Offers to write "Prof. Sanford of Clarke University about latest compendium on Fechner's Pschyco-Physic law. 50.

Apr 4 9:30-10:30 Discuss photometer with Mr. Perkins at his office. mention new 10 fold disc for balancing color energies - he advises keeping it in background for present.

Apr 5 1-2:30 Dr. Haney of N. Y. calls.
Notices warm and cool in decimal scale of greys.
Reads on photometer (yellow, blue, and glasses)-
range 4% lower than mine.
Wishes to organize a "Council of Manual Arts".

Apr 9 Worked out calibration of circle - at Prof. Peabody's class room (M. I. T.) using both integrator and table of segments - (helped by Mr. Leland)

11 Showed photometer to Messrs. Jepson, Cross, Bartlett, and Andrews and Miss Soper at M. N. A. S.

Mr. Filene says the retailers want a standard system fixed at all times-
charts with numbers -
can be tested - practically - fading proved and estimated -
buyers fail to get the exact color wished - and are unable to match certainly.

Apr (1901) 21 Mr. Bartlett and Mr. Morris at studio.) Read No. 6. Bartlett 55.15 Morris 57.50 mfg- 51.40 = 2164.05 54.60 ave 51.
Show them charts, photometer, and discs)

29 Wrote Prof. S. W. Stratton-Bureau of Standards Smithsonian Institution - asking about color.

May 3 Showed photometer to Mr. Kirstein of A. J. Lloyd & Co.
" Mr.Hall " Zeigter Electric Co.
Prof. Clifford, Derr- at Inst. of Technology
Wrote Biddle and Queen of Phila.

May 7 Prof. Derr thinks the photometer probably quite valuable - Should not trust it out of hand until contract is made for manf.

May 10 Mr. Gilman calls - Speaks of intensity (chroma)-
as a dimension unlimited in one direction,-
value - as limited to white and black,-
hue - return upon itself-
Sees 60° chart.

May 17 12-1 At Queens - 57 Fifth Ave., with Mr. Louis-
Discuss photometer.

Emphasize what is new in this system. 51a.
Better acknowledge at once what is old.

Mr. G-- ? on train - May 13

Idea of sphere old-
The new point is rotation - melting of color into grey - organized and expanded system of color - growth from what had preceded.
Analogy - Dawn an outgrowth of ?
My system new

Physicist saw it as wave-length or hue
Psych. - effect it has upon us
Herring 3 ans. b-w r-bg - y - b
Painter sees for luminosity or value.

Inner colors -
Rotation on -?- axis makes visible the internal color, and suggested the external color

Which made it no longer a sphere- but a spheroid- Altho sphere is a chroma tuning-fork.

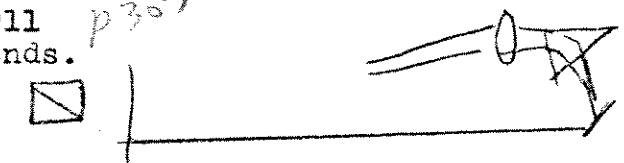
A color system - 3 dimensions
tested by sphere
Style - difficulty of simplicity

51b.

Bureau of Standards, Wash. D. C.

V 1 p 51 29 Apr 1901
Wrote Prof. S. W. Stratton, Bureau of Stnds, Smithsonian Institute- asking about color.

V 4 p 70
about 20-25 Dec 1911
" Bureau of Stnds.
~~Leminer Brodhun~~
Lummer - Brodhun



All color in terms of one wave length and white light. - Dr. Nutting.

25-30 December 1911
Visited Bureau of Stnds meeting - Dr. Nutting specialist in photometry - left photometer with Dr. Nutting.

V 4 p 71 3 Jan 1912
Sent preliminary sample of middle red and middle yellow.

May 17 5-7 P.M. At Prof. Rood's private laboratory- 52.
Columbia. (I miss meeting Mr. Sam Coleman,
Pres. of Water Color Club - who says my sketch
of moonlight has artistic qualities, but does
not see how it relates to the color sphere)

Show Prof. Rood - my chart of 60.
Says it is pretty- very pretty - that he made
one himself which was carried off by Swain Gifford-
and used in teaching.
Remarks on its even gradation - So even that
the eye does not realize it at first - but thinks
it too elaborate - five steps would suggest all
steps to the mind.
Believes it useful in teaching and wants to see
deductions along the line of artistic combinations.
(I answer that I must have facts, before theorizing
about them.
Can then commercially identify any color, and
reproduce it.
Describe sequences and modify them.)
Doubts if two plates could be printed exactly
alike. - Only possible by rejecting perhaps
nineteen out of twenty.- Shows two piles of
note-books which he says are a year's work
thrown away - altho two sheets of paper contain
all that is useful from the mass.
Describes his standard Vermillion - a paste made
with gum arabic and alchohol yet reflecting 40-50%
of white light - other colors would give 80-90%.
This unmeasured amount of white light disturbs all
the relations.
Yet these charts would be useful in lectures and
and in design. - But too elaborate for children -
Matching colored papers best for them, and that
cannot begin too early.
Compared progress in music with progress in painting.
Said we tolerate daubs from young ladies - whose 53.
musical performances vie with professionals.

Show photometer.
He readily estimates the 50%- on each -
Then describes this Flicker-photometer and gives
me several pamphlets on the subject.
Agrees it can teach white and black values as soon
as Musical tones are learned.

Discusses Japenese and New Zealand
Few colors - put together with feeling
Speaks of the absence of any taste among the
Romans of Caesar's time - and the great art of
the 16th century--likewise - said recent discoveries

show that the great Pheidian art was slowly gained by twenty centuries of growth. (2500-300 B. C.) 53.

Shows me water color study for Frontispiece of his book - (Cartaric acid under polarized light) which D-- discarded for the very poor one now used.

Analyzes the terms purple and violet - and says I am "all off" - yet upon reference to the chart accepts the angular distribution and cannot say the colors are misnamed. Still holds that there is no red in the violet end of spectrum - and that the term violet refers only to that wave-length- not to the flower!

May 15 Mr. Gilman's note suggests a differentiation. 54.

1. Theoretic sphere of all color sensation.
2. Actual irregular spheroid of colors of pigments and dyes.
3. Spheres twined out of this as by a lathe - for practical use.

A Practical Color-System for Art and Commerce.

Ideal system
1 Color tri-dimensional.
2 Spheroid of color-sensation.
3 Sphere of equal measures.
4 Scientific ideal unattainable.

Practical system
5 No standard in use.
6 Historical sketch of various systems
7 Instruments to measure color
8 Construction of color-sphere
9 Color-code and its preservation
10 Color-sequences in art and nature
(11 Logical order of color-education
12 Specimen lesson)

Atlas
Scale of greys 0 - 100
prismatic spectrum color-circuit
Charts of ten zones
Sectors of ten hues
Mask to balance color-fields
Tables of harmonious colors.

A. H. M.
May-19-1901

Preface.

Delightful and necessary as are our color sensations they leave very imperfect images, because the memory has no system for their identification.

(Any sort of order or system would be an improvement upon the chaotic conditions which now prevail) As a student, the wish to memorize colors led the writer to construct a color solid some twenty years ago; continued studies of the use and teaching of color as a means of expression, have deepened the belief that in order to (grasp and unite) such endlessly varied impressions, the mind must possess a graphic image of color relations. (Out of) this conviction a system has slowly developed which permits any hue to describe its character in terms of its light and its strength. Not only is a single color sensation thus defined, but its relations to all other colors becomes evident.

To measure these qualities it has been necessary to devise special aparatus, which serve to test and correct personal bias in the appreciation of color, and also form a basis for color notation.

Without a system of identification it is useless to dogmatise about harmonious colors, for if the elements of such groups are in doubt, attempts to describe their combinations will end in confusion. Before the mind can intelligently unite such complex elements, it must separate and define them.

The aim of these lectures is to build up a clear mental image of color relations, and furnish a stable foundation for their study by means of measured scales.

A. H. M.
Boston, 1904.

Chronology

1879 Placed two tetrahedrons, base to base and applied colors suggested by Rood's cone (Modern Chromatics)
1890 Noticed ball with four colors arranged in kindergarten (N. A. S. basement)
1893 With Mr. Ross at Palazzio Gritti in Venice. He suggests color scales.
1898 Painted thunder-cloud at Shoals (Aug) and decided to plot it on sphere.
Sept 2 Bought child's globe (with other toys for Ector's birthday)
Oct 22 Hall and Sargent at Studio (Prof.Peabody remembers my system)
Nov 7-17 Mr. Ross' exhibition at St. Botolph (sent catalogues to Hall)
Nov 11 Arranged "War Cloud" on sphere - see Diary.
Dec 1 Rollins at studio " letter
9 Cross " " " "
10 Andrews " " showed him my experiments (and furnished him with idea of rotation mixture.
26 " passes me croquet-ball (Bliss' Xmas tree)
29 Spend evening with Andrews: object to his theory.

1899 Apr 9 Called on Andrews to say I felt it necessary to protect my color-sphere by a patent. He agreed to this without hesitation - but now says (May 7) that he afterwards had a fear lest I should draw a claim so broad as to exclude any further efforts on his part to develop his idea - viz. "red, yellow and blue at the poles of three axes of a sphere and mutually perpendicular."
He claims that when he passed me the croquet ball on Dec. 26 - it was the first time I had ever seen a sphere used in classifying colors. But I immediately compared it with my previous experiments and said to him in the presence of Mrs. Munsell that it seemed illogical to me - not furnishing the regular graded sequences embodied in my scheme.

(A clipping from the Boston Transcript of Sept 9-1900- follows on this page.- Title - A Bureau of Standards.)

55a.

See Benson's - Principle of Science of Color - 1868 London. Quotes Otto Runge of Hamburg -1810- as proposing a color-sphere with Red-orange Yellow-green Blue purple on the equator equidistant.

May 27 1901 Mr. Pritchard at studio - evening at Chestnut Hill. 1.
Questions yellow - not the accepted type -
Calls it brown - We look up brown in Dictionary
" - a dark or dusky color- leaning toward redness or yellowness
Thinks I must give good reason for displacing popular notion.
"Logical that a middle yellow should unite equal degrees of light and dark -
"No standard or tests for value of colors given in schools.
Thinks last description (typewritten May) a great advance over last summer's account. Says I am now ready to publish.
A pity to let Queen & Co. have all the profit -
(Also suggests that self-interest might make them wish to delay it.) Says they may offer 5% - but I ought to have 25%. Send for their catalogue and see what books they sell. If they would take up and push the whole scheme - good. But the photometer alone could easily be introduced by a small company.
A typewriter ($10.00 a week) could sendcircular letter to all colleges and scientific schools - and I could dictate answers to correspondence. By using my studio - could avoid office rent.
Later a live agent could travel with photometers and be given 40% on sales.
Thinks me right person to answer letters - They may say we have dark room and good supply - what will your photometer add to value of our laboratory.
(Must know the subject so as to answer objections.)
"Get catalogue of all colleges and scientific schools - 2.
railroad suppl.- Paint & paper makers.-
"Debates what sort of book is needed - text book or teachers' manual.
Is anything wanted by business men?
" normal school teachers.
"How much are Rood, Abney and Church used - size and frequency of editions.
"What would be displaced by your system?

Tells me Andrews says the idea is his*, and that I took it from him - At first Pritchard thought he might have some ground for claiming this, but the more he said, the plainer it became that he did not understand color well - and that my enthusiasm and progress could not be taken from another person.
I said there had been a time when his conceit might have caused him to honestly think he originated the idea of the color sphere - but that was no longer possible, for on ~~the~~ two occasions I had shown him how my experiments ran back for years - how I had

made a twirling model in 1879 - and opened the subject to him in connection with studies for "Samoa" at studio the year before. (1897) Had described my schemes as suggested by Denman Ross - and explained their spiral sequences. Also furnished Andrews colored papers and suggested a child's globe, which he bought. 2.
In view of these facts, he could no longer claim the notion as his. Indeed Runge in 1810, and Wundt in 1870 had published illustrations of a color-sphere, and I had seen six colors on a single kindergarten ball at the M. N. A. S. (1889) I felt Andrews was wilfully blind. and wrong-headed.
Had told him that I intended to apply for patent- 3.
which he approved - and only a few weeks later (having as I heard talked with a patent attorney)- he suddenly said he would have to hale me into court to say I took the idea of a sphere from him. (Thought schools would need many and it would pay.)
Months later - again trying to show him his mistake- I asked - do you still hold that "red, yellow and blue on three axes mutually perpendicular" is the proper arrangement of color - and to his answer - "Yes, I do," I replied "then your path and mine can never cross in this development of color-relations.
It seemed to me a pity that such blind conceit should lead a man to alienate his friend, especially after the facts had shown conclusively that if either had borrowed ideas, it was Mr. A. - rather than Mr. M.

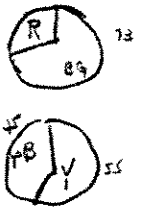
*(This remark of Mr. A. to Mr. P. had been called out when Mr. P. asked him to come down to the XXth Century Club and hear me present the Color-System, Dec.9, 1900. Mr. A. refused to go, saying "he took that from me."

Learned that Monte had described my color sphere (used in May) to agent of an Art publishing house (Prang & Co) during the vacation - and thought best to protect myself by a patent. 3a.

June 2 Hollis Page gives me copy of his Diagram No. 7 - and sample of his "balancing ashes grey" - (I find it reads 69.5°)

June 12 Mr. Pritchard lunches with me at the Victoria. Speculates as to whether the individual vision will allow of a final red. The typical red to which all other reds are referred. 5.

Chart 50



R = 80
BG = 29.6
PB = 48.
Y = 39.2

Chromas of BG, PB, and Y - deduced from that of R (80) by relative areas.

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each of 3 colors - white to black

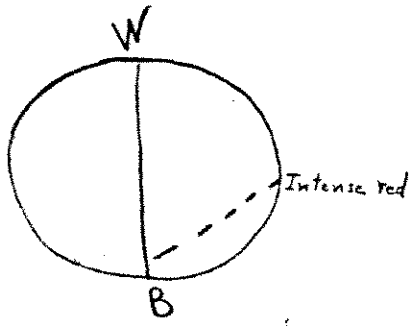


Chart 50

Vermillion Ch. Yell. lt.and white	R	+	BG	Emerald green Cobalt - & white
Chrome deep Milori? Green lt. " Yell. "	Y	+	PB	Ultramarine & white
Milori Green lt. and white	G	+	RP	Carmine Imp. Madder Ultr. & white
Cobalt Em.Gr. and white	B	+	YR	Chrome deep Milori green lt. " Yell. "
Ultramarine Imp. Madder - white carmine	P	+	GY	Milori green lt. " yellow "

June - 1901.

Chart 30.

(4.

No.			chroma
Red dise	3	$(50^{(lia)} + 20^{(yl)})$	94+
	2+	Turkey Red + small permanent blue	100.
Purple Blue	3	Ultramarine + little white.	90.
Purple.	3	Mauve + " + little carmine	50.
Blue Green	3	Malovi Green + " + cobalt	38.-
Green	3	" + lt. nst. + little yellow (complement of RP 3.)	50.
Yellow	3	" + Turkey red = lt. nst yell. (yglt + 3 purple 3)	45.

~~~~~

Blue	3.	Ult.	Malovi green + l. Hawkite (n. dark)	40
		complement RY 3		20.

with Mr. Lyons - January 4.
~~~~~

As to whether my system must first displace others, says there is nothing accepted that stands in the way. Believes a manual on color for teachers is needed. - Not a scientific analysis- not requiring much reference to scientific works - but leading inductively - to know what is meant by "spectrum", complementary colors, Maxwell discs, photometers, etc. - A popular book. 100 pages sufficient. - Scheme of lessons and a sample lesson.
(Apropos of Mr. R.D.A. - said it was a mistake to let his attitude annoy me. To ignore it and treat him as if he had never laid claim to my work.)

5.

June 14 Lindsay Swift and myself lunch with Worthington Ford. Mr. Swift comes to studio and sees sphere and photometer. Thinks it seems almost creative. Reads sample at 31.8 (Ave. 30.7). Is greatly struck with its possibilities and wishes to read account left with Mr. Ford.
Questions, - since grey results from a certain degree of rotation, will not more change be produced by more rotation.
Questions - whether eye estimates must not vary from day to day.

June 19 Lunch with Worthington Ford at the Union Club. Thinks I have been drawn into this inquiry as an artist, - not as a manufacturer - and that this professional view of color will arouse interest and respect among scientists.
Advises sending it to Popular Science - to excite notice, and reach an audience.
Asks about my work at the Normal Art School - lectures, etc. - says that a clear critical talker about art and artists is greatly needed - especially as collectors now feel lost - out of touch with the latest developments in art (such as impressionism, symbolism, etc.) having learned the attitude of thirty years ago. Speaks of the work of the Royal Cortissoz? in New York Tribune - and magazines.
Thinks my skill of --- would be helpful to public.
When Sargent's work comes to Public Library - an appreciation would be welcomed by the public.
Says he expects me to go to Washington next Dec. when he goes to read a paper before the S. A. C.
Notes an improvement in style - gain in simple directness.
*Would avoid anything that smacks of an ad. or the mercantile view.
Since I have arrived independently at a system;- the questions opened by this new view are of interest to all thoughtful people - to scientists

6.

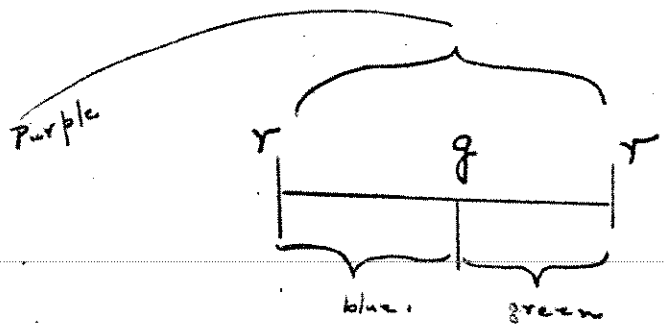
especially - and an article in Popular Science will reach so large an audience that a dozen or more may wish to ask questions. 6.

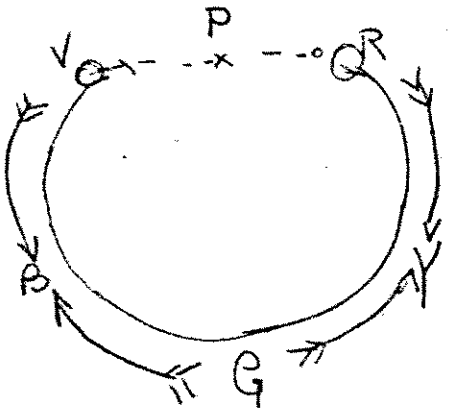
The Greeks numbered music among the Sciences, and studied the mathematical proportions of sounds. The reconciliation of musical science with musical art began in Flanders by Josquin Deprès in the 15th century - was not completed until the 17th century by Palestina. 6a.
The matter in question refers not to art forms, nor to artists, - but to the fact that music has its foundation in the laws of acoustics and then it lays open the principle for which pagan philosophers and Christians had been vainly groping through centuries, while a veil of mathematical calculation bury between them and the truth. (MacFarren's Musical History, p. 36)

Unless sounds can be retained in the memory - they perish, - for they cannot be written."

June 21 Dr. Swan at Studio. 7.
Reads grey (34%)- red (41') and blue (60's) on photometer - variation under 2% in every case.
When I sketch color series from dawn to dark - he remarks that it then passes through an unknown (to next dawn) just as we feel a wish to unite the purple and red ends of the spectrum- but as far as wave-length is concerned - it would also pass through an unknown.
Finds it very difficult to compare relative length in value and chroma.
Is pleased with the elementary models for teaching a logical idea of color-relations.
Asks what the red and violet waves of the spectrum will combine to produce. If an intermediate wave-length will result ? (i.e. green) or an ultra wave-length - (purple?)
Asks if the photometer can be directly applied to determine the values of a landscape -(or portrait study)
Says that great progress seems to have been made in my definition - and believes it is ready to publish.

July 21 Mr. Gilman at Boat-house (Centreville beach) 8.
Tells me of his study of music - of a projected book of 200-300 pages - opening with a chapter on "relation" (first suggested in his student days) - and ending with one upon Indian music. His desire to put it into complete form - and then





Does not this lead to the inference that the spectrum <u>should</u> return upon itself, - and not be considered as always continuing its scale in one straight series?!

prepare a talk for some mathematical body - in which the main points were put forward. - Discussion would disclose whether the form was satisfactory or whether some other form of presentation would be preferable. 8.
Said of my color-system that it was "meaty" that I had found solid matter - and in his opinion had a "germinal mind" - i.e. one whose soil was prepared to follow out a natural development - finding what was needed in each direction to complete the growth. He was convinced of this by the photometer devised in January last and in the steady growth of this year.
Was surprised at Andrews' attitude - called it "offensive". Said A's ideas were so vague and hazy that they could assume anything and yet define nothing. Thought my twirling double-pyramid of 1879 -(more than ten years before Andrews met me), was a sufficient answer to his claims. Indeed - it was evident my mind as a student had turned in this direction.

Oct 3 P-1 Mr. Pritchard at Studio. 9.
Sees new outline - says that is all perfectly clear - a great gain in simplicity - asks when the book will be ready. (I venture Jan.1,1902)
"If there were not a dollar in it, I should still believe it ought to be published, because it is a distinct contribution to science.
"Then in schools we have no color-education - there is no system - color is not taught.
Asks if this investigation will interfere with my work as an artist: - make me conscious and hamper natural expression.
Mentions Ginn - Heath - Silver - Burdett, as well as Lothrop. Will send nephew - Mr. Ells to see photometer. Suggests that the plates be published by subscription. Says one set (50) of color spheres could be passed around the classes of a school - with a large sphere and hand-book for the teacher.

Oct 4 Mr. R. P. Ells (10 Weld Ave. Roxbury)
Calls by request of Mr. Pritchard to see apparatus. Suggests "bankers' onion skin" in place of celluloid films. Finds texture of color a disturbance in photometry. Suggests blue media to neutralize incandescent glow. Asks if a fixed artificial light would not be better than daylight. Would like to bring Dr. Sabine to see apparatus.

Oct 17 Mr. Ells calls to say that Mr. Pritchard does not think foreign patents necessary. Also discusses practical making of photometers: cost - nature, etc. Tries color measurement.

Oct 17 Mr. Kaula sees photometer and sphere - I explain system and records to him. 10.

18 Mr. Pritchard thinks it time to make a sample photometer - discusses materials, size and fittings.

Miss Patrick calls and tells me of color studies with Mr. Ross. Says "he is following you" but acknowledges there is not a standard of values, hues or intensities to which he can refer with exactness.

Oct 21 Mr. Morris calls with copy of "Applied Arts Book" - referring to my color-sphere. (Oct - p.7 - 1901)

22 Mr. Ells and Mr. Smith (Pinkham & Smith) at Studio. Latter suggests defining color difference of smoked glasses. With Mr. Ells call on Mr. Lincoln -(Kosy Camera) 24 Warren St. Talk over telescoping box.

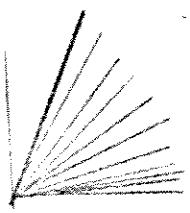
------ -------

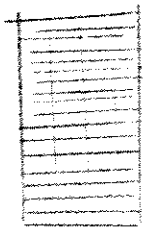
Mr. Ells recounts Prof. Sabine's questions -
thickness of sephim as a disturbance in comparing values
lenses necessary to collect rays from incandescent arcs

Nov 5 Mr. Ells calls to say he has not seen Prof. Sabine since.

Nov 6 2-3 At Prof. Cross' desk (Technology) 11.
Discuss drawing of photometer - suggests leaving out inner ground glass - also moving it and its partition up to shutter. Thinks Welsback mantle the easiest white light - says it can be put on kerosene lamp - for any use.
Believes my idea of a telescoping box good - as different colors might require different distances - does not think a lens desirable - altho an experiment with concave might prove useful.
Himself uses one eye in photometric observation - doubts if two eyes strike an average.

Evidently thinks Chevreul's expression "a 1/10 de noir" means 1/10 diminished light on the spectrum - not added pigment.
I suggest that Chevreul did not see how illogical his two sets of circles and rectangles are -
former, a fan shaped lot of circles
latter, vertical bands of a cylinder.
each color moving by a different and unrelated scale. -
He asks if it has been of any use.



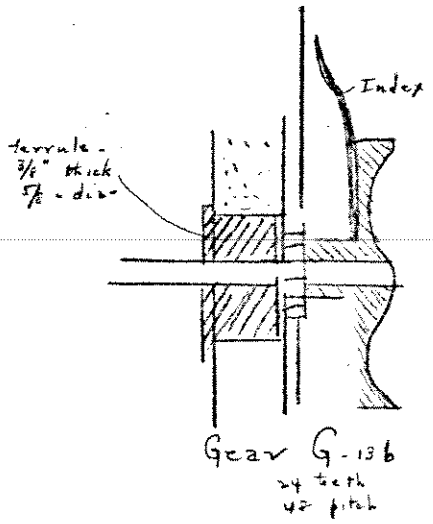


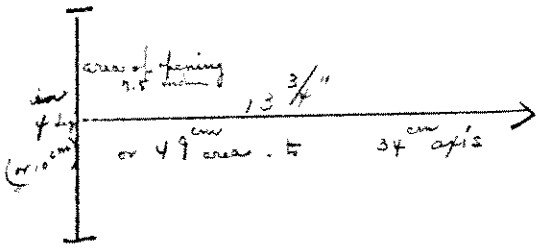
Photometer
Problem

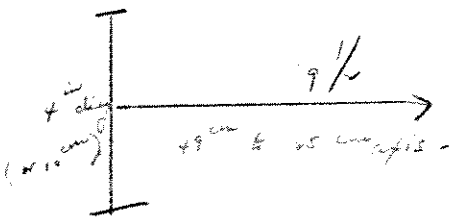
distance best distance between shutter and sample
" place for diffusing media (in or outside of shutter)?

size " size of aperture - effect of enlarging or diminishing?
" " " sample

media " means of eliminating textures?
" " " equalizing chromatic stimulii?







axis dim. by 9/3¼ - (¼-)
to give greater intensity of light-
tempered by additions of media -

Nov 12 Mr. Justice calls at request of C. E. Doyle. 12.

14 I make experimental model of telescoping boxes at 18 Province Court (C. H. Justice - .50 per hour and stock)
Leave drawing at Boston Gear Works 4.75
2 bill files .75

21 Bring shutter from Gear Works
3-4 -
Prof. Wm. Warren (Boston University) and his pupil Geo F. Turner, 135 W. Canton St. call to see color system - spher and photometer. Thinks mental effort greater from intensity to neutrality than from white to black, but apparent distance less.
Appreciates effort needed for such original research.

Nov 23 Mr. Ells tries small collapsible photometer- not so comfortable not so accurate as larger.
I give up hood and place in centre of window also " " inner ground glass.

22 Pay C. H. Justice for camera work - 25.
hardware 2.
Gear works 4.50
labor .75
brass plate .75
glass .60
33.60

Dec 10 11:30 - 12:30 Prof. Cross (Inst. Tech) by appointment to test photometer. 13.
Tries grey samples 86 - 66 - 51 - 40 - 19,
also red glass 26. -
" " paper 39. (40. Prof.Derr)
Prefers long eye piece to short one.
Says"it is beautiful" -"very sensitive" -
"I thank you for bringing it to my attention."
"I should like one for the laboratory."
"Thinks Gaertner of Chicago would make an excellent instrument. (Suggests $25.00 as a fair cost)
Suggests bringing it to attention of
Prof Henry P. Bowditch -Harv.Med. and writes him a note
also " Munsterburg) Harvard
" Wm. James)
" Scripture of Yale
Dr. Hay and Dr. Standish (oculists)
In reply to my question if it will describe curves of daylight says -"yes" and thinks Welsbach mantle preferable to the fluctuating current and red quality of incandescent bulb - for comparisons says similar experiment was made in 1873 by

W. O. Crosby- at Phys. lab. at the Institute- 13.
Storage battery to maintain equable current -
(weight 10 lbs)-
Refer to Prof. Rood's flickometer - especially
later form with rotating prism - but acknowledges
this to be simpler - free from necessity of
standardized discs-

Prof. Derr also tests it - congratulates me on
its success - calls it "compact" "sensitive"
very satisfactory-

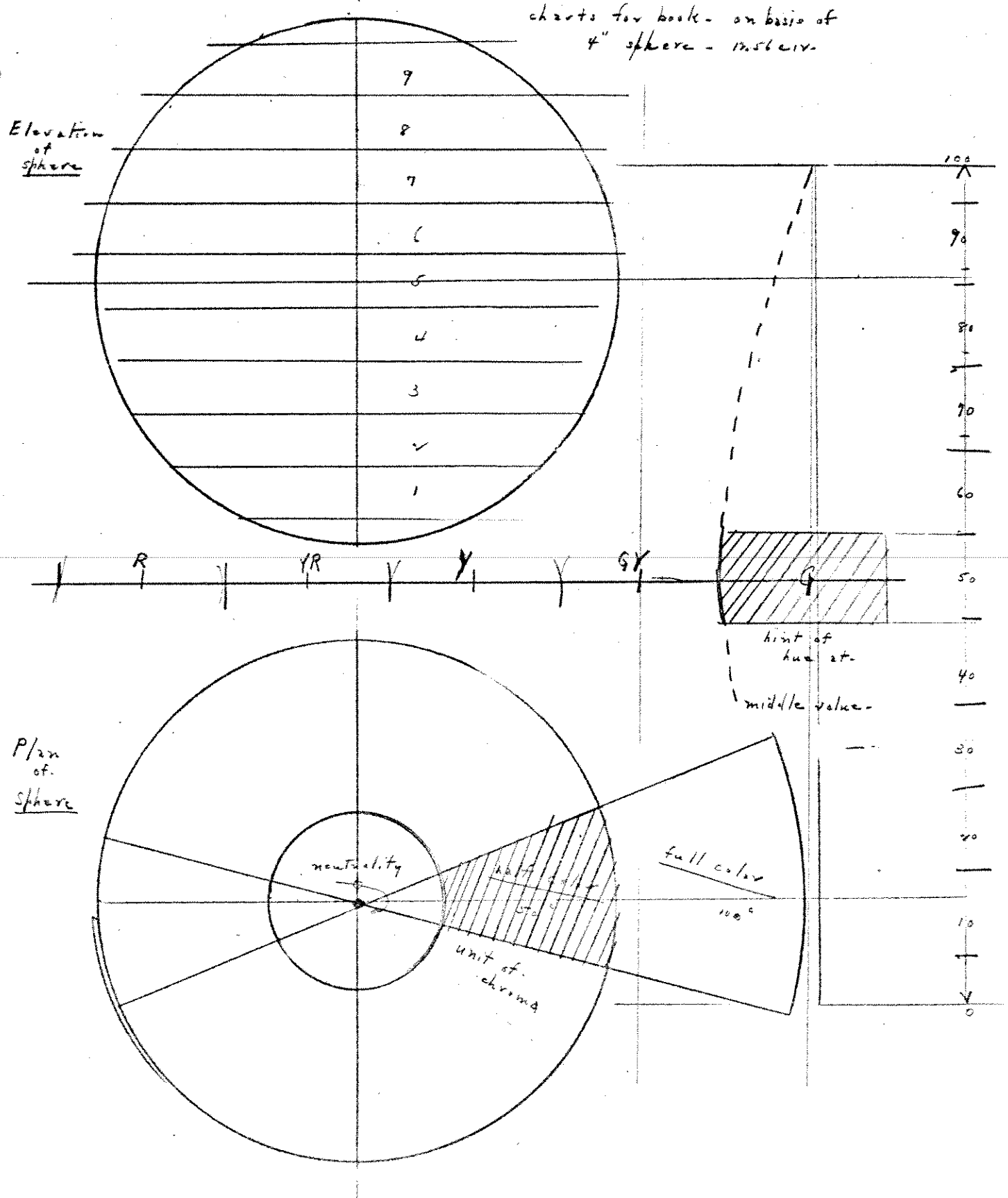
227

Dec 17 12 - 1:30 Dr. Henry P. Bowditch of Harvard 15.
Medical School - Cautions me that he is partly
color-blind in red and green fields.
Speaks of visit to Prof. Rood - who says he is
not color-blind. Speaks of Rood's flickometer
as not detecting his partial blindness.
Discuss my use of terms.
Scientist says luminosity for my light value
saturation " " strength "
color " " mixture "
Had not thought of color as passing to neutrality
without change of luminosity - (radius of a sphere)
Finds the idea very interesting.
Wishes to have rotation machine like my motor-
I give him address of Mr. Handy.
Wishes to see compared curves of luminosity.
(logarithmic -(I promise to send these)
(& cat's-eye areas
Asks how I came to use the logarithmic curve, so
I describe my scale and average notion
of middle value.
After experimenting with rotating discs and color-
sphere reads similar values by photometer -
Thinks it a new and helpful piece of apparatus,
wishes one for himself - says he will present it
before the physiological society next year -
Offers to look over drawings and suggest any
improvements as to arrangement, etc. - Asks if
this is anything like "Bob Andrew's sphere" -
so I briefly tell him the story of what Andrews
attempted. He remarks "How foolish! I hate
these disputes of priority. He evidently doesn't
get very far - and I shouldn't give a damn for
what he claims." "I want to come again and see
your progress."

Dec-13. Thu Lyon comes to resume work—

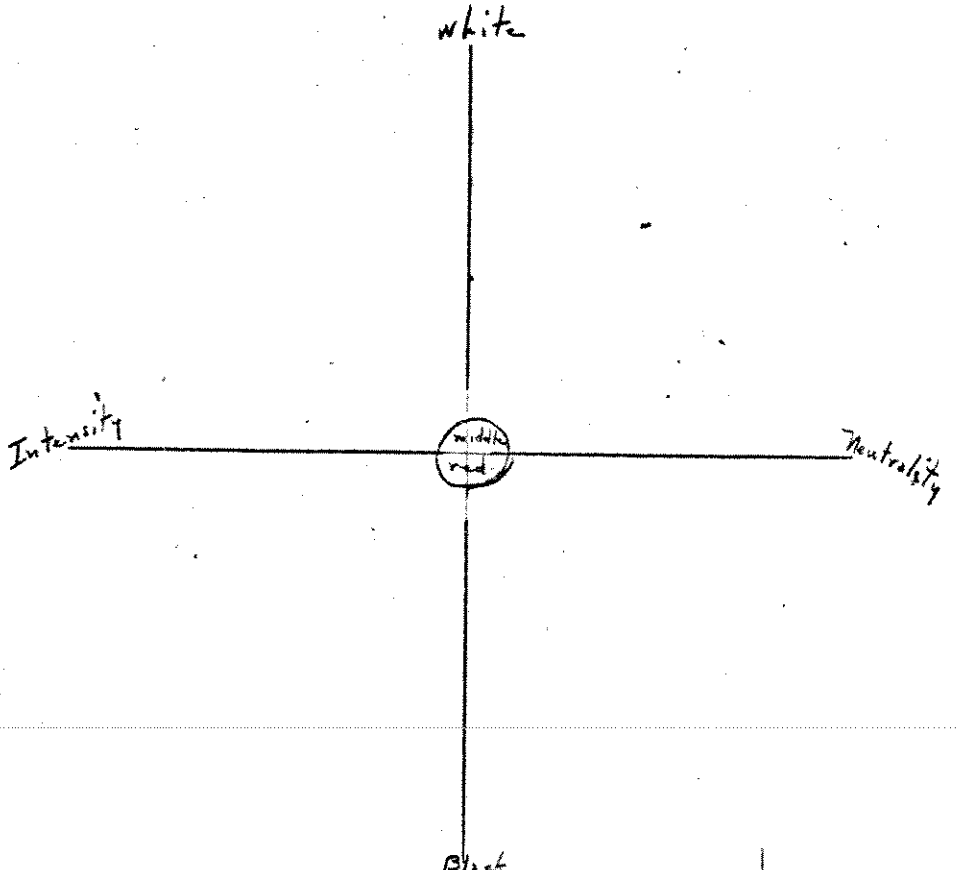
charts for book - on basis of 4" sphere - 1856 circ.

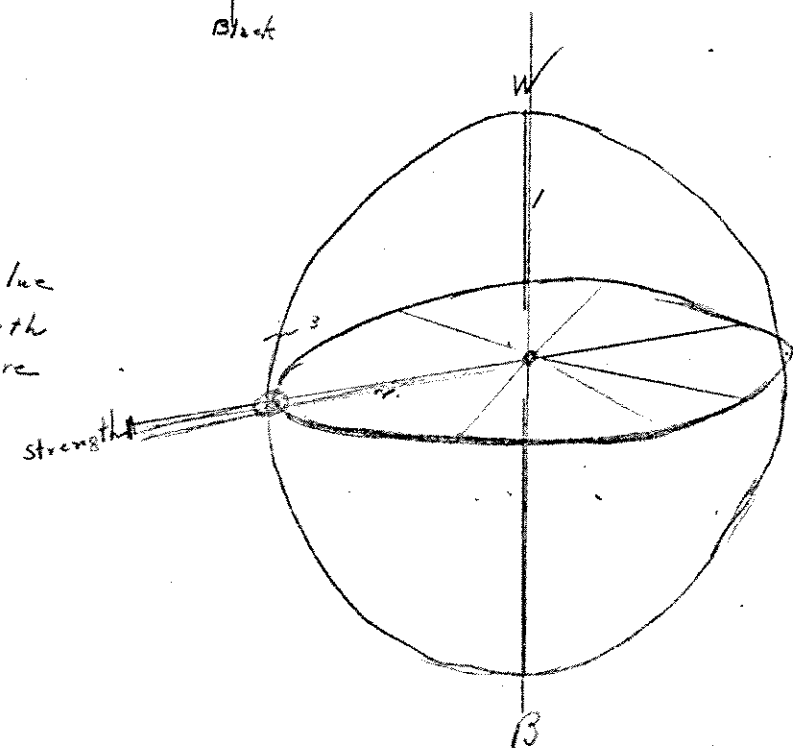
(14)



Show sequences to Tompkins - who says he wants the book as soon as it is out.

Find curves of log + cat's eye for Prof. Bowditch.

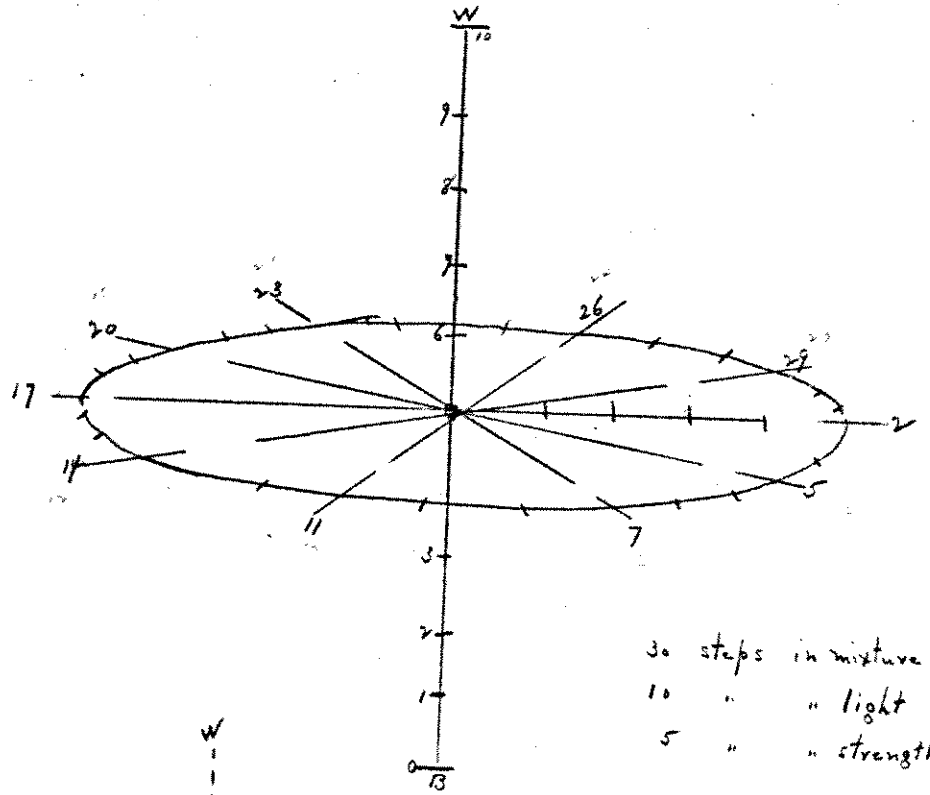




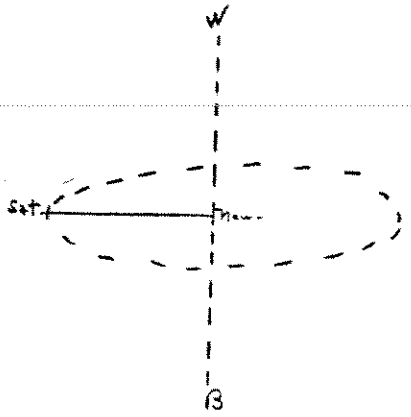
Luminosity – light value
saturation – ∨ strength
color – ∂ mixture

series colors to be tried in photometer
select good colorists.
show Prof. Bowditch.

16a.



30 steps in mixture - sectors of 10 degrees each.
10 " " light "
5 " " strength 5 "



R G B
(10) Y (10) BG (10)

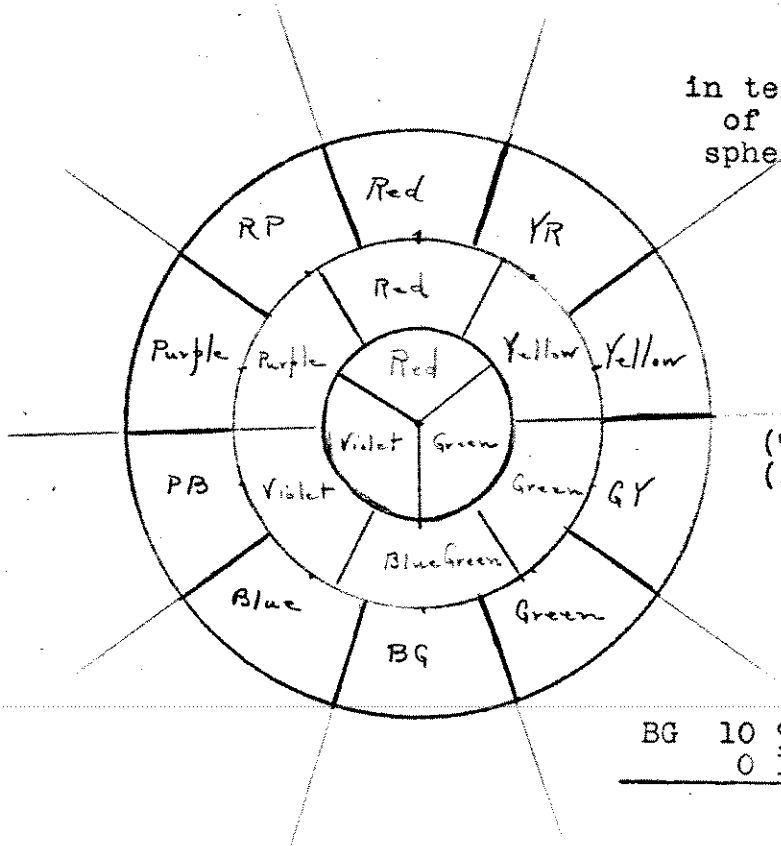
scale of grays.

ten color-sectors.

ten color-charts.

ten controls in enamel.

Dec 19 Assume that C. V. & H - are to each other as P - d. and cir. 16.



in terms of sphere
- chroma - is smallest dimension .5
- value " larger dimension 10
- hue " largest dimension 31.4

Query Shall cir. be ten colors in 3 1/7 steps ea or three colors in 10⅔ steps each
(Total balance unchanged
(shift of names and divisions

3 colors (10 steps of mixture; 10 " " light; 5 " " strength; (or 10 to opposite))

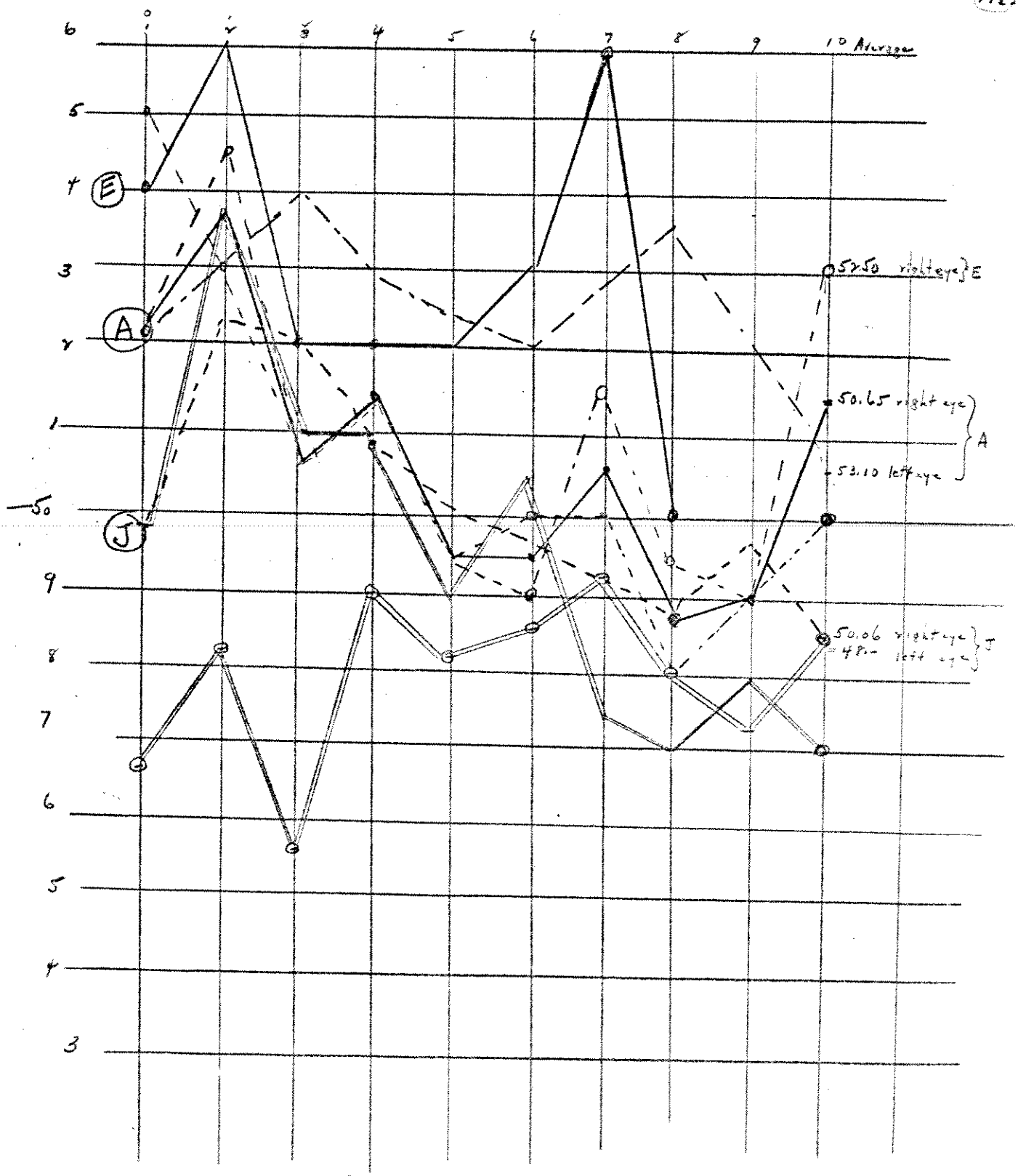
BG 10 9 8 7 6 5 × 6 7 8 9 10 Red
0 1 2 3 4 5 4 3 2 1 0

Mr Gilman lunches with me and then comes to see progress - Recognizes advantages of 3 colors in ten steps - as agreeing with -: idea of 3 fundamental sensations - But suggests loss of popular names Yellow and Purple. Suggests further estimations to find what color change seems to equal light change and strength change - -try reducing the interval as a check against other method-of extremes.

Query Three colors in ten steps each)
or Six " " five " ")- 3 fundamental sensations
" Five " " six " ")
" Ten " " three " ")- 5 abstract names.

Talk with Kaula and Tompkins as to meaning of "Tone" 17.
Whistler - low in tone - yet dull in color
Corot " " " - but rich " "
Tone therefore is not color hue - but color strength (i.e.chroma)
Discussion shows that the word means a different quality to each of the painters - it is loose.

No. of Readings.



[First and last readings seem more excited.
Middle — uncertain]