 At Dr. Williams office - 1069 Boylston St. Attached telephone light to small photometer (camera type) - and measured twilight in office - Equalize color of the two lights by use of a cobalt glass. Did not find the readings sensitive, altho' principle seemed to be illustrated fairly well.
The Dr. said he wished to measure signal lights at distance of half a mile - as nearly the conditions for practical use as possible.

Jan 22 Discuss telescope for distant signals with Juliet - Consider mirrors in place of white reflecting screen - ?whether direct illumination, without diffusing screen will work?

23 Sent description of P. to Mr. Willcox - 56a.



Suggest this size to Mr. Kendrick -cylindrical cylinder of aluminum.
6 color cards
2 b. and w. cards
Extra color discs for experiment.
descriptive text, for children.

---

estimated cost - 2 cents

Jan 23 4-5 At Dr. Williams office - Twilight measurements -1.with telephone lamp) scale down from 56.
2. " 8 c.p. ") 30. - 9
Very sensitive readings - variations less than 1%-
cobalt glass to equalize color.
Tests percentage of radiation of a light.
" amount of diffused light - in a room with a certain no. of lamps or windows
" " " " " from lamps as compared with daylight
" " " light reflected from colored surfaces.
" sensitiveness of each eye.

Jan 26 4-5 Show Dr. Allan Cleghorn, color top - and candle power tests. (394 Harvard St. Cam)

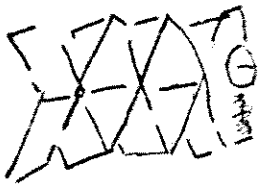
27 9:30-10:30 Mr. John Clark, Jr. (comes to represent his father who will call later.) Show him color triangles- spherical model - color top - rainbow, color charts and photometer - explaining the system and its measuring instruments.
Speaks of book-binders attempt to standardize color.
" " Prangs tests of fading
" " lack of any commercial standard-
Says they are trying to get back some of their outlay (by 3 color boxes) instead of spending more on experiments. Mr. Prang felt that it should be his personal expenditure - not a draw on the business.
How Bradley and Wadsworth & Howland cut in on their sales (heavy and larger cakes of color)
Cincinnati tests the various kinds (14 out 15 cakes were Prang).
Believes there is a large future for the light meter- not so sure about the top - must look up existing tops.

Jan 29 9-10 Mr. F. B. Kendrick (Kendrick & Davis -Lebanon,N.H.)
Sees color-top:- rainbow - variable angle - riders- color gradation - variable ground -
Discuss form and material - fitness for his smallest motor - dies and printed color cards - Descriptive text. Will put a workman at experiments to determine best form, and then decide if he cares to make it on a royalty. Thinks to answer in two or three weeks.

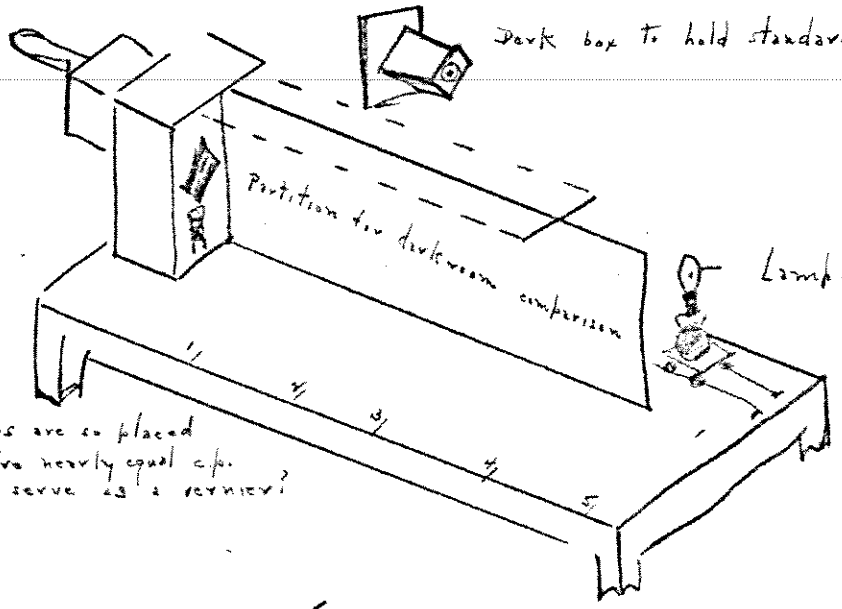
Feb 3 12-2 Call on Mr. Pritchard at his school, lunch at Crosby's and he comes to studio to see color-top. 57.
Discusses a set of eight or ten lectures on my color system to an audience of twenty-five or fifty- on Monday afternoon (4:30) free, or at a nominal charge to cover the expenses -(light, stenographer, etc.) Asks possibility of a presentation in McClure's with color charts by the three color process. (Mentions Ray Mainard Baker) to write it up.

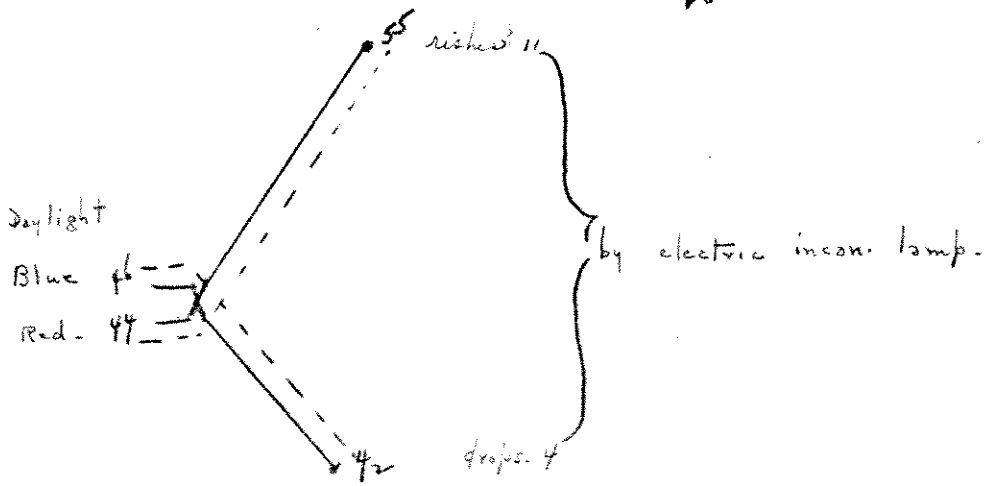
Feb 6 2-2:30 Mr. Frentz sees Mother's portrait.
Also the photometer - color-top- and sphere.
Suggests writing a description for the "Worlds' Work"-

Feb 10 Dr. Williams by telephone, suggests that the M. photometer not only measures lamps, but also its state of illumination in rooms where lamps are to be used - Also that some bright Tech. student make it the subject of his thesis. - Say I will report the 18th inst - (Sanborn at lunch)



— Tongs to carry lamp to be measured.





Feb 13 Harrison (Newark, N. J.) Meet Messrs. Willcox, Deshler, Hall (Engineer of Works), Judge (of Balt. Edison E. Co.)
See complete process of making a bulb from the first steps - leave order for 6 Baby reflector lamps - Discuss a bench with carriage to be used in connection with this form of photometer. Mr. Deshler gives me a lamp calibrated at 10.4 c.p. on a 110 volt current.

Feb 16 Mr. H. B. Cutter*and partner -Mr. Mack- and Mr. C. R. Brown (Edison Tel.1150 Oxford) at studio to see photometer - Brings opal glass that takes out 53% of the daylight.

Prof. Clifford says law of diffusion being different from that of intensity (interval as ⅟ of the dist.) should advise standard lamps not less than 3' away and not more than 50 c.p.
*(readings from 7-12% lower than others. Does not smoke.)

Feb 24 4 P.M. Mr. C. R. Brown - Tel. Ox. 1150

17 Mr. Pritchard brings Miss Peterson (Supt. of Drawing - Boston Schools) to see color-sphere - top - charts - and Color Notation.
Uses "brilliancy" and "intensity" for chroma - Shows Dr. Ross' circle and scale of light - Would like to join a class at my studio - Mention also Miss Parker -

Feb 24 Mr. C. R. Brown brings Mr. Conant to see photometer - discusses comparison of daylight colors with those under various lamps - appointment at his laboratory for 4 P.M. Tues. Mar. 3rd.

Feb 25 At Dr. Williams office 4-6
Measured three kerosene lamp-flames by method of inverse squares - and the dial - having 2 yds. of velvet (pile on R) as a partition between flames. Noted Rumford photometer on wall, at pole socket for handy partition.

Mar 2 At Dr. Williams' 3:30-5:30
Found lamps read directly as the distance - on the dial - because area is square of the side of shutter - i.e.

dial	area
50	25
100	100
30	9

Dr. W. shows model of binocular - advises magnifying glasses (+2.5 to 3.)

Mar 19 Visited Gen. Electric Laboratory at Harrison - Mr. Deshler shows me scales, readings and color samples - Thinks a one c.p. lamp - at 4" dist. would serve to measure any degree of illumination.
Suggests variable aperture up to 120% for balancing -

Most sensitive readings above 50 - not as I thought before- 30. Reads easily within 0.4 or .5 of a c.p.
Very portable and sufficiently accurate for "our customers" who are content with fluctuations of 1/2 c.p. either way. Will forward report before Mar. 30.

Mar 30 At Dr. Williams 4-5 59.
Show him partial report on photometer by Mr. Deshler. He describes gear - and wire rope - with screen pointer to read distances from D. screen. I tell them again my plan for binocular effect by turning P. on its side.

Apr 27 Mr. Perkins in B & A train -
Show him two stage models for photometric work- Describe dark box for diffused lighting of a room.

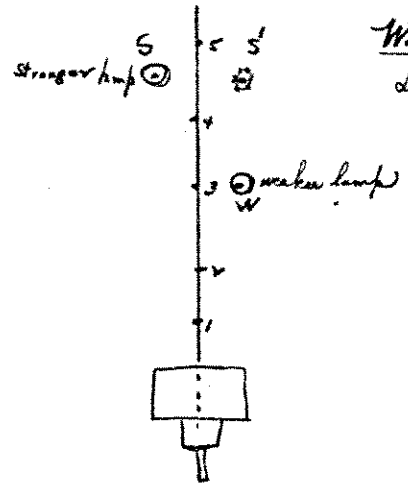
With Mr. Conant and Mr. Brown at G. E. Laboratory.

	dial		c.p.	16
2-16 c.p. lamps 1cm distant	100	100	16	3
voltage change from 113.-1125		90	15.52	48
" " " " 112.		89		
		87		
		84		
Used gray field and ½ distance		45		
		44		

Dr. W. discusses my address at the M. P. Club- (avoid complex matters)

8-10 M. P. Club meets at 107 Marlboro St. - Prof. Wm. Watson's. Meet Profs. Sabine, Lanya, Wendell, Goodwin, Pierce & brother, Mr. Edmunds, Puffer, Clifford, Curtis - Smith - Crosby.
Present "A new form of photometer".
Prof. Lanya asks if it could be applied to Values of a landscape. Prof. Sabine asks what is the standard of White - asks if blue will not become more luminous in dim. light - while red becomes less " " same ".

Feb. 17. Ch. White 30
Trans Violet .15
Pink Madd. .15
White Gum. 15
30



5 Feb.

With dial at 100 (wide open)
Lamps appear equal – at unequal distances of 4.5 (5) + 3' (4)

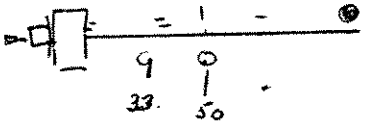
S : W :: 3^2 : 4.5^2
:: 6 : 9^2
:: 36 : 81
81) 36.0 (.4444
324
360

weaker lamp is 44.44 % of stronger lamp.

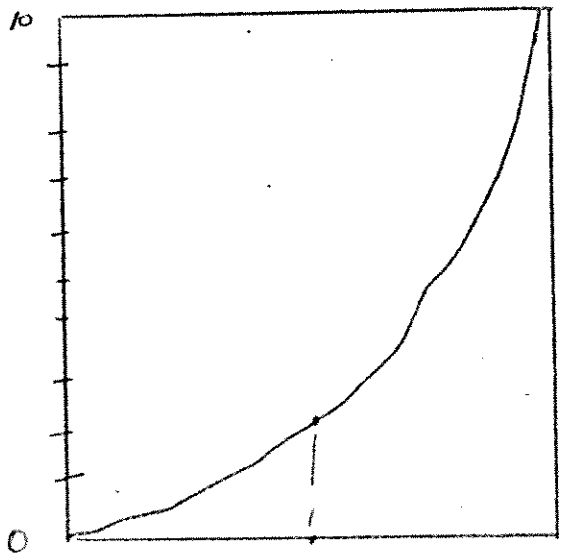
Placed S at 5' and W at 5 – (equal distances
Dial then reads 55. – when the S is choked down to equal W.

81. = Stronger lamp value
.55
405
405
44.55 = weaker lamp value

weaker lamp is 44.55 % of stronger lamp.



C. P.
16.

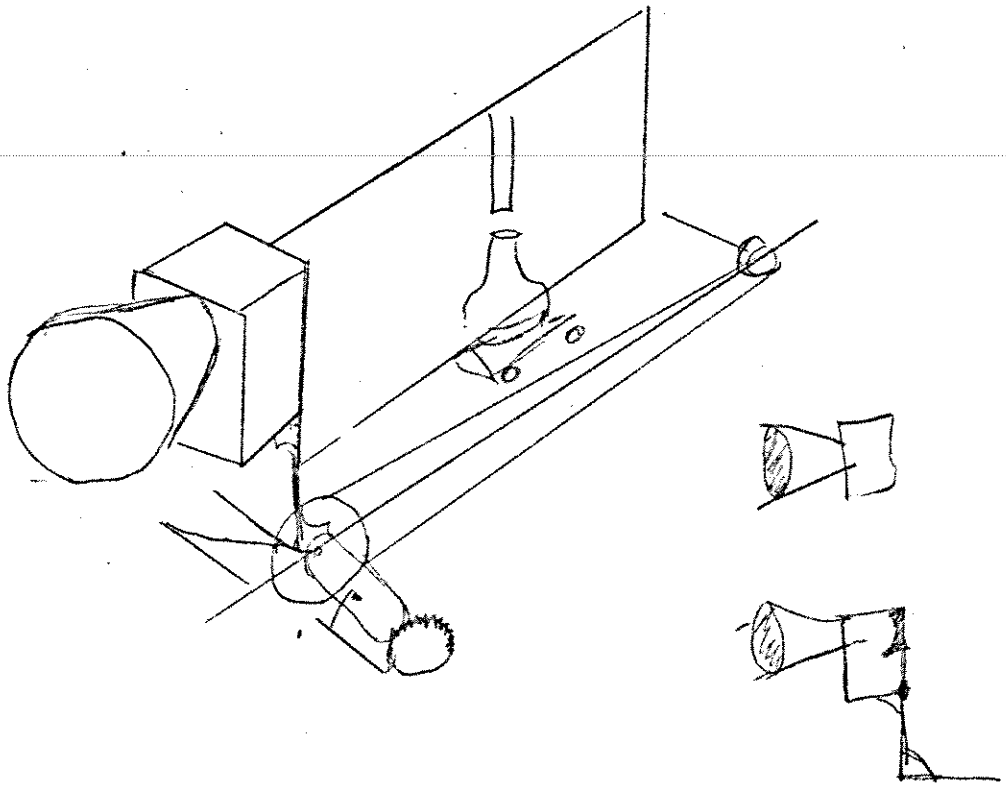


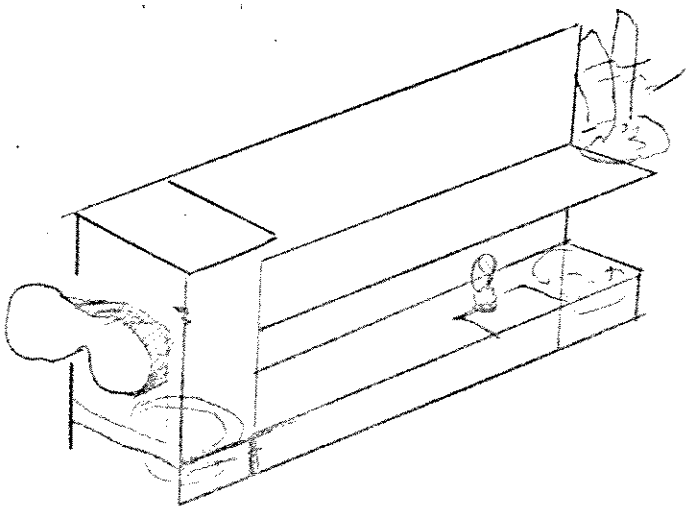
1600

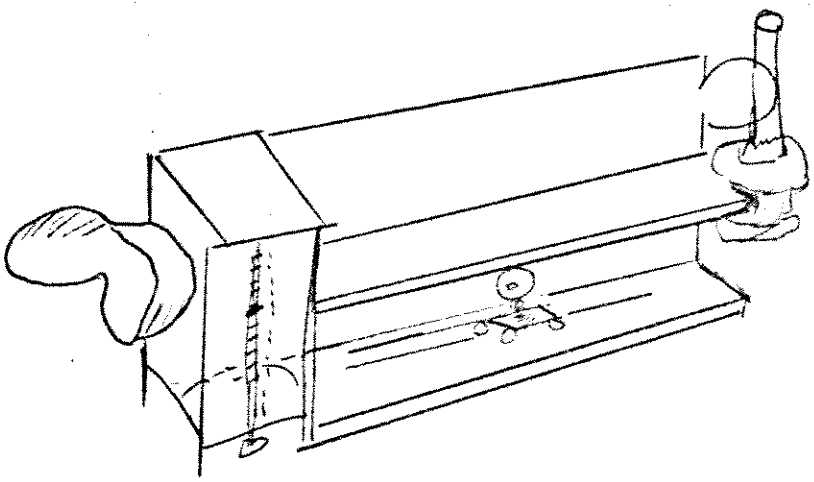
. 1 4 9 16 25 36 49 64 81 100 squares

Prof. Smith describes his spectro-photometer.
" Edmunds " wedge photometer used at Harvard (—— of visibility) -
Prof. Clifford speaks in its favor, and intends to make comparative tests with the Weber and the --

May 16 Called at Brooklyn Navy Yard and learned that no proper installation had been provided to test my P. - altho Mr. Farmer had made a report to Supt. Coalling - which had not been sent to Washington - as stated in leter of Com. Rodgers assured me a copy of the report should be sent to me, and gave orders for return of instrument.







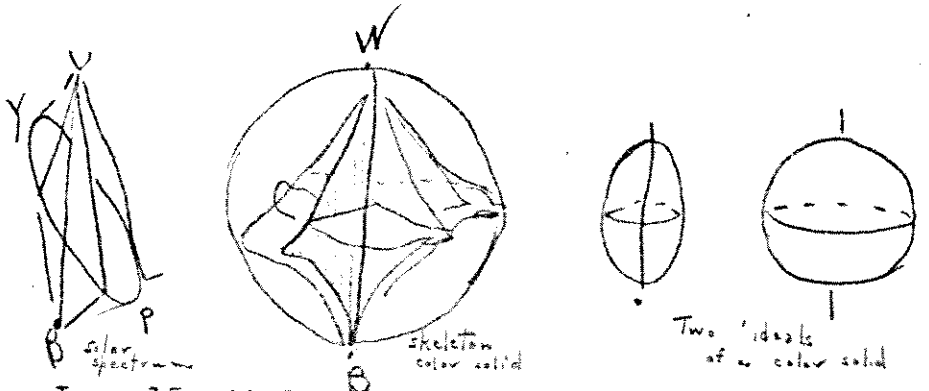
Fixed flame or bulb. at 1 meter. 59a

Variable bulb on carriage - with cord around drum & gear to carry a pointer up and down one thread of screw.

(Here follow enclosures 59a -b-c-d-e-f-g which include cards (one of J. Rayner Edmands of Harvard College Observatory) and notes - but nothing bearing directly on the color system.)

May 18 Prof. Clifford tells me the P. has been adopted in the Dept. of Optical Measurements at the Institute - as a result of my address before the M. P. Club - (by Prof. Wendell) 60.

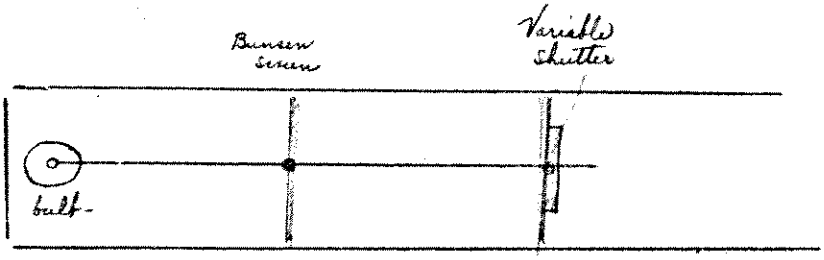
22 Lunched with Mr. Gilman - and discussed color models.



glass beads?

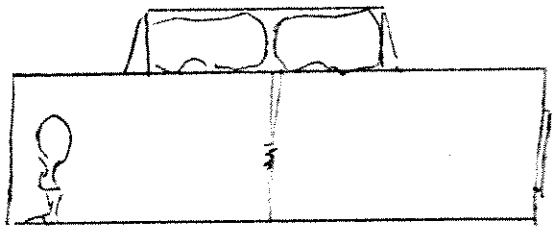
June 15 At Dr. Williams office -
He shows sketch of photometer to determine candle power - using my form - but varying the distance of two lights - instead of choking down a single light in one half of the instrument also using lens for eye-piece - and a recording drum. Does not know any previous suggestion of my design in other instruments.
Sees his device would not serve for daylight. Thinks this may be more convenient than a Bunsen.

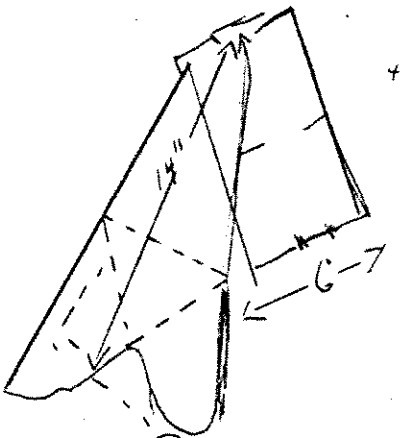
(61a)

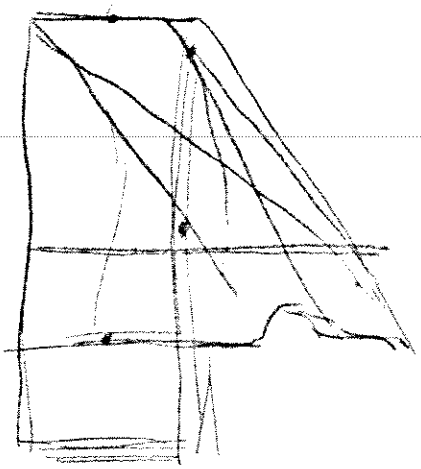


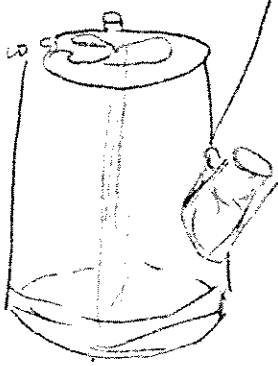
Vary by volume of light not by distance

Calibration by C. Stebbins Jan 1904

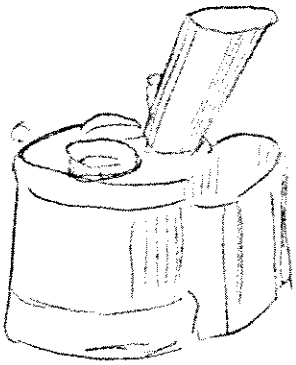




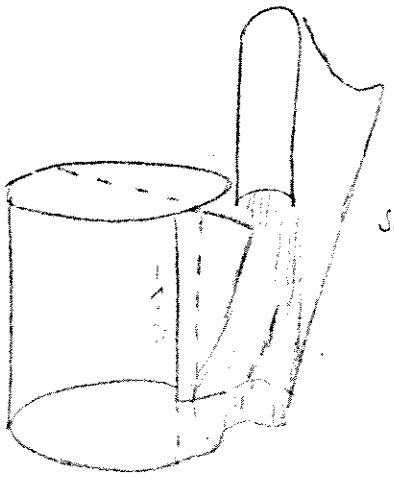




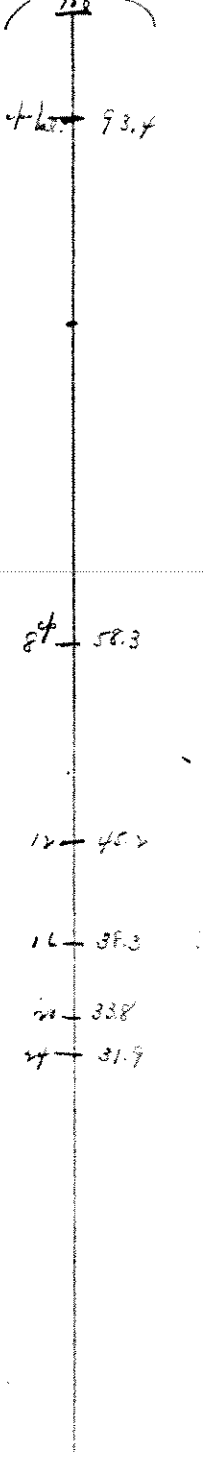
sight tube to take off.



Model - 4" dia - Oct - 1903



Sight tube to hinge -



Elec. M ____ -26 - Oct. 28

Discuss
1. Apparatus for theoretical point of view
   possible errors -
2. Consider its practical commercial value
   1 - in obtaining information for publicators with respect to various lights and effects on colors
   2 - Practicability of using it directly to demonstrate to customers the values of different lights

61a.

presence of light	decrease of area
-2	35.1
-3	48.2
-4	55.1
-5	59.6
-6	61.5

(reverse side)

Sept 17 Pin-hole - or wire to keep P. central to source of light - to make small, cheap form of Munsell photometer - (try Bunsen screen - with Cats'-eye shutter - to balance lights - not by change of distance, but by choking down the stronger. 61.

Oct 3 Showed photometer model to Will Jenkins and discussed scales of light and color.

12 Had 6" tin cylindrical model made by E. Anderson- 49 Washington St., north, for $2.50

17 Tried 3" cylinder
Found 4" more sensitive - added handle to contain battery and feed a 2 lamp for comparisons.

Dec 10 12:30 - 1:30 Mr. Pritchard at studio.
Review the lecture and book -
Suggests Book (250 p) with black and white plate-$1.-00
Atlas (18 charts) 10 colors (small text pamphlet) 5.
Sees charts and color models - (Hat-tree)
Will bring Mr. Lord (of Scribners') to see it.
Recounts school muddles about color -
No teacher understands the subject of color-
But everybody is interested in it-
It is now the subject uppermost.

"Of the publishers will not take it, I believe I am ready to go into it with you."

Dec 11 9:30-10:30 Mr. Lord of Scribner's calls with Mr. Pritchard to see the color system and discuss the commercial side.

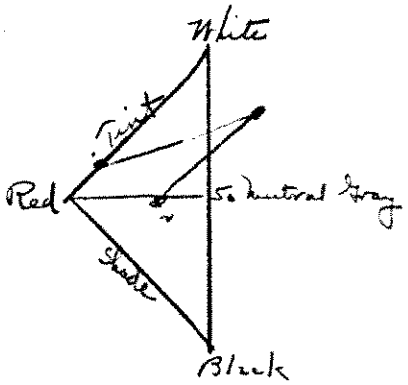
16 9:30-10:30 Dr. Williams sees small photometer - and reads sunlight - (.02) and daylight (.36) - reflex bulb (.47) - Suggests stereoscopic lenses in eye-tube at easy focus - to relieve eye of accomodation (for sustained readings) 62

Dec 26 With Mr. Pritchard on 10 o'clock for New York -

28 Lunch " " and Mr. Lord (Scribner's) at Nat. Arts Club -
(?) Must the printing of such a book be supervised- (Mumford did this for "Ov [illegible] " [illegible] Chroma Co., of Detroit)
How fast will these colors change. (3 mos)
Will artists accept a new system - or this system
Jay Hambridge lost in the Esotericts of shells, and the Parthenon lines.
What does it displace
Who will use it Stores
Printed and Woven Colored goods
Dyers & Chemists
Architects, Decorators, Art Industries
Modistes
Psychologists, Scientists, Educators, Painters -
Will two people agree as to what is harmonious in color.

Jan 3 1904 With Mr. Pritchard on 3 P. M. for Boston
Absolutes ?)
Spectrum) Scientific objections.
Lecture must no be interrupted & side-tracked
Notes on blocks - for after discussion
honest fighters, not dummies useful.
Get interest in 1st lecture.

Titles
Geography of the Color Sense
Color Tree
Color Solid
Practical Color System 62a.
System of Commercial Colors
" " Artistic "
" " Pigment "



63a.

Expert audience for Studio Demonstrations (10)

Points of View	
Psychologic	Mr.Gilman (Mus. Fine Arts) Prof. James, Munsterberg, Hough
Physical (Chemical)	" Cross -Dolbeare, Bowditch, Sabine " Gill
Commercial	Mr. Filene, Wanamaker - C. L. Gagnebin, 140 Oliver St.
Artistic	Mr. Hatfield, Mr. Schmidt, Miss Macomber, Carl Gebfert 21 Irvington (Dudley -Rox.)
(Decorative)	Mr. Jenkins, Greely, Haberstroh (9 Park St)
Educational	Mr. Pritchard Mr. Peterson -412 Newbury St. " Hopkins " Dix 53 Ashford St. Allston " Kingsbury " Pa 18 Rockville Pk. Rox. " Sargent " Fiske " Morris " Blanchard " Bailey " Hartzhorn Methuen " Cross " Warner " Andrew " Blake " George " Dora Adams " L. Frank " Batchelder
Publishing	Mr. Briggs - 34 Franklin " Lord - Scribner's " Chapin - "
	Schuyler Matthews Dr. Alan Cleghorn -294 Harvard St. Cam.
Student	" Lyon " Grovisnor Mr. C. F. Cutter- 1458 Tremont St. " Pettygrew " Bruce
Newspapers	Downes

Jan 11 1904 — Prof. Cross - at his desk 2:30-3:15
First questions "Chroma" - altho' quoted from Cent. Dict. Discusses my diagram of red. Asks if 1 and 2 are not the same. Says (like Dr. Bowditch- p.15) that this is a new thought to him. When I speak of giving this at my studio - he suggests the use of Room 23 at the Institute - speaks of asking Dr. Bowditch, Prof. Munsterburg, Prof. Clifford, Mr. Walker, (chemist) and others. But they are all too busy to come frequently. Therefore omit all that cannot be placed under two talks of an hour each.

1. Desirability of some system of color nomenclature.
   How far pigments may represent color
   3 characteristics - Ideal sphere of all "Color sensations"
   Instruments to measure these characteristics
   Hue, Value, Chroma
   Resultant color solid.
2. Uses of a color nomenclature
   Atlas
   Notation
   Educational uses
   Commercial "

Thinks Feb. 15 or later would serve at 4 P.M.- Say March 15. - Will advise further when I have laid out the two talks.

Jan 19 — Studio 4-5 Mr. Macy criticises self-portraits.
What qualities appear only to certain individuals?
" " are generally recognized -
Speaks of Helen Keller's use of color terms. entirely one of association -
Red is warm - and blue is cold (french verb "bleuir" moonlight) - Gorgeous (to Mrs. M. is always purple)
Bentley's Theory of Vision
Dr. Howe on Color sense of the Blind.
Shock and terror after seeing the nurse's face - when a congenital blind person recovered sight by surgical operation.

Jan 21 — Mr. Carl Gebfert - Discusses color -permanency - out-door effects. Sees models and charts.
Area of color- as affecting the sensation - (1/2 as strong twice as large)

22 — Mr. Peabody (Suffolk Eng. Co.)
Sees Charts 60 & 30-
Thinks a plate (tri-color) 10x12 - would be about $150. - 20 plates - 3000.
Perhaps one extra key plate would be needed for certain colors.
Would make a test on small scale - without charge.

Jan 28 By tel. (3858-2 Main) with Miss M. T. Mann- stenographer - to report lecture @ .50 per hour (including assistant) - and furnish copy with carbon - @ 7½ cents per 100 words.
In case lecture is not reported after one or two times - .60 per hour - To come Monday Feb.1 at 3:50 -
(Lucy M. Lidquist - 33 Worcester St. stenographer)

Feb 1 4-5:30 1st Demonstration of Color System to an audience of fifteen.
Mr. Gilman afterwards suggests more color surroundings.
Mr. Pritchard advises me to provoke questions: "then the teacher shines out."

3	4-5:30	2nd demonstration	16 present	
8	"	3rd "	13 "	
10	"	4th "	13 "	
15	"	5th "	12 "	
17	"	6th "	10 "	(stormy)
24	"	7th "	7 "	"
29	"	8th "	13 "	
Mar 4	"	Review "		

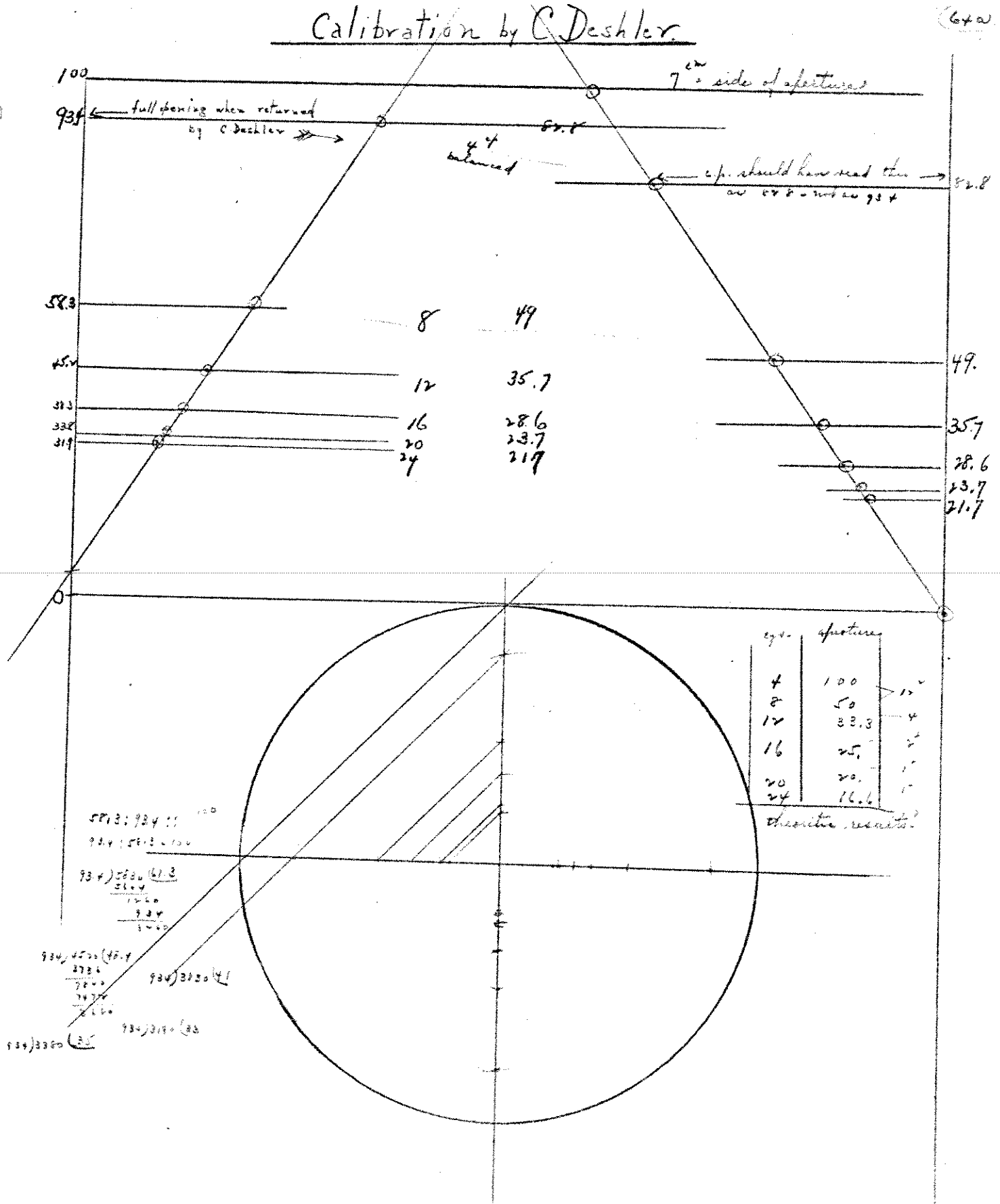
Feb 18 Lunched with Herbert W. Briggs at New Hampshire Club, and then continued discussion of color system at studio until 5:30. 65.
Mr. B. selects discs of blue and orange, to measure relative CHROMA
In Photometer they give on discs rotated with gray

	Values	
Orange	64	B:O::10:22
Blue	42	(disappearance of color sensation)

B. states all diagrams on assumption that Red, Yellow & Blue are primary.
Query. Is it possible for the Value of a color to change, and its CHROMA remain the same?
Why not use a neutral gray in photometer screen, in place of white?
Is white a color - has it Chroma?
(then Value can be eliminated)!
Is not Orange the color of greatest Chroma?
Does not Chroma mean the amount of gray.
(inversely, yes)

Feb23 4 P. M. Herman McNeil and Mr. Bartlett at studio- Sees my portrait - and some color models.

Mar 3 Will Jenkins (decorative designers) sees Lecture Notes)



Jan 18 Photometer (No. 8) received from Gen'l Elec. Co. Harrison, N. J. - Shutter off centre - by unshipping gear - and one leaf replaced three cogs ahead of the other.

GENERAL ELECTRIC COMPANY

Harrison, New Jersey,
Jan. 14, 1904.

64a.

Albert H. Munsell, Esq.

221 Columbus Ave.,

Boston, Mass.

Dear Sir:-

I have calibrated, as well as I could, your photometer for 4 C. P., 8 C. P., 12 C. P., 16 C. P., 20 C. P., and 24 C. P. The method of calibration was as follows: Opposite the fixed opening, and within the hood which covers the opening, I placed a Baby Reflector Lamp, and adjusted its C. P. so that the 4 C.P. lamp opposite the adjustable opening balanced the reflector lamp at 93.4 on the dial; 8 C. P. then balanced at 58.3 on the dial; 12 C.P. at 45.2; 16 C. P. at 38.3; 20 C.P. at 33.8, and 24 C.P. at 31.9.

The calibration which I herewith send you is an average of three readings at each of the C.P.'s. I am not very certain of these readings for I find it difficult to duplicate, but I send you the best I can do.

I would also like to correct my report giving various formulae for operating your photometer by substituting 7 centimeters for 10 centimeters for side of fixed opening, and in report of March 24, 1903, read opposite D, Dial:- Indicates, in percent, the sides of the variable opening.

Yours truly,

(signed) C. DESHLER.

CD/FB