

Sources

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FEDERAL SUPPLY SERVICE

GPO : 1964-O-727-185

See Q. 4

1

Areas of Interest:

Incandescent bulb - J.A. recording spectro-

1. Variation of Intensity (J_λ) $\bar{c}$

Input Power - E_k I_k

2 - " " τ age

3 - Spectral distribution (relative var. of J_λ) $\bar{c}$

Input

Since 1 + 3 may be readily calculated from temp., Temp. as F (input power) is required -

Theory:

Planck - $J_\lambda = \frac{A C_1 \lambda^{-5}}{e^{\frac{C_2}{\lambda T}} - 1}$

$A = (\text{Area}) \text{ cm}^2$

$T = ^\circ K$

$C_1 = 1.17 \times 10^{-12} \text{ W cm}^2$

$C_2 = 1.432 \text{ cm deg.}$

$\lambda = (\text{wavelength}) \text{ cm}$

Wien - $J_\lambda = A C_1 \lambda^{-5} e^{-\frac{C_2}{\lambda T}}$ Valid to $< 1\%$ for $\lambda T < 3 \text{ cm}^\circ$

$\lambda_m = \frac{b}{T}$ $b = .2884 \text{ cm deg.}$

$J_m = b_1 A T^5$ $b_1 = 6.30 \times 10^{-11} \text{ Watt/cm}^3 \text{ deg}^5$

Experimental

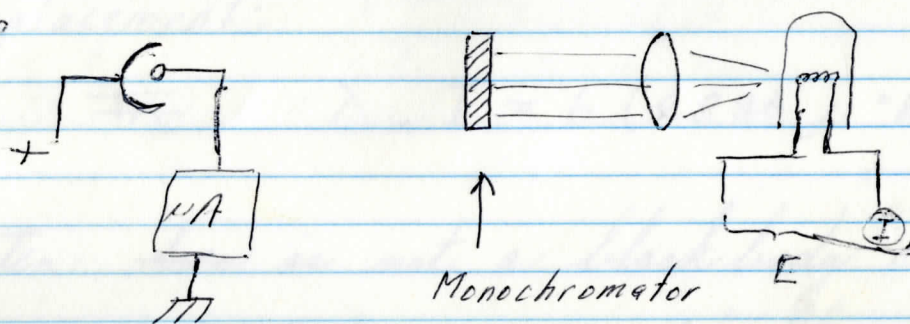
1. (From preceding Pg.)

Curves may be run on S.A. recording spectrophotometer -

Curves of $\lambda = K$ may be easily run

For ex -

Vacuum
PEC



Compare KI & KE supplies

Age bulb by overvoltage & investigate

$R_G = R_L$ scheme

Planck's eq-

$$W_{\lambda} = \frac{C_1 \lambda^{-5}}{e^{\frac{C_2}{\lambda T}} - 1}$$

W_{λ} = watts/cm² in band of one micron at λ

$$\lambda = \mu$$

$$T = ^{\circ}\text{K}$$

$$C_1 = 37,413$$

$$C_2 = 14,380 \mu^{\circ}\text{K}$$

Wien Displacement;

$$\lambda_m T = b (2896 \mu^{\circ}\text{K})$$

Tungsten ~~does~~ is not a black body radiator or even a graybody but varies considerably as a function of λ - The ratio of emission to blackbody is ϵ_{λ} -
 * Color temp. rather than actual

* the temp. at which a black body would have to be operated to produce the same emission at the region measured

Non-Gravimetric Mass Determination

Color temp. as $F(\text{input})$

$$\frac{\text{Volts}}{\text{volts}} = \left(\frac{\text{Filament Temp.}}{\text{fil. temp.}} \right)^{2.7}$$

For ribbon lamps color temp. varies directly $\bar{c}$ current.

for nine amp. ribbon $\frac{\Delta T}{\Delta I} = \frac{2750 - 2250^\circ \text{K}}{8 - 6 \text{ Amps.}}$ per

L.G. Leighton, Illum. Engr. V-57 121 '62

Zero G - MKI scales.

? Separate Human + non-rigid probe.

Problems of Human Mass determination

$\bar{c}$ a spring Mass - Pendulum

? Separate MKI Prototype

Spec. Gravity

Non-Gravimetric Mass Determination

Mass

1. Prob. Constraints of application - Size, power, time
2. Choice of method
3. Background (Prev work)
4. Pendulum Theory - Gen
5. ~~Exp~~ Spec Probs - (Practical Probs)
Wind res., spring losses, springs, non rigid masses
Vibration Zero cross detector, Temp effects, Slosh + Gen
6. Experimental results
Resolution + stability
Accuracy + Consist(?)
Wind resistance
Slosh

Zero G - MKI scales.

? Separate Human + non-rigid probs.

Problems of Human Mass determination

a spring Mass - Pendulum

? Separate MKI Prototype

" Spec. Gravity

Resolution

Stability

Linearity

Wind Resistance

A) Slosh

Jitter + ext vib

B) Hardware

MKI - Exp results

4. Basic Theory

2.1 ~~Center~~ Constraints of application - Size, power, time

2 Center of mass -

3 $F = MA$

1. Transients

2. Complexity

of a mass, springs for restoring force and viscous resistance moving in a single axis are well known.

3. Lockheed & Douglas & Convair(?)

oscillator is displaced by a distance X_0 & released $\pm$ additional external forces then:

4. simple $M\ddot{X} + R\dot{X} + KX = 0$

Non linear resistance

Slosh -

5. choice of period & X_0 , (defer)

Mass -

Spring - $\sqrt{\frac{K}{M} + \frac{R^2}{4M^2}}$ temp., stability, creep, losses. decrease in amplitude

Resistance X_0
non-viscous

Viscous

The accuracy of a practical system then depends upon the accuracy to

Exp- 6. Basic Pendulum

Resolution

Stability

Linearity

Wind Resistance

A | Slosh

Jitter & ext. vib.

B | Hardware

MK I - Exp results

4. Basic Theory

~~The~~ Solutions of the equation of motion of an ^{ideal} spring/mass mechanical oscillator consisting of a mass, spring(s) for restoring force and viscous resistance ^{in natural oscillation} moving in a single axis are well known.

~~With~~ ^{no} external forces If the mass of such an oscillator is displaced by a distance X_0 & released ~~is~~ additional external forces then:

$$M\ddot{X} + R\dot{X} + KX = 0$$

~~solutions~~ If the system is less than critically damped, i.e. $R < \sqrt{2KM}$ then the resulting motion is sinusoidal ~~is~~ a period given by

$$T = \sqrt{\frac{M}{K} + \frac{4M^2}{R^2}} \quad \text{is a decrease in amplitude}$$

of $X_n = X_0$. The accuracy of a practical system then depends upon the accuracy to which the various quantities other than mass can be held constant &/or determined and the accuracy ~~is~~ which the ^{period} system can be timed. If one is interested in ^{to 0.1%} 1% accuracy then it becomes relatively easy to design a practical system which

f is adequately described by $\tau = \sqrt{\frac{M}{K}}$,

R.S.I.

Resumé

Introd. Define Prob.

Ref. to prev. work

Very brief discuss of candidate methods.

Rigidity - solution for rigid model

~~Description of MK-I~~

Discussion of apparatus

Math Disc -

Electronic

Results

Lab results

Flt. test

Palm

Motion of Fulcrum

Remaining Probs:

Dimensions

Motion of Plate Fulcrum

Mass - K -

Wind Resistance added - 10 to 15 in.

Decrement study - Total

Slosh? - choose mass - 760 mm

γ + decrement 500 "

Generators 250 "

100 "

Mass K

Var of γ as $F(\text{Time})$

$$\text{Try} - A + BX + \frac{C}{X} + \frac{D}{X^2} + \dots = y^2$$

Aug $\frac{123}{3}$ ← Have Data
12

? Add Mass to Pendulum bar -



Palm

Motion of Fulcrum

Drawings

Dimensions

Materials Info.

Densities

Data - Meas - K -

T as $f(\text{Mass})$ added - 10 to 15 incr.

Decrement study - Total

Windage - choose l_{mass} - 760 mm

T + decrement 500 "

250 "

100 "

Meas. K

Var of T as $F(\text{Time})$

$$\text{Try} - A + BX + \frac{C}{X} + \frac{D}{X^2} + \dots = y^2$$

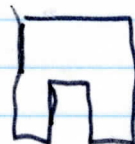
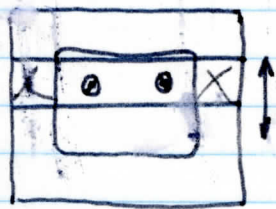
Aug

29
3

← Have Data

12

? Add Mass to Pendulum bar -



Outline -

Introduction

Theory of densitometry of homogenous mat-
path length
conc
extinct coeff.

Theory of dens. of mixtures

Hgb

Theory in blood

Blood in ear

Densitometry systems

- A. Light sources
- B. Filters
- C. Detectors
- D. Amplifiers
- E. Computing elements-
- F. earpiece

Complete systems

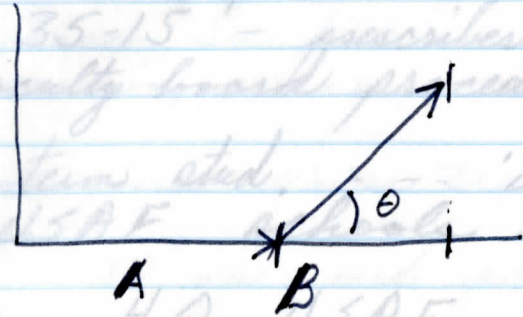
Results

Review of prev systems-

Maj. Davenport

3 Apr '69

AFR 35-15

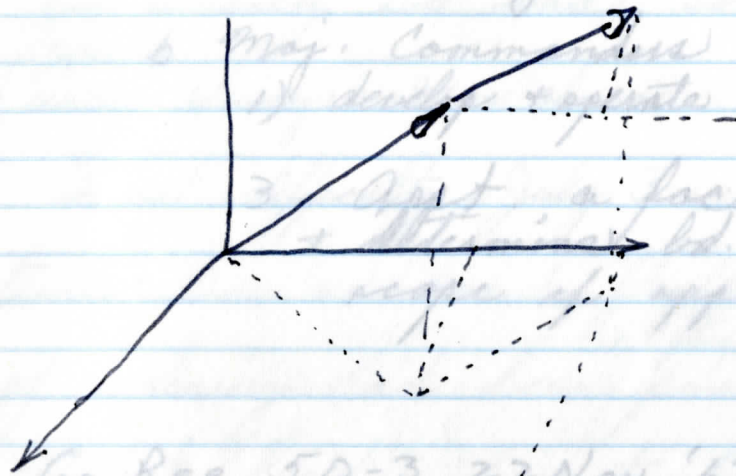


$$\cos \theta = \frac{x}{r}$$

$$x = r \cdot \cos \theta$$

B

A · B

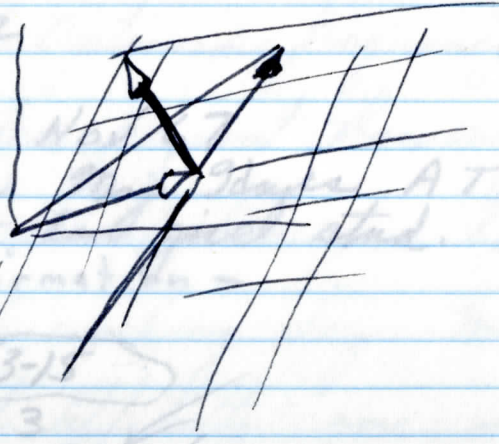


Gp Reg 50-3 27 Nov '67

3. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

A x B

Gp Reg 51-2



Memo 29 Apr '69

Telecon 29 Apr '69 ATC (ATPOP-5F) advised that the school copy of board proc.

AFR 53-15

ATC Sup 53-15

AM 53-15

Vol. 5 WGM 55-1 (sec. Ch. 2 Sec A -

Gp Reg 50-2 (3) 51-2

10/10/69

P-1
Maj. Davenport
events

3 Apr '69

AFR 35-15 - prescribes school responsibilities
+ faculty board procedures.

2. term stud. - - - includes civilians per attending
USAF schools -

3. a HQ USAF

(1) Directs assists + monitors USAF formal
individ try.

b Maj. Commanders

1) develop + operate USAF schools

3. Appt. a faculty bd. for ea. USAF school
+ determine bd. procedures within the
scope of appl. USAF regs.

Gp Reg 50-3 22 Nov. '67

3. b.

It is the ~~commander of~~ chief
of ATC Instructor School determines a
student cannot graduate in 4 working days of
the class grad. date a letter recommending
holdover will be submitted through the school secty.

Gp Reg 51-2

Memo 29 Nov '67

Telecon Maj Hayes ATC (ATPOP-5F)
advises not to give stud. copy of board proc.
No confirmation -

AFR 53-15

ATC Sup. 53-15

Att. #1, 3

Vol. 5 WGM 55-1 (sec. Ch. 2 sec A -

Gp Reg 50-2, 3, 51-2

10 Feb 69

P-1 events

T-41 phase 30 hrs. in light A/C (aircraft) which is a screening phase which A.F. ~~places no weight on~~ ~~values~~ ignores unless there are difficulties. No problems here - 90 on mid phase check - good on all rides 96 on final check (above avg.) - civilian run. Concurrently we had so called academics ^{on} which ~~my grades~~ were always 98 or above.

First difficulty, July 3, were unsatisfactory 60° (bank) turns. One additional flight sorted this out. Continuity of training had been ^{i.e. flights were infrequent} poor because of heavy student load per instructor. This was especially true of my instructor, ^(Les Long) who had frequent additional duties of ^{senior} ^{9dc sometimes} ~~runway~~ ^{supervisor} runway supervisor. At some periods he had this duty every day and frequently every other day. Optimum frequency of ^{training} flights would be no less frequent than every other day and in order to finish on time we had to average a flight every 1.6 working day. ~~It~~

My first real difficulty came when I was grounded ^{on} emergency procedures quiz EPQ

Sketches of possible witnesses:

T-37: Instructor - Capt. Lester C. Long approx 30
Instructor - ^Q superb pilot: emotionally
^Q F-100 Viet Nam veteran somewhat
immature under stresses which affected his
^{superior} ^{non flying} ability to instruct. His latent anger was
(usually suppressed)
frightening, and so probably the most angry man
I've known. This derived from a series of
disappointments in assignments in the Air Force
which culminated in ^{his} resigning but at this point
the Air Force required him to serve what he
considered unjustified additional time. He had a
running battle royal (possibly letters to congress, etc
I believe) to the A.F. over ~~enforcing~~ a training date
which ~~required~~ ^{instead of accepting airline job.} allowed them to keep him on service.
He was very labile and widely known for antics
which were only tolerated because of his flying
and (previous) instructional ability - He ^{eventually} refused to
fly more than once a day (or none if there were other
duties), avoided the flight room students and briefings.
usually ~~from~~ appeared at the last minute before

flights and as soon as plane landed would leap out & disappear to return at any possible time, sometimes next day to debrief flight, would repeatedly fire flares & at places in pattern to prevent landing practice if he considered them to be working late, chased rabbits around runways (literally) on foot to studs. ^{was mentally acute.} a amusement, ~~smart~~ - Should not have flown & this man who one ~~man~~ ^{day} was an super excellent instructor and the next day simply refused to talk much less instruct and waited only for mistakes. The latter moods could sometimes be clearly related to external events such as having flown & other instructors or his wife leaving on vacation, etc. Phil Chapman

~~This~~ ^{Our} relationship was ambivalent - sometimes on my side often disgusted & vengeful. Would expect violent reaction if questioned any implication of shortcoming on his part were made conversely might had agreed to testify to events surrounding first board & eye problems on my behalf. Depositions might be safer.

Witnesses - Major Norris - A hard working,
not too bright or effectual flight commander who
~~followed~~ would follow the party line of his
superiors. A Viet-Nam veteran who flew 'bird-dogs'
light spotting A/C, a rough job. Drank more
than was good for job & one instructor ^{and wife} had
serious ^{auto} accident following ^{drinking} party at Norris' house.
He followed Long's recommendations completely &
^{admired &} trusted him ~~explicitly~~ completely in all things - No
known animosity toward me & might testify
truthfully concerning events of first board -

2 nd T-37 flight

Capt. Willingham - Good pilot somewhat ~~short~~ intolerant
of shortcomings in others - Testimony would probably
do not help much -

Major Joe Neely - A physical & large man in
every way - a wise man but good soldier -
testimony might help -

P-2 events

on the day I was scheduled to solo. Instead I was sent to Link Trainer after stiff admonitions that laxness in EPQ's would not be tolerated by in astronauts or anyone else and ~~was~~ incident reported to group Commander Chauret as laziness or its equivalent. After Link, left to stand until about 15 mins prior to a flight time when I was further admonished & placed ^{back by} on status. Difficulty in ^{cross wind} landings precluded solo & not allowed to solo.

Facts - knew emergency procedures better than 90% of students & knew A/C system better than average instructor but did not give book answer (word for word) ^{as I now do.} - for example one question ^{on this quiz} wanted to know signs of ~~an~~ engine fire ~~(A/C)~~ ^{only VFR} - I included visible flames and one or two ^{other} obvious signs not in the book - ^{question graded} wrong.

Bailout procedure was another question and a recent ~~Journal of Aerospace Safety~~ ^{bulletin} (an A.F. must read publication) had proven that it was better not to invert the A/C in manual bailout - again

for one step in bailout - 'wrong' answers
not the book answer - The third I forget but
could have been not indicated air speed -
book ^{answer} is 382 knots & 380 was wrong. I used
to be responsible for ^{run} ~~work in~~ lab, which had as a function
calibrating instruments
for flight testing A/C. # 2 knots is a joke to
say nothing of installation error in A/C.

Had a ride w/ Maj. who busted me
on landings ~~and~~ followed by Soloed following day -
Had problems every time I came near the ground

T-38 phase
See record book for criticisms -

18 Dec - Fair Flt. on CK ride -

A/C had ~~defective~~ A.D.I. ^{out of limits} (artificial horizon)

& 4° max. error after acrobatics) which precessed

5° nose ~~high~~ ^{high} & resulted in level ~~early~~ ^{erroneously} level

off (correct for indication) & consequent Air Bspeed
error during argument $\bar{c}$ instructor) whose

A.D.I. was apparently correct. Since

A.D.I. is primary control instrument & it was
in error, up to 8° precession ^(error) ^{on entering} ~~on~~ steep turn,

there was nothing else to do but use other instruments

a procedure we are untrained for. Protested the
instruments errors to I.P. who abrasively claimed

it was excuse making. This grade inconsistent

$\bar{c}$ previous grades in A/C & Link (simulated
trainer) -

T-38 phase -

Instructor was Capt (now Major) Carl Bird, Jr. -
ex F-100 Viet Nam veteran) who was excellent
instructor on the student's side on the ground
& in air until student had trouble in air &
then became a screamer (~~abusive~~ ^{abusive} abusive &
increased quantity & volume in relation to difficulty.)
In my case this caused a divergence in which
performance steadily deteriorated. I suspect discussed
this several times to the instructor who simply ~~so~~ apparently
could control this tendency only temporarily. On first
mission of ~~whooping it up~~ Had family problems, separated &
3 Feb. 69 Cold wet day and instructor had lost ~~in flight, when flying over~~
flight jacket - was literally blue tipped ^{& furious} after prolonged
wait on ground for ground crew problem. Remained so
during flight & was not only intolerant of slight
errors but added to problems by ~~screaming~~ ^{screaming} flaps
~~off~~ during slow flight. There was no indication of
stall for I went to after burner and maintained
slight descent. Since this was my first experience

c instructor putting me on didn't recheck flaps which had been properly set. Orientation weak comment came from not using instructor's technique, not from difficulty staying in area. Instructor steadily increased verbal ~~descriptive~~ descriptive verbalization until I ~~shut this input~~ suppressed this auditory inputs and missed RSO call.

4 Feb. Pattern of previous ride continued and regression occurred. Requested an instructor change, a time honored ^{& frequently exercised} right of students, which obviously shocked ^{& argued} the instructor who I am sure was on my side. Refused change.

6 Feb. Everything I tried was wrong and met c abusive outbursts. His statement on regression is quite correct. At this point the Flight Commander told me I would be given "1 more ride and an elimination ride" and ~~entered this in the rec entry~~ of 6 Feb. ~~2020~~ P-20. Although this would have been illegal I had no reason

to doubt this would be done in view of previous
ATC procedures. Still didn't know regs.
At this time, had the emotional pressure
been off, I could have flown acceptable
patterns except for final ~~turns~~ approach &
touch downs ^{which I couldn't see}. A ride c Col. Chauret
on 8 Feb '69 showed this. As matter of
fact the flight went well until he
dumped a landing on the runway far
harder than anything I've done and things
were strained after that. ~~Two~~ ^{to insert academics failure} rides c
(10 Feb - 11 Feb)
a new instructor only made things much
worse for it was obvious that he ~~was~~ ^{seemed} more
interested in cataloguing my faults than ~~sort of~~
instructing. After the flights he debriefed sqdw-
ops. first and me much later.

At this point the previous ~~can~~ instructor
suggested an eye exam which was
performed at By By L/C Houk of the
School of Aerospace Medicine. A moderate

presbyopia of the R eye was found i.e. stiffening of the internal lens made focussing on near objects impossible. ~~The condition was severe enough to~~ (See the attachment to the letter requesting transfer.) ~~At the time~~ I was grounded for five weeks, the first week of which was spent at Brooks A.F.B. on exams & fitting of lens. During this period some sort hard feelings arose probably because my cohort from NASA who was not punctual, etc. & told them off. At any rate ~~the flight commander~~ called my wife and while I was at the School of AB Medicine for an exam and after specifically informing the flight commander where I would be, ~~he~~ he nevertheless called my wife and read her the riot act about my 'absence' ~~which~~ I ~~to this was my~~ He denied this when this was particularly galling since she was suffering from ~~an~~ thyrotoxic untreated thyrotoxicosis, ~~untreated~~ ^{& did not need that sort of thing.} because the air force

had decided only emergency medical treatment would be provided the family and that charged for. For example an emergency room, a tetanus shot only ^{for jayges} - 10. I had been ~~was~~ An A.F. After starting a work up this ~~in~~ the A.F. denied her treatment and I had been unable to locate a local endocrinologist and was ~~unable to~~ ^{unable to} leave off town to interrupt training. The following 4 weeks I reported each day ^{is ordered to the flight room} (every other week before dawn) and listened to endless tales of 2nd Lt's progress while not even being allowed to go to surplus link trainer sessions i.e. the links were left empty rather than let me try to keep my hand in instrument flying.

On return to flying I was told I would be given one ride and ~~to~~ an elimination ride series. Incensed of bellyaching when I pointed out that a student who had been washed back for academics after solo had been not gotten the plane on ~~the~~ i.e. landed properly, for

the first three flts. & ^{he} was given a total of four
free rides - comment - ^{in fact} was given three rides
17, 18 & 19 March. On 17th I entered
traffic 1000 feet low and had started pull up
when advised by RSV. I should have felt bad about
this except for new glasses & no flying in 5 wks -
plus fact that the instructor who had flown
100+ low level combat missions plus flying
same pattern daily did not catch error for
12 nautical miles and had impression he
only then reacted to RSV warning & my initial correction.
Was rusty during these flts. but nevertheless marked
improvement in all areas but the final approach
and landing which I simply could not see
- the lens (glasses) being worn and the instructor
states this repeatedly - "He had trouble
& "unable to see the right picture" (18 Mar)
& "unable to recognize" (19 Mar) -

Next ~~sad~~ three rides were flown - Col Peterson
20, 21, 24 Mar. He was a good instructor
and ~~to~~ progress was made in all areas except

The side of the 24th was amusing in that I was roundly criticised for inadequate head wind corrections yet Peterson landed short of the runway ^(a major faux pas) on his one attempt.

Touchdown). At this time I wasn't convinced that the eyes had been a problem & felt it was only a matter of time till until the touchdowns were ironed out. The touchdowns went in fact that bad & many students are soloed & worse. One ~~student~~ ^{cohort} at another base was soloed & over making an unsolicited landing but doubt we can get him to admit it publicly out of deference to his instructor. On the 24 Mar A TC H.Q. decreed another board and some unflattering comments entered in the ^{grade} book after this decision. I note & interest that ~~some~~ ^{one} of these have since (recently I believe) been modified to my advantage apparently by Col. Peterson.

The Board action was started & the same Lt Col. Long appointed president. Long advised obtaining civil counsel and finally obtained Mr. Tappin on his recommendation. Had been pressured to hurry up & get it ^{the board} over with but also on day A.F. was notified civil counsel ^{had been} was obtained

I was ordered back to fly status. Long privately expressed to fly prescribed course of check flights (Initial Prog. Check, minimum of 2, ^{additional} sides + final prog. check) req'd. for a board. At some point R/C Long & other members were ~~was~~ reputed to have been replaced in the prescribed Cals. Long confided that he was disgusted in such maneuvers and that "I would have to be Houdini to pass the checks". It was only on these sides that it became obvious that I had visual problems and that ~~the~~ assumed for the first time the role of a physician flight surgeon for the problem was beyond the scope of A.F. facilities.

Comments in the grade books on 9, 10, 14, 15 confirm this inability to determine runway location. With the glasses worn I couldn't have landed consistently in a million years. Not mentioned in the record was a consistent involuntary R turn during the flare which was as much as 10 to 15° which required vigorous rudder correction after touch down - Simply ^{another} a manifestation

of the screwed up visual world I was operating
in. After the second side of this series various
authorities on ophthalmology around the nation were
called and the names of the few people working
in the problem of anisocoria obtained. These
included ~~a~~ were all optometrists & included
work being done at NASA by Drs Loper &
Hamilton and ^{Mrs. Miller (formerly of Ohio State College of Optom.)} at Technology, Inc. of San Antonio.
Dr. Jernigan 1st Surgeon at NASA ^{aircraft} MLC ^{center} was
contacted and after talking to Dr. Loper ~~and~~ it
was agreed to try special lens for correction.
Teleph Dr. Tilles 1st Surgeon at A.T.C. verbally
agreed to this and I was informed to be told to
report to him for grounding. Tried the
following day ~~but~~ reported this to Col. Peterson ~~who~~
and we tried to get an A/C to bore holes in the
sky with i.e. fly for fun but A/C were in short
supply so went to Dr. Tilles in the afternoon
for grounding, and ~~was~~ told he had been ordered
to apparently by A.T.C. ^{H.R.} not to ground me ~~At~~

until a formal request from NASA had been obtained
a matter expected to require 2-3 days. While in
Dr. Tiller's office I was ordered to fly a mission
immediately to be followed by the final check ride
the following morning. Called NASA to have orders
ready that afternoon & after flying ~~sp~~ spent the
evening & most of the night driving over to get them.
Tiller grounded me the following morning and
to use his words "all hell broke loose at A.T.C."
I promised to give me a board in absentia.

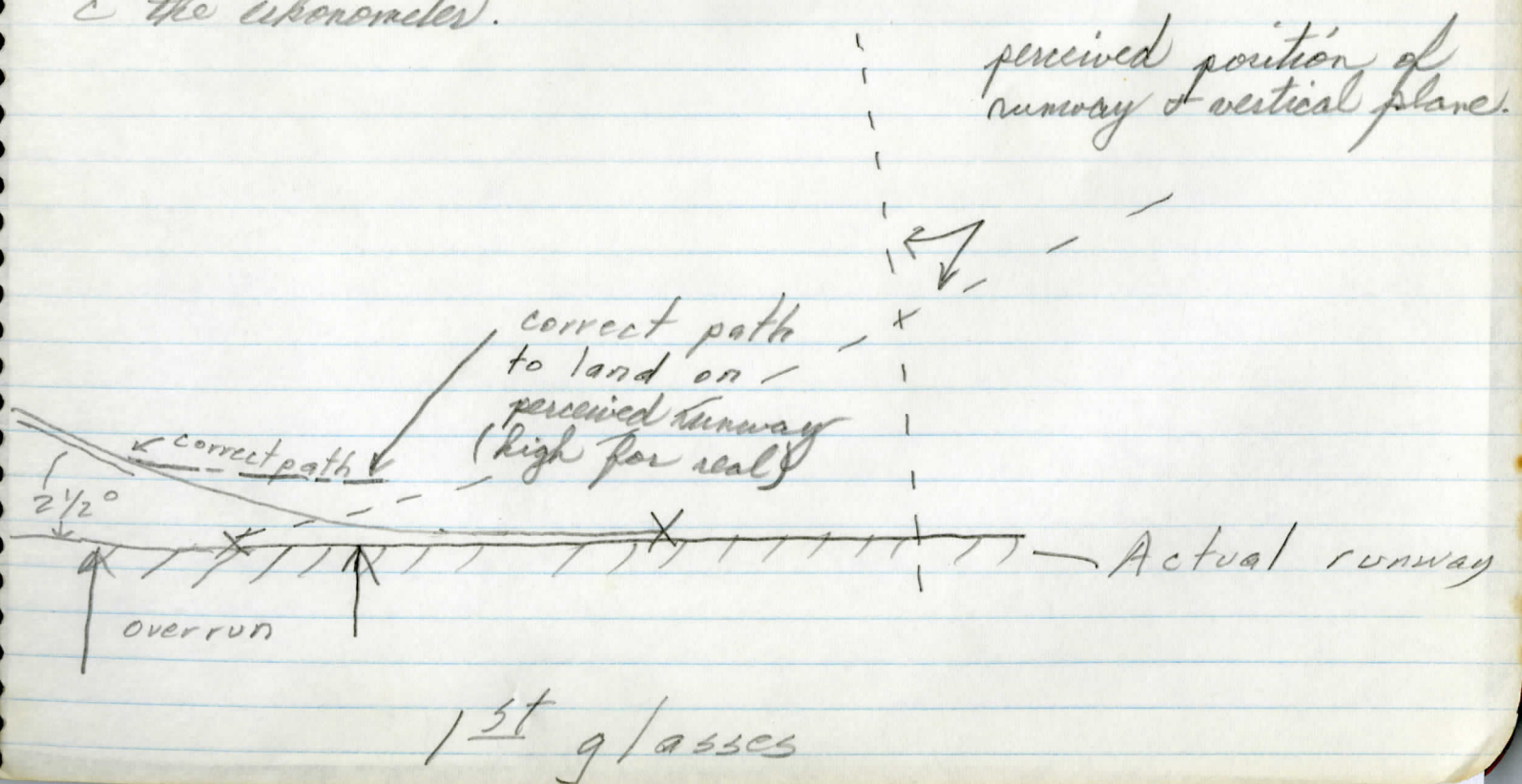
Don't know how much of this hell testify to.
Charet was first angry & then cordial admitting that
I couldn't be expected to pass a check ride under the
circumstances & that it would ^{be} sensible to start the
whole T-38 phase over on return.

Examination at both Technology, Inc. & NASA
and later at Ohio State revealed a remarkable consistency
the following - above average acuity & depth perception
a mild anisikonia increased to marked degree
by the ^{A.S.} lens. ^(glasses) thereby followed 5+ weeks of

frustration while a variety of lens were tried often
in spectacularly poor results. Finally went to Ohio
State University which has worked in problem for
years & got a reasonable correction of presbyopia
& increasing the anisometropia. N.A.S.A. would
not allow ^{me to have} training flights to avoid offending
USAF. ~~This was~~ ^{the flying} should have been an
integral part of the corrective procedure. Did
some unofficial flying ^{in the astronaut's not instructors} first in the rear seat
(very hard to land from) & finally front. On the
first ride after a month's lay off and in new
glasses ~~landed three times on~~ and ^{my} first
attempt from the rear seat, landed 3 out of
3 times & felt pretty good. After 4 flights could
~~land in any~~ see the runway & could land
in any configuration. Did not continue flying
and on arrival back in A.F. 19th June found
to my horror that the eyes had continued adaptive
process such that I was leveling off
high. This continued on four flights.

fortunately a pair of tempered lens arrived
(had been wearing temporary lens) & a same prescription
but enough difference in refraction to cause tilt
of horiz. plane in opposite direction (i.e. low level
off -). This was confirmed by eikonometer & other
tests by Technology, Inc. There was tremendous
improvement on next ride 26 June but glasses
reintroduced old problem of slight turn - This ^{turn} plus
previous record ~~was~~ prevented solo.

The practical effect of anisikonia was
well illustrated in the landings and confirmed
in the eikonometer.



Since the perceived ^{geometric} plane (~~geometric plane~~ ^{earth}) ~~earth~~ is tilted upward one would level off ^{he should} earlier than the speeds, ^{+ small angles} are such in this A/C that there is no opportunity for second guessing and until one shifts the aim point after level off at which time one ^{he} is too high.

Frankly, the pair of glasses I ~~now~~ now have causes the opposite problem i.e. the sunway tilts slightly downward and I wait too late + level abruptly. This places me near the ground and I must level rather abruptly (see comment on 5 Aug) which means A/C has less time to decelerate + lands slightly hot but not as hot as Chamet + Paterson claimed. I as a typical student this would not be commented upon but it was used as the excuse to bust me. The landings are quite safe for it is far safer to come in on the hot side + low than slow + high. This is borne out by flying in gusty winds + in A/C a possible control problem where the A/S is ^{deliberately increased}.