Red

There

Ther

(Here fellow & more pages of description of corrections needed.)

September 1

25.

Mar 15 Mr. Putnam calls to inquire about Bradley's "reduced colors"- quote objections to Munsell colors.

1 - "cost greater

2 - "cannot paint buttercup in 3 first grades

3 - "The colors are mixed with white and cloudy, not clear.

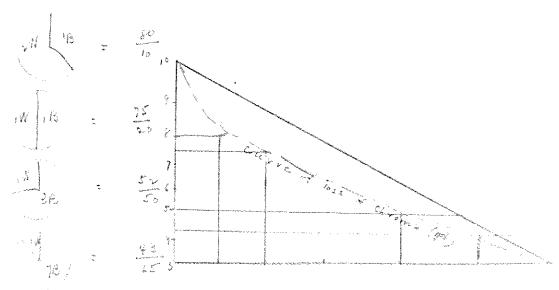
Says it is now used (Revere - Miss Dix
by grades in (Everett - "Elliott
(Clinton - Mr. Judkins
Mass. (Marblehead - Miss Bulfinch
(Brockton - Miss Ten

R.I.(Briston - Miss Morton (Warren - " Bennett Conn.(Naugatuck - " Lewis

Normal schools Salem - Westfield - North Adams - Bridgewater
(kinderg.)
High schools - New York City

Teachers' College - Ethical Culture - private schools, etc.

March 25 Dr. Henderson experiments with Chroma -10-12:30 1909



A STATE OF S

White suphur Gray Blk. Velvet 24. 9.2 9.2 84.64 2.5 2.5 6.25 1.0 $\frac{1.0}{1.}$ ratios with PB $\frac{25}{1.}$ 618 85 618 618 185 95 100 .90 •95 .88 3450 380 13 100 21 96.5 •13 Whete .10 .17 heutal tray . s. 5

Table of equal chromas using PB25 with discs of white Gray neutral (25) and Black Velvet.

PB:W	PB:G	PB:Black	
99:1 99:1 99:1 97:3 19:1 82:18 3:1 59:41	95:5 95:5 7:1 3:1 11:9 1:37 13:87	85:15 3:1 1:1 1:2 1:4 1:9	
Y: <i>W</i>	Y:G	Y:B	R _L L.
90:10	83:17	50:50	R:W R:G R:B
78:22 70:30 60:40 50:50 40:60 30:70	71:29 58:42 50:50 40:60 32:68 25:75	33:67 19:81 11:89 7:93 2:98	95:5 83:17 37:63 90:10 75:25 16:84 85:15 62:38 10:90 80:20 50:50 4:96 33:67 10:90 .5:99.5

27.

Mr. Anderson at studio 3-4 - to discuss Apr 3 stronger blue etry Cobalt & Viridian Ultram.& Em. Green Cobalt & 62 Eng. Vermilion 72 Zinc Yellow 100 82 Emerald Green Cobalt (& Viridian) *f

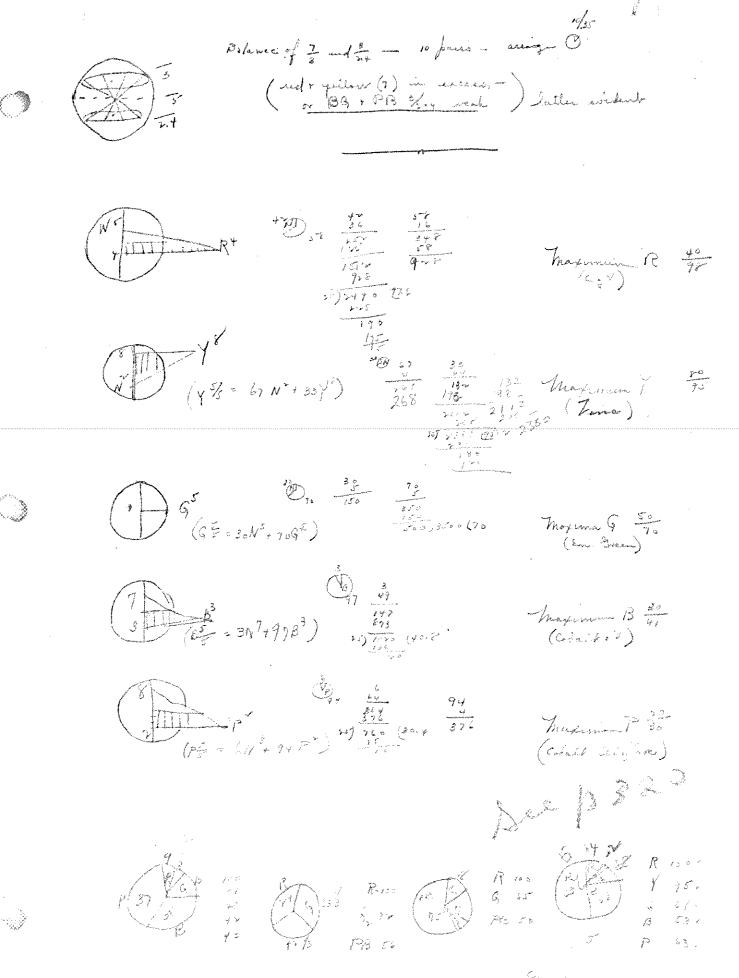
Dr. Henderson comes to study equal chromas -Apr 9 (see Mar.25. PB) 1 1 25 L

Cobalt (al -- crim lake) (3.6

Yellow Red

p3 p3 ademental constant de

Elus



Apr 18 2-2:30 At Mr. Perkins' office - new contract on charts?

First - a concession for cost of introduction, -

29.

adv. - new plant, etc.

Later - cost of continuance becomes less - & royalty should increase

Say chart sells for \$1.00 (cost 25 (roy. 20 on gross sales (firm 55

Apr 21 1-5 At Malden factoy - making Red scale.

Ander	son'	s pro-		•	
port	ions				lbs.of
Red		Neutral			gray
10	1	ਤੋਂ)steps far	.26	•	1/4
9	2	l)too great	•39	,	2/5
8	3	12	•59		3/5
7	4	2	.88	advise Otto next	7/8
6	5	2 2	1.32	morning by tel. t	
5	6	3	1.98	try these propor.	2
<u>[</u>	7	3 2	2.97	tions.	ゔ
3	8	4)steps	4.45	•	년 출
2	9	境) far	6.67		6 2/3
1	•) too [10.		10.
	10	5 `small			•

(According to this experiment - while equal visual) (areas of red and its neutral - make a middle chroma(5)) (the pigment quantities are as 1.32:8.68 -i.e. 1 to 7) (Middle gray (Zinc white & lampblack) is 24:76 1 to 3)

Apr 23 1:30-5:2 - Dr. Holt (Harvard Psychological Laboratory-Emerson Hall) with Dr. Henderson - Sees large charts, sphere - small charts (V & H) and photometer - Would prefer the Flicker photometer for color comparisons.

Gives objections to the 3 fundamental-color-theory-but acknowledges the study of color-blinds seems to

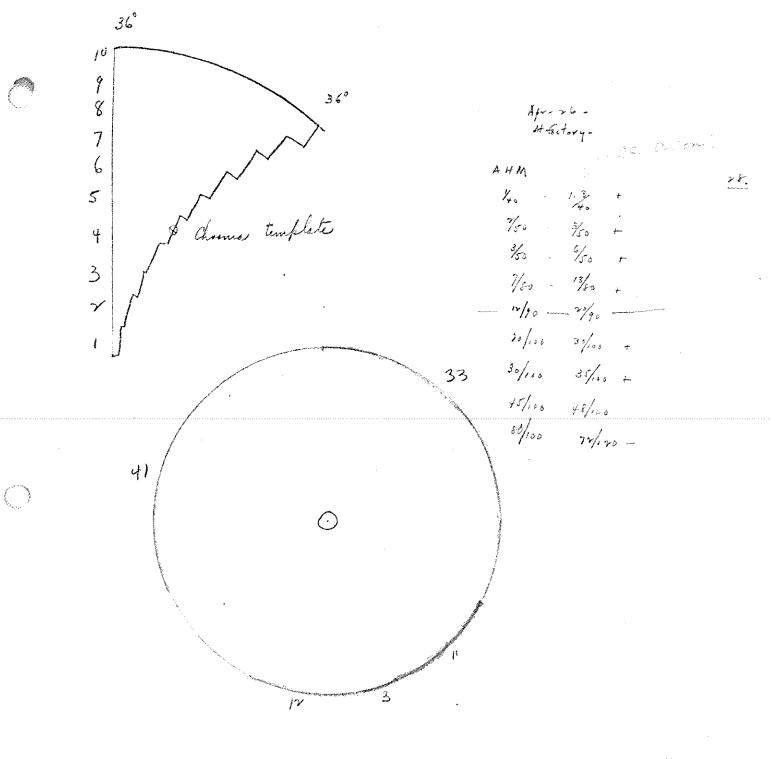
but acknowledges the study of color-blinds seems to uphold it.

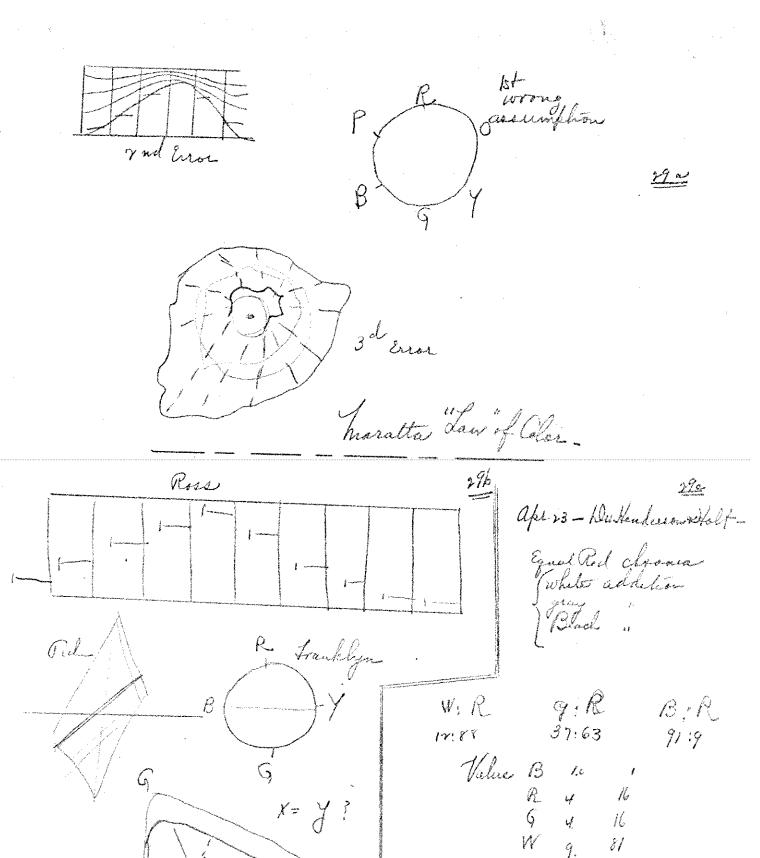
Debates whether hereditary experience could lead one to think any color simple or derived - as green, yellow, purple-

I claim that water color pigments in the hands of children are not student mediums but expert mediums, and distort all ideas of color at the most impressionable age.

Says Ross seems unwilling to submit to physical tests, and never answered his note complaining of the improper use of the rord intensity.

Thinks my demonstration of the exception to Weber's law is clear, - criticises "Science" and advises its publication in Journals of Physiology & Psychology.





Apr 29 Furnish Mr. Howland with drawings of color charts - and correct error as to discount on Color Notation.

31.

3:30-6 Emerson Hall - Cam. with Dr. Holt(Prof.E.B.) May 3 See Psychological Laboratory apparatus - color mixer, illusion test, Bunsen photometer, spectroscope, Colored papers - etc. Dr. Holt asks if he and Prof. Morse could attend some class where I teach color - such as a summer school. Gives me references in Wundt to law of intensities of colorless light and colored lights -Also spectral lines in the Mercury-Vapor lamp as a standardizing of the five middle colors. B-4358 Y-5790 VL016

The 50 grays turn out to be variously colored with a sort of green and purple alternation. Shows me G & R gelatin films nearly resembling G & R glasses whose superposition over the eye affects the landscape differently: the former making the grass crimson and the sky yellow green. I ask if the sketched films set up an interference? He thinks not -Discusses the Bradley & Prang papers.

We arrange to see the Sorolla Exposition (Copley May 6 Hall). Meet Mr. Huntington (mathematician) & Miss Drury. Former says of the book that it seems "sane" and has written a letter to Prof. Clifford.

May 13 Mr. Chas. H. Ames (D.C. Heath & Co) comes to show me their course of "Manual Training" by Hammock - and ask my critcism. I query whether they meet the child's thought; are "disciplinary" in the sense of setting up a task that the child can acheive, or failing that, can rightly estimate his shortcoming? Mr. A. does not know who did the color work or by what process - nor how close it is to the original. I ask if he has studied with Dow, or Woodberry-Dr. Holt calls my attention to Prof. C. Lloyd

Morgan's paper "On the Relation of Stimulus" to Sensation in Visual Impressions."

Psych. Review 1900 - VII - p.217.

30

I find his white to black scale - is made with black surface paper - not with velvet.

79.1 62.	white	t	Black	>7.
47.7 36.4 27 19.3 12.9 7.7 3.5	Red	ŧ,	ž į	- 35-
	Bhe	4	8.4	- 49-

Query: Are not these apparently different curves in fact diminishing segments of the same? Prof. M. makes no allusion to the distinction between chroma and value.



"Equal increments of sensation are produced by increments of excitation in geometrical progression."

(Dr. Leon M. Solomon refers to "Variability of brain activity under identical stimuli.)

Is this what I call the "waking up of attention?"

May 21 Mr. Putnam returns from Pittsburg meeting (3-4)
"What can your colors be used to represent in Grades 1, 2, & 3?

- Prof. Clifford to lunch and studio Sees measured scale of chroma
 Vedders' color lens
 Dutch & Belgian studies
- Mr. Winkley says in case #113 is to be vacated he will first consider me and move me over whether lease is ended or not but cannot legally give me a written option except by stating time, rate and property to be taken. Will always prefer an old tenant before a new one.
- 26 10:30-11:30 Pope School Somerville With Miss Patrick & Supt. Clark look at work in each grade shown on walls.
 Supt. Clark asks to have it kept one week for parents.
- June 9 Miss Ridder of Berkeley, Cal. calls with Miss Patrick Speaks of Mr. Dyer of Nat. Museum in Mash. (Butterflies)

- June 14 Dr. Henderson brings MSS of "Chromatic Sensation" note and we test red and yellow templates to illustrate its exception of the Fechner-Weber law.
 - 19 4:30-6 Mr. Hammock of No. Scituate author of course in "The Manual Arts" for D.C. Heath & Co. (See May 13 Ames)
 Tells his experience in the West at Paris and in Pittsburg 2 yrs. travel in N.S. to find out needs of "Manual Arts" and this course since last November. Criticises Bailey, and the others limits at needs of the M. N. A. S. wants me to make contract with him for his High School Color Work (the next book to be published) remarks on similarity of some of his color schemes to mineseems the travelling salesman rather than educator.
- Sept 15 Studio 8:30-11:30

 Mr. Royal B. Farnum (to take exam for NY State Inspector of Drawing and Industrial Training.)

Questions: 1. Is the child sufficiently interested in middle colors?

2. How do they serve in nature study?

35.

- 1. Ans. How are the other senses trained? What degrees of sensation are first used to train the ear, eye muscles and digestion. Do we give the loudest sounds the strongest light the heaviest exercise, or the most stimulating food? Certainly not.

 Then since the acquired practical wisdom in education of the other senses all tends toward balance and moderate stimulation, what reason is there for making an exception in color education?
- 2. Ans. Nature offers a thousand examples of middle color (and less chromatic degrees) to one example of extreme chroma (such as sunsets, poppies, and buttercups). Strong color sensations are always very limited as time and area.

 Balance is preserved within small limits.

 Illogical to select extremes of color as it would be illogical to use extremes of sound motion, light and food, in educating the child.

Mr. F. cutlines his course at the Southern Summer School- 6 weeks - a four season course (2h weeks in all)

Grade teachers - 3 yr course (exercise for Supervisors 4 " " (individual efforts Fine) h " " (during the year. Decorative) art -

I Matches of color 5 above II Circle of 10 " also 5 below III Comp. pairs contrasted.

Show him my Dutch & Venetian studies.

Sept 17 With Mr. Howland & Mr. Putnam at 84 Washington 37.

St. See proofs of new charts Question if Notation can be marked
to avoid distracting the thought?

Burnham suggests committee of supervisors (15)
to meet at studio and discuss text for each chart.

"Teacher will not read a book."

Ask written order for cuts to illustrate reprint
of my Tech. lecture. (Ellis 500 361.

(Palmer 1500 35 - misunderstand-

ing?)
Asks if the neutral value scale can be sold separate from the chart. I advise against this.
Asks if the chart (chromas) agrees with lecture.
I furnish footnote on chroma for new reprint - showing that pigments vary with vehicle used, grinding and source of supply. Each new sample must be tested for H, V and C in order to avoid variation of chart.

Mr. P. says Haney is now in charge of High Schools only Goodnough " " Manual Training Collins " Grades - Greater N. Y.

Hammock has used colors at his Summer school.

Mr. P. showed system at Denver convention.

Insists I ought to run a summer school - Re-state
my reasons for not doing so - but say I would give
winter course, if all the arrangements were made
for me.

This ¶ should follow page 39.

H. T. B. (Find my use of the word "prejudice" in 38. letter of June 19 was unfortunate and immediately withdraw it, - but continue to object to his saying that I "manage the color circle by omitting orange" - and "am opposed to the use of "strong colors".)

Sept 20 Henry T. Bailey at studio - 10 - 1:30

Sees Dutch studies - color tests, 1st grade results
(Miss Frye) and Charts - Horizontal (set) and 60
large - Also vertical set of 10.

At first insists I omit orange - but later acknowledges its presence - and qualifies by saying - "You
omit orange as a standard". At first he holds
that I obtain balance by eliminating orange, later
acknowledges that all colors are brought to a
uniform scale and balanced. Also that scientifically
speaking the older methods teach an unbalanced
color relationship.

I prove by the Maxwell discs that it is not I who have "managed" the color circle of balanced pigment hues - but that the character of these pigment measures, and the structure of our color sense have decided their kind and degree. (Over our heads.)

He then acknowledges that there is no question as to its correctness scientifically - nor its value in the high school - but he takes issue with me "psychologically".

"You are wrong in assuming the child's brain is already developed to a point where it is susceptible to subtle color." I show the 1st grade work from Pope School and some of the 9th grade. "It is wrong to teach that two colors are beautiful in combination without contrast of value as well as hue. Normally, - light difference and hue difference is present in color at the outset, and should not be divorced in teaching." I ask if it is better educationally to try to teach two differences at once (H & V) rather than one first, and then two combined? "You can produce a harmony at any time with any group of colors by mixing a little of one color with all of them. The duller the colors, the less objectionable they are to the trained eye. (Wilson's equivalent in musical colors.)" I pass these points on taste, color harmony, and musical analogies, saying that they have so far proved useless, as subjects for discussion.

See fellowing-pages for letters.

- Oct 12 At Mr. Howland's office 11:30-12

 He agrees with me that chart of the color maxima should bear the neutral scale (perforated) and that this scale should not be furnished separately. Says machine for making charts is slowly progressing. Will order sample charts for me to exhibit.
- Oct 18 Mr. Putnam wants to know if cyan blue is <u>real</u> blue. I read him Rood's (p.174) five complementary pairs-"orange and cyan blue". Again urges a winter course on color 6 demonstrations \$5 \$5 per student including materials. Dates & Studio?
 - 22 At Mr. Prkins' office Delivered Canadian patent for 2 years endorsement. Talked of possible change of man for, and in case Mr. W. died.
 - Mr. Putnam wants title for new Color Atlas. Says W. H. & Co have printed 3500 new copies of Tech lecture I advise that book must not be re-proplaced by this Tech lecture.

North Scituate, Mass.

June 21, 1909.

My dear Mr. Munsell:

I am sure you must have good grounds for your letter of June nineteenth. If I am in this part of the world when you return from Europe, I will make the earliest possible appointment with you.

Yours sincerely,

(Signed) Henry T. Bailey

Mr. Albert H. Munsell 65 Middlesex Road, Chestnut Hill, Massachusetts.

Calls at Studio Sept. 20 - 10-1.30 -

Lays the only issue between us is the psychological one, that scientifically the system is complete, and perfect for
higher grades of school, - but that it is wrong in assuming
that the child's brain is already developed to a point where
it is susceptible to subtle color - such as my five "middle
colors."

Acknowledges the existing methods teach unbalanced color relationship scientifically speaking, and that my method is balanced.

First claims that I make a balance by eliminating orange, - but after seeing charts and test, gives up this claim, and acknowledges that the balance is due to a uniform scale for all colors.

Also qualifies his former statement that I omit orange, by inserting "as a standard," and the statement that I am opposed to strong colors, by the addition "for children;" both of which admissions remove my objections.

I avoid a discussion of musical analogies, also of color harmony - which involves personal taste, but note the following axioms:

"It is wrong to teach that two colors are beautiful in combination without contrast of value. Normally, - light difference and here difference is present at the outset and should not be divorced in teaching."

"The duller the colors, the less objectionable they are to the trained eye."

"You can produce a harmony any time with any group of colors by mixing a little of one color with all of them.

My dear Mr. Bailey: -

39b.

In reply to your note, I sail next week from New York for the Mediterranean, and so must defer showing you the color charts until my return in October, when it will be a pleasure to make a definite date. For two years, my efforts to give you such a demonstration have failed, because you were otherwise occupied, but you have only to make a definite engagement next Fall, and my time shall be at your disposal.

And now may I say something very frankly, without offense, believing you will accept it as the wound of a friend. Some statements have appeared in the School Arts Book and elsewhere, which I am sorry to have you make, because to others beside myself they give the impression that you are unfamiliar with the scientific basis and measured balance, which differentiate my system from the work of other writers in this field.

For your sake as well as my own, I want you to be familiar with the full scope of this new measured color system, which means that you need to set apart at least two nours, to study the chart and measuring tests which are fundamental to clear thinking or definite speech about this marvellous color faculty, and the sensations which underlie its exercise.

After such study you will cease to say that I am opposed to the use of strong colors for children, and that I "manage" the color circle "by omitting orange as a standard." Such a view is impossible to any one who studies the book without prejudice.

For several years the book has been subjected to close scenting by physcists, physiollgists, and psychologists, and

Prof. Techner's quotation (which I hope you will look up in the Jan. number of the Amer. Journal of Psychology) is but one of the many appreciations.

A letter just received from Munich says the work is to be taken up next Fall in the High School of Drawing. So to put yourself in touch with progress - you certainly need to heed my friendly warning.

For two years, my efforts to give you such a demonstration have failed, because you were otherwise occupied, but you have only to make a definite engagement next Fall and my time shall be at your disposal.

Yours very sincerely

(signed) A. H. Munsell

Dr. Henderson brings Dr. Cannon, physiologist, Dec 9 40. D. Verhoef, Prof. Pope and Mr. Elliot (painters) to see color system.

1. Color Tree and sphere

2. Photometer & Scale

3. Charts.

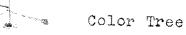
Prof. Pope (ass't to Dr. Ross) says "There is no doubt it is right. Three dimensions are indispensible." - "I use your sphere and say it is correctly constructed." Dr. R.'s scales vary considerably, but corrected by feeling, they succeed fairly well."

Dr. Holt at studio - Returns charts shown to Jan 7 psychologists of A. A. A. A. Says some treat 1910 brightness as a 4th dimension of color. Leaves me Warren's "Form of the Color Pyramid" - "neither cone, sphere, pyramid, not octahedron". In view of the known facts, the most appropriate term is the "color spindle". Questions no. of discriminations (photometric) between 80-90) I venture estimated no. as as compared with) double - between 10-20. i.e. 20:10 or 10:5 those between 10-20

Lectured at Teachers' College, Columbia University-Jan 22 New York City. Jan 13. Color Sense and its Measures.



3 sensations & light
Hue Sp
3 qualities Value P Hue Spectroscope 3 qualities Value Photometer Chroma Maxwell discs



Jan 17 Color Balance & Records

Color sphere obtained by balance of V

Charts of (vertical one hue (horizontal one value (oblique spectral

Notation of color

made possible by measures.

too hot-too cold) struggles to

unbalance " light " dark) regain visual
" weak " strong) balance & comfort

Jan 20 Measured color - Its use in education to train the sense, in Imitative and Decorative work.

Results obtained at Somerville, Teachers' College and elsewhere. Middle colors first, instead of extremes of pigment. True complements, instead of false R, B. Y. Disciplinary exercises, instead of vagary and accident - analogies in musical training.

While lecturing I met Prof. Woodhill, Prof. Hollock 42 Prof. Trowbridge, Mr. Rice, Prof. Woodworth, Mr. Bermeut, Miss Cornell, ---, Brooks, Miller, and Bliss.
Prof. Dow gave dinner to Mr. & Mrs, James Hall - Mr. Cox and myself - Jan. 20 - Also purchased

Jan 24 Marguarite Hopkins - Calls in P.M. to select painting for her music room. We talk over Gilbert Stuart's portrait.

the photometer used in demonstration.

Columbia Spectator - Jan. 14, 1910.

Interesting lecture on color.

At Teachers College yesterday afternoon, to a large audience, Mr. Munsell of the M. N. A. S. gave an excellent lecture on "Color". This is the first of a series of lectures to be given this week and next.

He explained how the various colors of the spectrum could be measured, both as to hue and color value. This is done by spectroscopes and other delicate. scientific instruments. He then proceeded to show the fallacy of teaching that red, blue and yellow were primary colors, when careful investigation showed that they were red, green and blue. Denying the truth of the popular opinion that green was the compliment of red, he proceeded by a series

of experiments to prove the complement to be blue-green. These were only a few of the traditions shattered during the course of the talk. The next lecture will be held Monday, January 17, at 4. p.m. The subject will be "Color Balance".

Color Balance and Records of Color

In his second lecture on "Color", Mr. Munsell, . in Teachers College, yesterday afternoon spoke on "Color Balance and Records of Color." Mr. Munsell first gave a short review of his previous lecture and then told of the three dimensions of color, namely, hue, value and chroma. He said we base our feeling of color beauty mostly on visual ease and resent such combinations of color as produce visual discomfort. He then proceeded to show various charts based on color messures and said that by use of these charts we are able to make records of color and so to study laws that underlie color discord and harmony. The next lecture of this series will be given in Teachers College on Thursday of this week. All who wish to attend are cordially invited to do so.

Transcript - Jan. 6, 1910.

Mr. Munsell Lectures on Color

A course of lectures on "Color" will be given before the department of fine arts, household, arts and physics at the Teachers College, New York, by A. H. Munsell of the M. N. A. S., Boston, on the afternoons of Jan. 13, 17 and 20. The course includes a study of the color sense and its measures of balance, methods for memorizing and recording color, and the use of me sured colors in educational, imitative and decorative schemes. Until his death a few years ago, Prof. Rood, the author of "Modern Chromatics," took a great interest in these measures, and such lectures as Mr. Munsell's might rather be called demonstrations, since measuring instruments are employed to establish the scales of color light and color strength, while beautiful results are shown from the classes in design under the director, Arthur Dow.

Third Lecture of Series

In the third lecture on "Color" which was given in T. C. Mr. Munsell of the M. N. A. S. spoke mainly of the use of the color measuring system in the schools of America and Germany in preference to the old guess work and wrong theory of complimentary hues. He illustrated the result of the system by slides showing the beautiful results obtained by school children in their respective countries. Then referring to the way tradition may blind one to present facts, he appealed directly to the teachers to avoid such errors, saying that were Froebel, the founder of the old system, alive today, he would drop old fallacies and follow the latest scientific truth.

As a guide in the measured training of the color sense, he sketched the use of color by primitive peoples, showing that simple flat decorative masses are not only natural for a beginner, but also offer the surest of progress in discrimination, while picturesque effects are much more complicated, and belong to a later stage of development. Finally, correcting some wrong deductions which may have been due to a hasty reading of his book, "Color Notation", he urged the teachers to read it twice at least, before assuming to understand all the bearings of this new attitude toward color education.

Mr. Everett H. Hinckley
Principal Dept. of Chemistry & Dyeing
New Bedford Textile School
Dear Sir:-

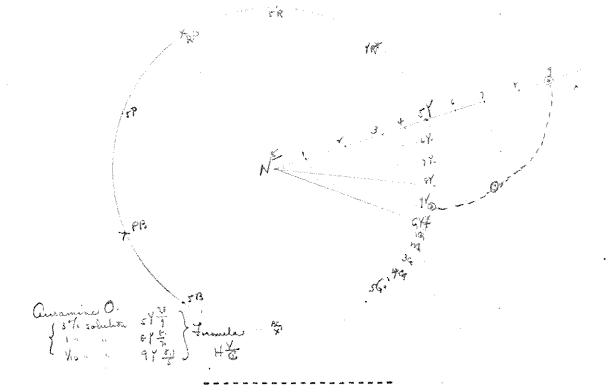
Thus far I have only found time to measure the three samples of Auramine O which you submitted Feb. 10. Any increase of tension on the skeins or change in angle of the light will affect the reading, but this diagram records the averages in a north studio light.

Increase of solution darkens the Value, strengthens the Chroma, and moves the Hue from Green-Yellow to Full Yellow as appears in the numerals on the diagram. Trusting this may be helpful in your research. I remain Yours very truly

Feb. 16, 1910.

(diagram on next page)

42a.



LECTURES ON COLOR by Mr. Albert H. Munsell

Color demonstrations, with results of the use of measured colors in public and private schools, are to form the basis of six lectures which Mr. Munsell has been requested to arrange for art teachers and supervisors. These lessons begin Saturday, February 19, at 2 P. M., in the Normal Art Gallery (Room B of the Grundmann Studios). They include practical exercises with crayons and water colors, for a definite training of the color sense, and are an elaboration of the three lectures recently given at Teachers College, Columbia University.

The materials used, blocks, crayons, and water

colors, will be furnished at each lecture.

The price for the course is four dollars. (\$4.00). The tickets and further particulars may be obtained from

Mr. H. A. Putnam 84 Washington Street, Boston

Mr. Munsell's second lecture on "Color" for art teachers and supervisors, will be given in the Normal Art Gallery tomorrow, Saturday, at two o'clock. A summary of the first lecture will be given, so that new members may join the class. The lectures include

43c.

43b.