Applied Behavior Analysis
at
Youngstown State University

Stephen A. Graf, Ph.D.

Key Materials

- ***Elementary Principles of Behavior***, 2nd Ed. (Whaley, Malott and Malott)
- SAFMEDS [Flashcard Fluency Follies]
- Contingency diagrams

Key Procedures

- 4-minute Free/Write (4 per week)
- Daily See/Say SAFMEDS (7 per wk)
- Hear Questions/Say Answers

- Hear/Complete examples & non-examples on Contingency Diagrams

Format: Symposium

Title: **Teaching Behavior Analysis**

Behavior Analysis at Youngstown State University

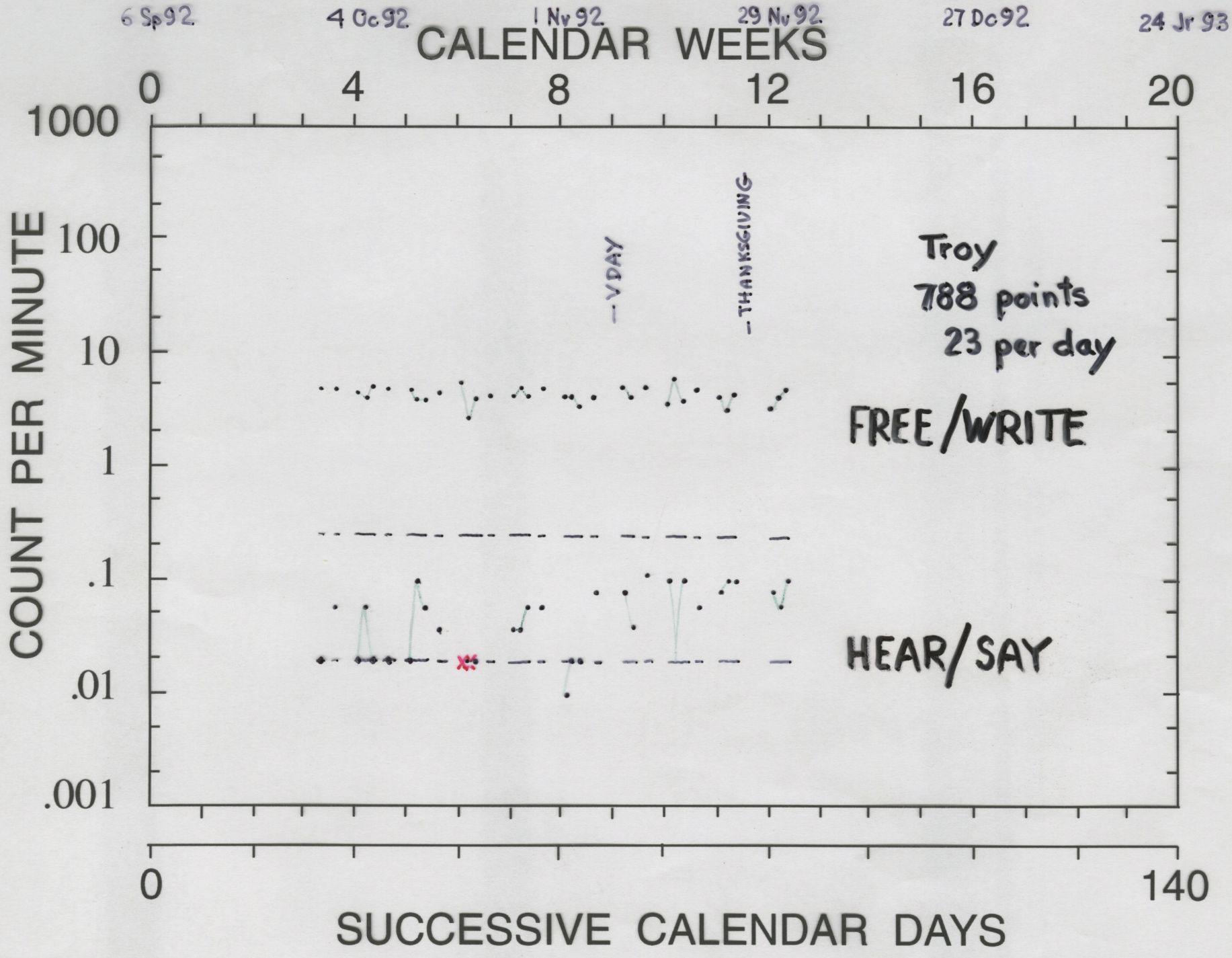
In the applied behavior analysis course at Youngstown State University, students engage in timed practices covering course material each class period, monitor their own performances daily, and spend the majority of class time orally explaining concepts and examples to their instructor and classmates. Instructor behavior does not include lecturing. The course uses Whaley, Malott & Malott's 1992 *Elementary Principles of Behavior* as text, along with Lindsley's 1991 unpublished paper, "Skinner on Measurement." Each class begins with a four-minute free-write on the reading assignment. Students develop structured writing styles, and receive points for appropriately organized relevant chunks of information. Students then pair off and take turns doing one-minute SAFMEDS timings. Students see a definition or phrase on the front of a card and attempt to say the concept label found on the back. All students monitor their daily progress on three SAFMEDS decks with Standard Celeration Charts. During the remainder of class, students provide oral answers to either study questions from the reading assignment or contingency diagrams involving examples.They receive points for appropriate contributions. Students earn grades based on prespecified point totals and degree of SAFMEDS fluency. They evaluate the course highly on facts learned and daily effort expended.

Format: Symposium

Title: **Teaching Behavior Analysis**

Behavior Analysis at Youngstown State University

Two courses at Youngstown State University in Youngstown, Ohio provide an unofficial sequence in which students engage in timed practices covering course material each class period, monitor their own performances daily, and spend the majority of class time orally explaining concepts and examples to their instructor and classmates. The first course represents about 200 of the 1150 students each quarter taking a first course in introductory psychology with a behavioral slant. Malott & Whaley's *Psychology* provides the text material and students attempt to achieve fluency on pronunciation of difficult terms, saying or writing basic principles of behavior analysis, and responding to SAFMEDS covering the course content. They also respond to study questions from the text but not at fluency levels of performance. The second course represents applied behavior analysis as the subject matter per se, and uses Whaley, Malott & Malott's *Elementary Principles of Behavior* as text, along with Lindsley's paper, "Skinner on Measurement." Each class begins with a four-minute free-write on the reading assignment. Students use structured writing styles similar to Information Mapping™, and receive points for relevant chunks of information appropriately organized. Next students pair off and take turns doing one-minute flashcards from one of three decks, organized according to complexity of answer. Students see a definition or phrase on the front of the card and attempt to say the procedure or concept label found on the back. All students monitor their daily progress on all three decks with Standard Celeration Charts. Most of the remainder of class time involves students providing oral answers to study questions from the reading assignment, with points awarded by the instructor for appropriate contributions.


6 Sp 92
4 Oc 92
1 Nv 92
29 Nv 92
27 Dc 92
24 Jr 93
CALENDAR WEEKS
0
4
8
12
16
20
1000
100
10
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.1
.01
.001
COUNT PER MINUTE
— V DAY
— THANKSGIVING
Troy
788 points
23 per day
FREE/WRITE
HEAR/SAY
0
140
SUCCESSIVE CALENDAR DAYS

Charts - well done

Description - Good job, particularly liked your specification of the celerations.

12/11

23

Troy D. Barnett
11/16/92
Charting Project

X Deck - The hits on the X deck were accelerating.
The misses on the X deck were maintaining.

Y Deck - The hits on the Y deck were accelerating
The misses on the Y deck were maintaining

Z Deck - The hits on the Z deck were accelerating
The misses on the Z deck were acceleating

Strategy - At first, when we had one deck, I was going through the cards one time and doing one one minute timing per day.

Once the decks were split up, I changed strategies.

On the X deck, I went through them three times per day (three one minute timings) until the end. At the end, I went through them seven to eighteen times per day (One minute timings).

On the Y deck, I consistently went through them three times per day (three one minute timings).

On the Z deck, I consistently did five one minute timings per day.

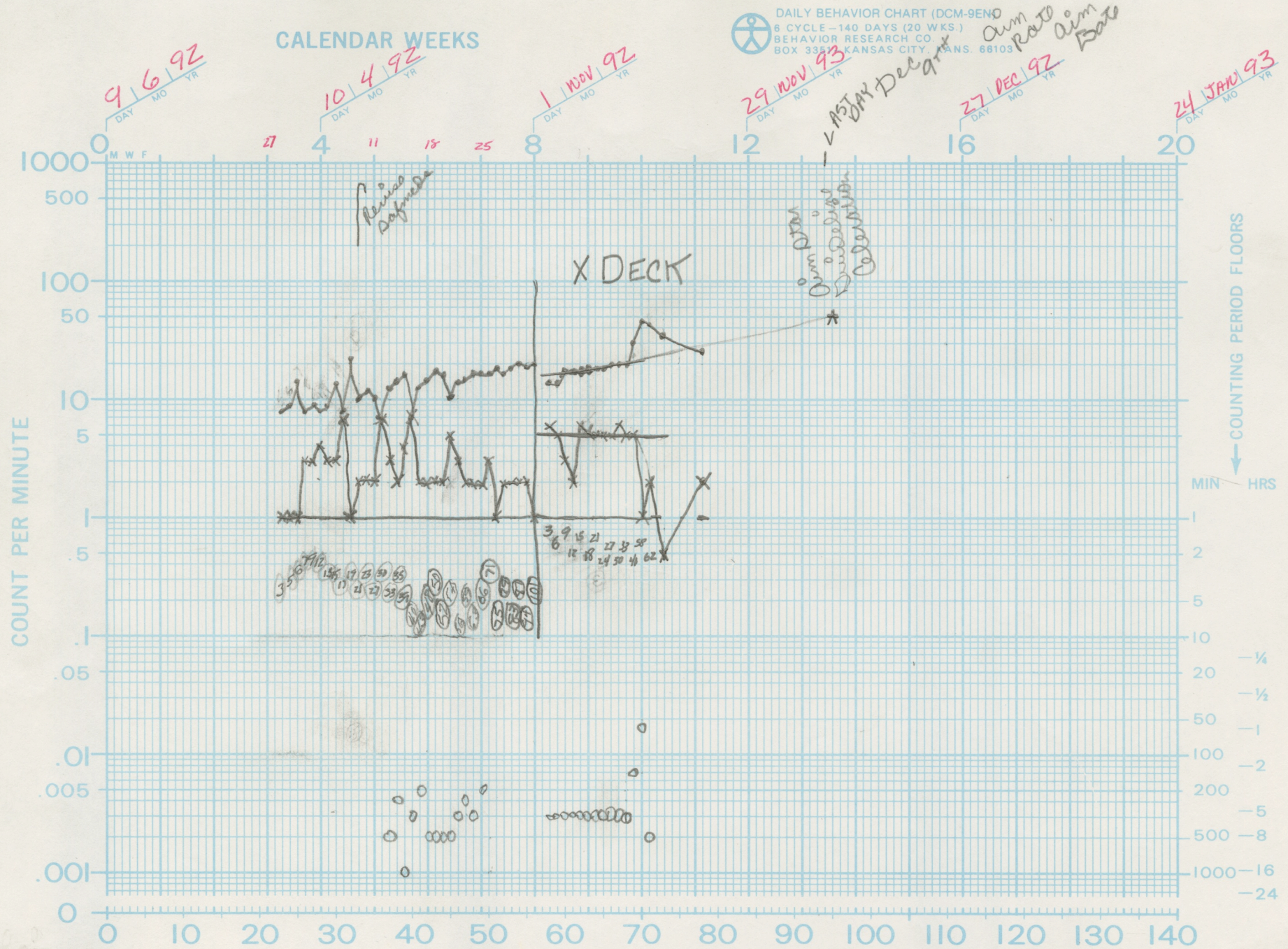
I kind of enjoyed doing the SAFMEDS once I started progressing on them.

Troy D. Barnett
11/16/92
Charting Project

At first, they seemed impossible, but the splitting them into three decks helped me an awful lot.

The thing that helped me the most on the SAFMEDS was highlighting. Once I highlighted the deck, my hits seemed to go up very rapidly.

I feel that I learned a lot from the SAFMEDS, and I think that they are an unusual but effective way of teaching.


DAILY BEHAVIOR CHART (DCM-9ENO
6 CYCLE—140 DAYS (20 WKS.)
BEHAVIOR RESEARCH CO.
BOX 3383 KANSAS CITY, KANS. 66103
CALENDAR WEEKS
9 | 6 | 92 DAY MO YR
10 | 4 | 92 DAY MO YR
1 | NOV | 92 DAY MO YR
29 | NOV | 93 DAY MO YR
27 | DEC | 92 DAY MO YR
24 | JAN | 93 DAY MO YR
0 4 8 12 16 20
M W F
27 4 11 18 25
1000 500 100 50 10 5 1 .5 .1 .05 .01 .005 .001 0
COUNT PER MINUTE
X DECK
COUNTING PERIOD FLOORS
MIN HRS
1 2 5 10 20 50 100 200 500 1000
¼ ½ 1 2 5 8 16 24
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
SUCCESSIVE CALENDAR DAYS
MORRISON SUPERVISOR
FRY ADVISER
GRAF MANAGER
YSU-PSYCHOLOGY AGENCY
Coach/Prof Watch TIMER
Troy D. Barnett BEHAVER
ZZ AGE
Ψ734 LABEL
see front/say walk SAFMEDS COUNTED
Troy D. Barnett CHARTER

DAILY BEHAVIOR CHART (DCM-9EN)
6 CYCLE—140 DAYS (20 WKS.)
BEHAVIOR RESEARCH CO.
BOX 3351—KANSAS CITY, KANS. 66103

CALENDAR WEEKS

6 SEPT 92 (DAY MO YR) | 4 OCT 92 | 1 NOV 92 | 29 NOV 92 | 27 DEC 92 | 24 JAN 92

Y DECK

Dec 9

COUNT PER MINUTE: 1000, 500, 100, 50, 10, 5, 1, .5, .1, .05, .01, .005, .001, 0

COUNTING PERIOD FLOORS: 0, 4, 8, 12, 16, 20 (M W F)

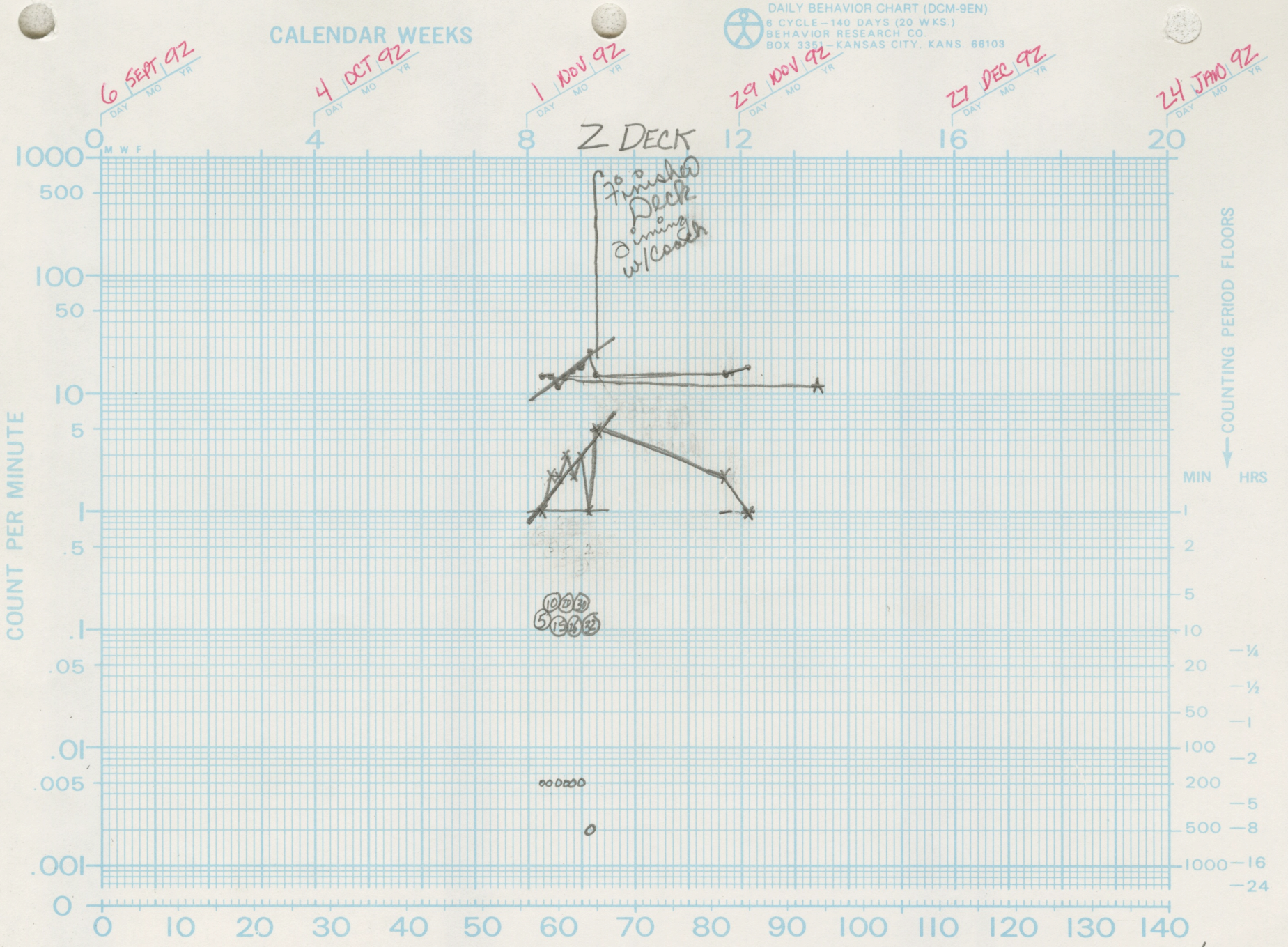
MIN / HRS: 1, 2, 5, 10, 20 (—¼), 50 (—½), 100 (—1), 200 (—2), 500 (—5), 1000 (—8), (—16), (—24)

3 9 15 21 27
6 12 18 24 30

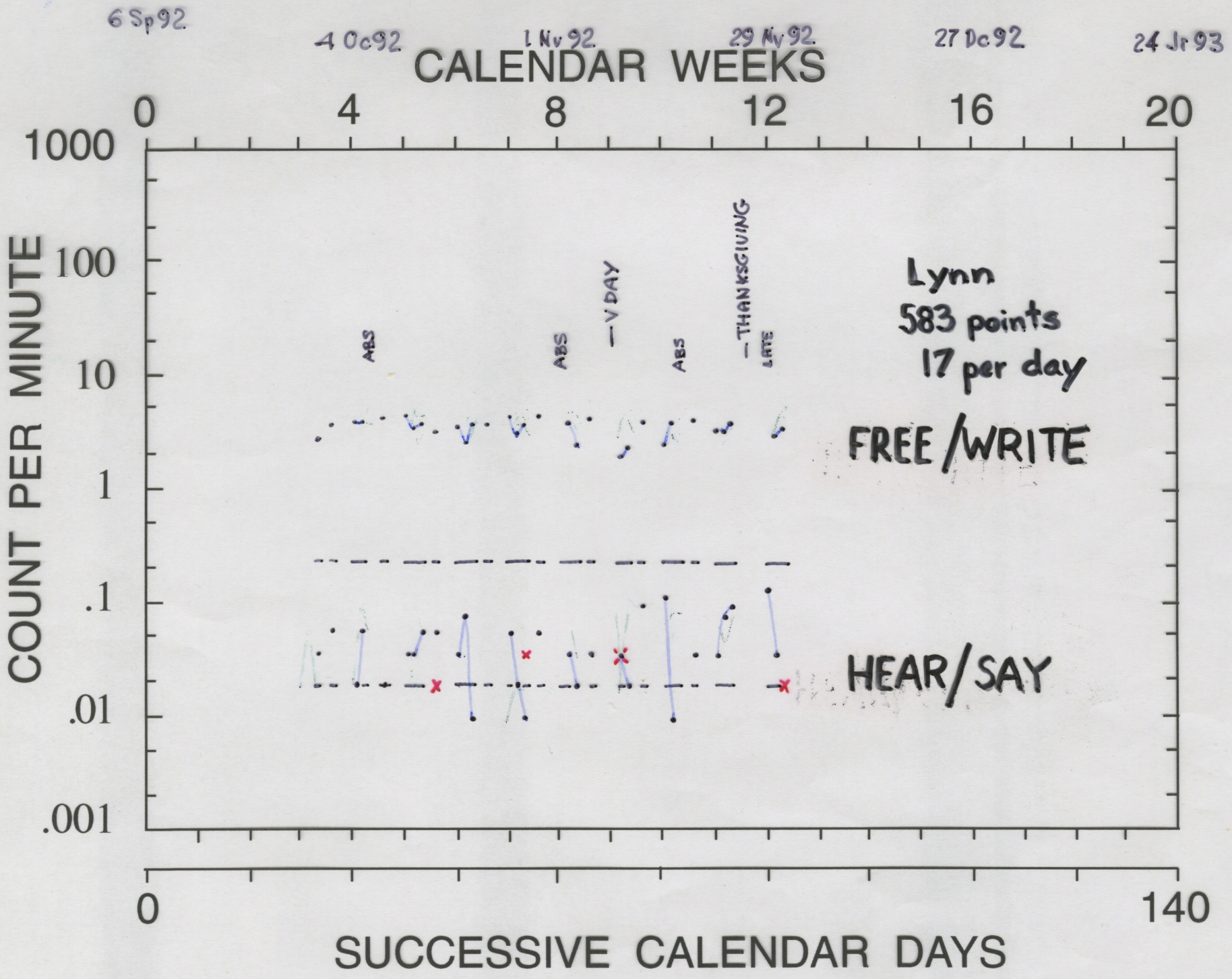
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

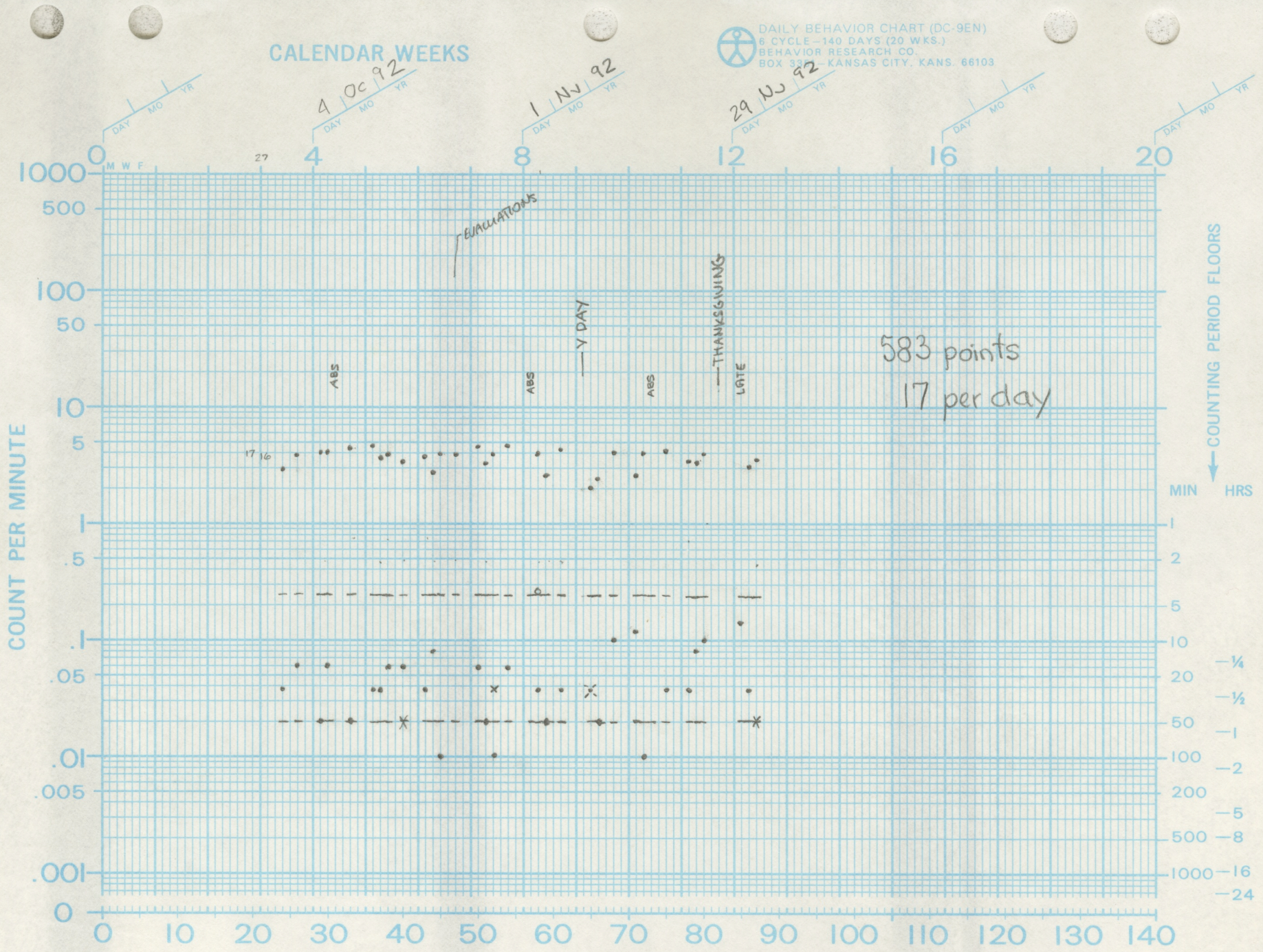
SUCCESSIVE CALENDAR DAYS

Morrison	Fry	Draf	Evan Michael Rob Sharon	Troy D. Barnett	ZZ	Y734	See Front Say Back Dafmeds
SUPERVISOR	ADVISER	MANAGER		BEHAVER	AGE	LABEL	COUNTED
	Y50 - Psychology	Coach		Troy D. Barnett			
DEPOSITOR	AGENCY	TIMER	COUNTER	CHARTER			



Morrison	Fry	Graf		Troy D. Barnett	22	4734	See front Day Back Daffneds
SUPERVISOR	ADVISER	MANAGER		BEHAVER	AGE	LABEL	COUNTED
	450-Psychology	Coach	Erin Michael Roy Sharon	Troy D. Barnett			
DEPOSITOR	AGENCY	TIMER	COUNTER	CHARTER			


6 Sp 92
4 Oc 92
1 Nv 92
29 Nv 92
27 Dc 92
24 Jr 93
CALENDAR WEEKS
0
4
8
12
16
20
1000
100
10
1
.1
.01
.001
COUNT PER MINUTE
ABS
ABS
— V DAY
ABS
— THANKSGIVING
LATE
Lynn
583 points
17 per day
FREE/WRITE
HEAR/SAY
0
140
SUCCESSIVE CALENDAR DAYS


DAILY BEHAVIOR CHART (DC-9EN)
6 CYCLE—140 DAYS (20 WKS.)
BEHAVIOR RESEARCH CO.
BOX 3[illegible] KANSAS CITY, KANS. 66103
CALENDAR WEEKS
4 Oc 92
1 Nv 92
29 Nv 92
DAY MO YR
0 4 8 12 16 20
M W F
27
1000 500 100 50 10 5 1 .5 .1 .05 .01 .005 .001 0
COUNT PER MINUTE
EVACUATIONS
ABS
Y DAY
ABS
ABS
THANKSGIVING
LATE
17 16
583 points
17 per day
COUNTING PERIOD FLOORS
MIN HRS
1 2 5 10 20 50 100 200 500 1000
¼ ½ 1 2 5 8 16 24
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
SUCCESSIVE CALENDAR DAYS
SUPERVISOR
ADVISER
MANAGER
Lynn Priester
BEHAVER
AGE
LABEL
COUNTED
DEPOSITOR
AGENCY
TIMER
COUNTER
CHARTER

DAILY BEHAVIOR CHART (DCM-9EN)
6 CYCLE—140 DAYS (20 WKS.)
BEHAVIOR RESEARCH CO.
BOX 3351—KANSAS CITY, KANS. 66103

CALENDAR WEEKS

6 | SP | 92 (DAY | MO | YR)
4 | OC | 92 (DAY | MO | YR)
1 | NV | 92 (DAY | MO | YR)
NU | 29 | 92 (DAY | MO | YR)
26 | OC | 92 (DAY | MO | YR)
24 | JN | 92 (DAY | MO | YR)

0 M W F 4 8 8th 12 12th 16 20

COUNT PER MINUTE: 1000, 500, 100, 50, 10, 5, 1, .5, .1, .05, .01, .005, .001, 0

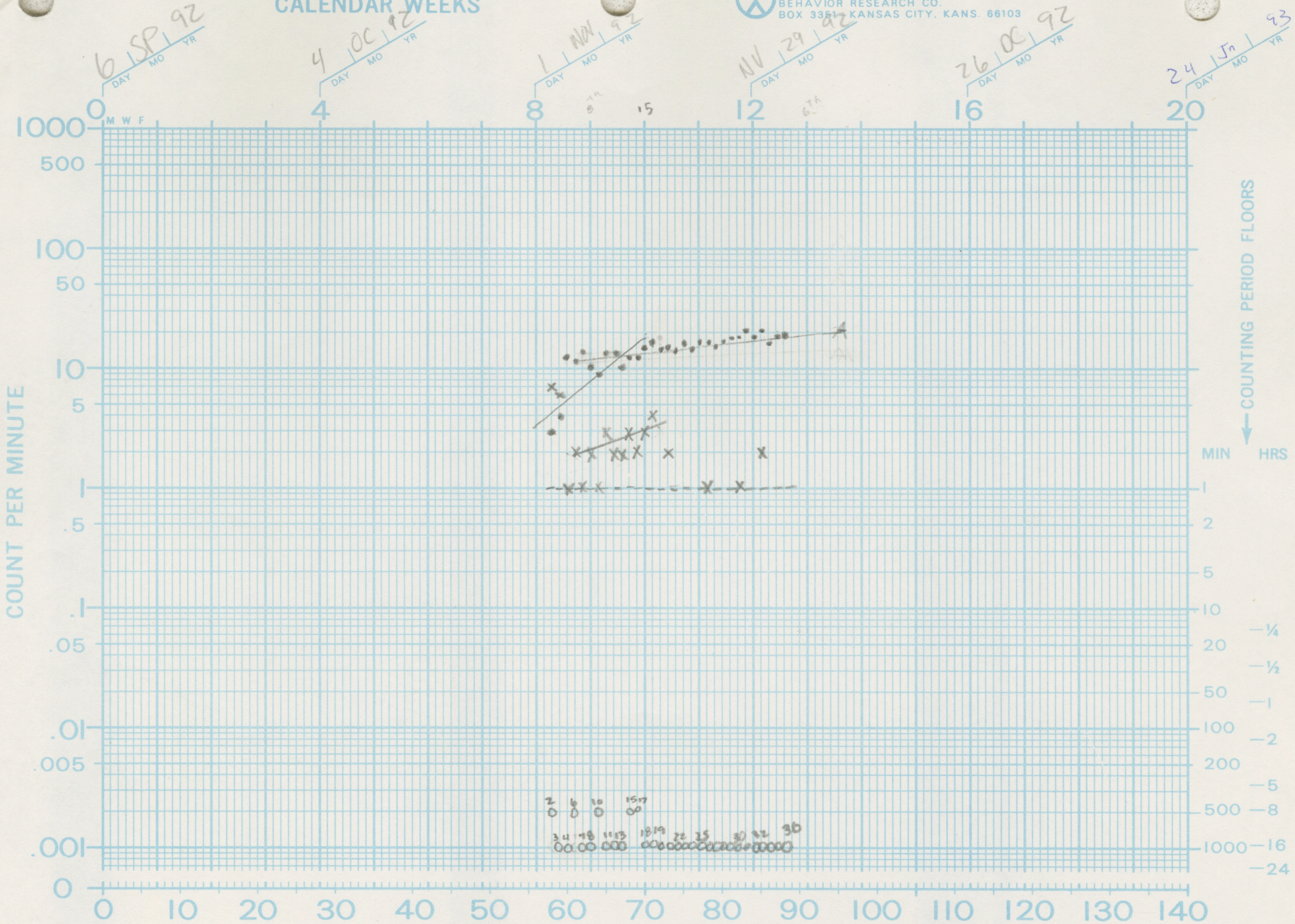
COUNTING PERIOD FLOORS (MIN / HRS): 1, 2, 5, 10, 20, 50, 100, 200, 500, 1000 / —¼, —½, —1, —2, —5, —8, —16, —24

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

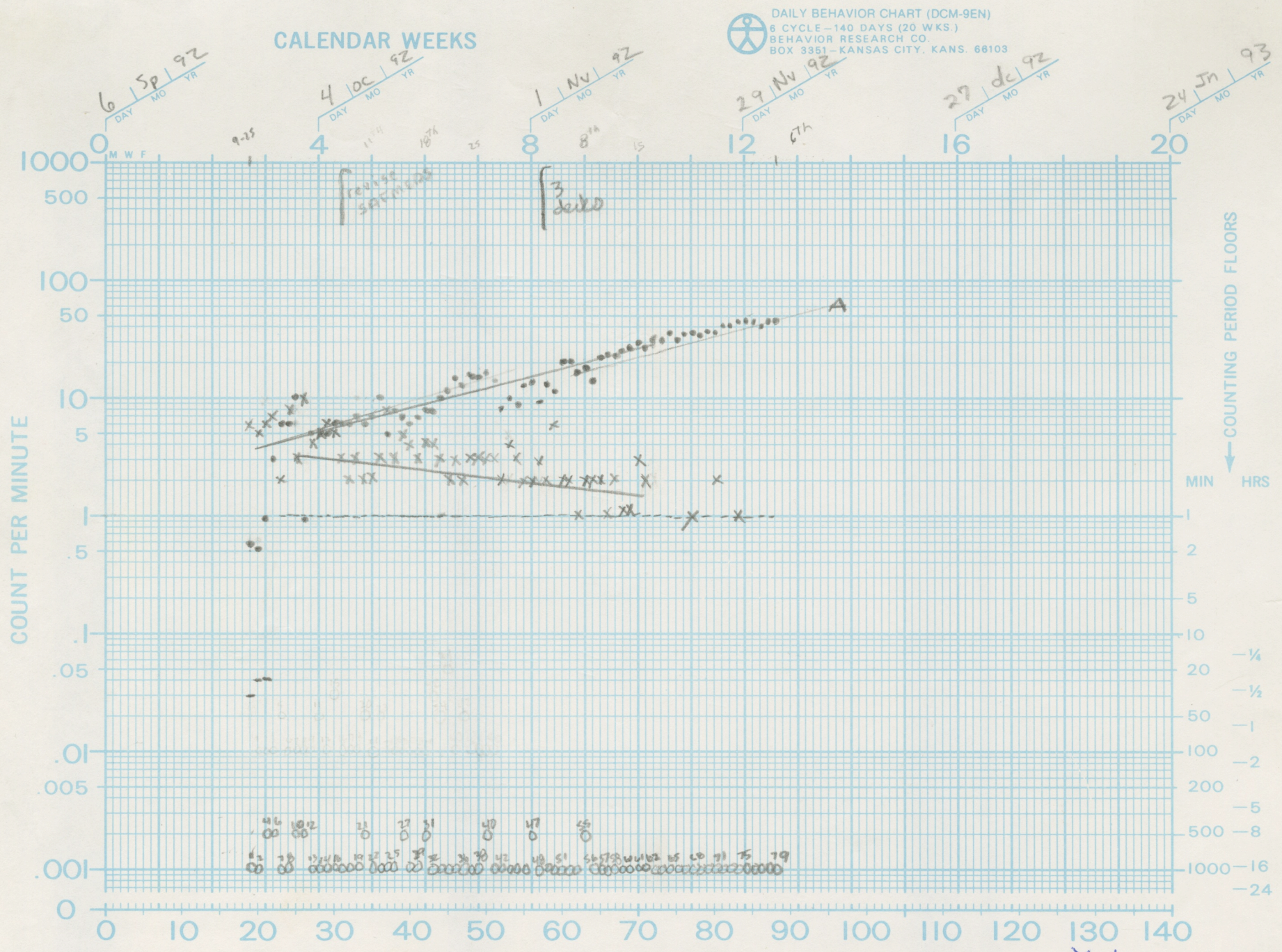
SUCCESSIVE CALENDAR DAYS

Graph	Sweeney	Morrison		Lynn Priester	22	7	See Front/Say Back	
SUPERVISOR	ADVISER	MANAGER		BEHAVER	AGE	LABEL	SAFMADS 1	COUNTED
Lynn	W.S.U. psych.		GRAF	Paul, Michele	Lynn Priester			
DEPOSITOR	AGENCY		TIMER	COUNTER	CHARTER			

DAILY BEHAVIOR CHART (DCM-9EN)
6 CYCLE – 140 DAYS (20 WKS.)
BEHAVIOR RESEARCH CO.
BOX 3351 KANSAS CITY, KANS. 66103

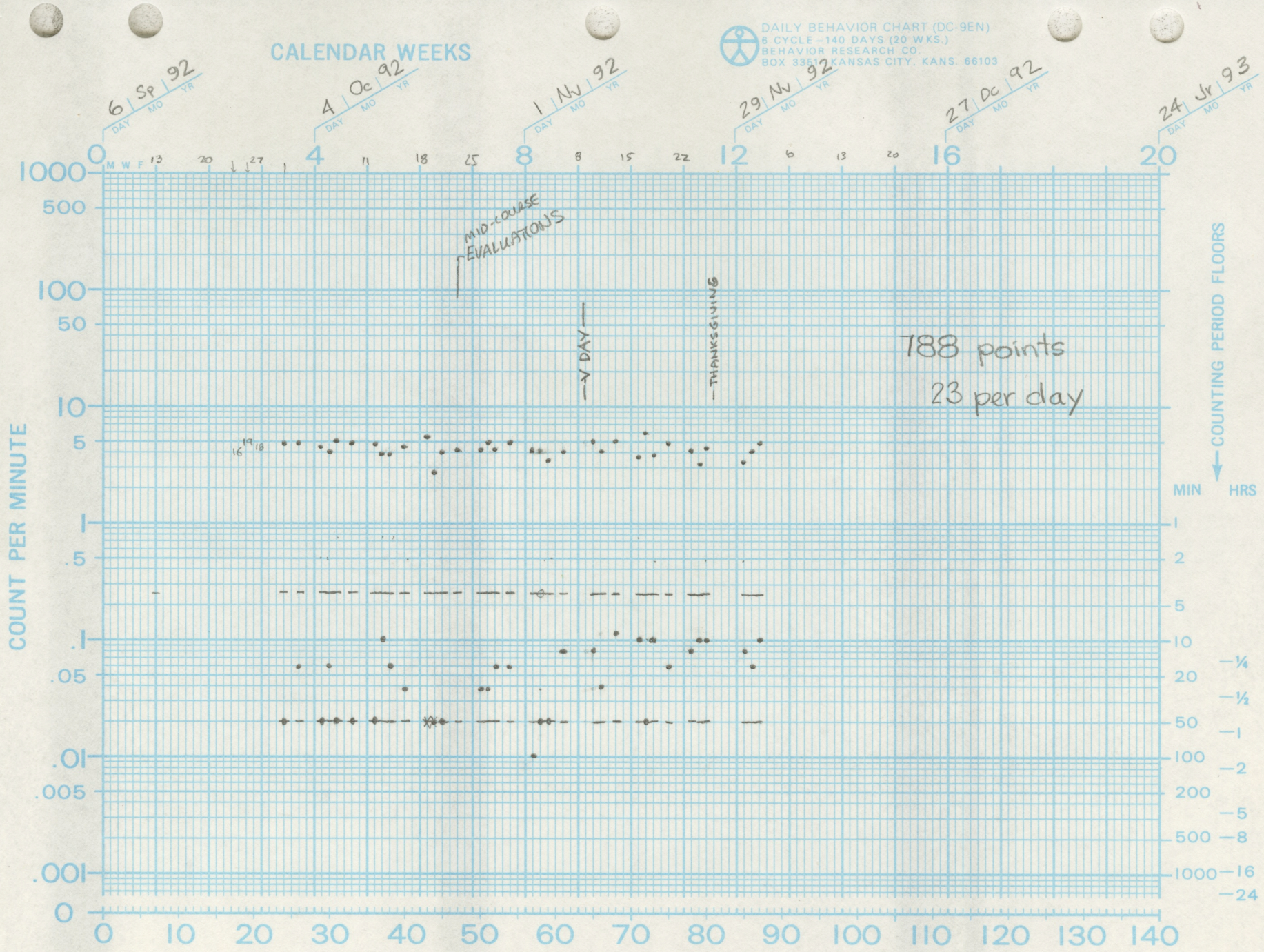


Graph	Sweeney	Morrison	Lynn Priester	22	Y	See front / Say back SAFMEDS 1
SUPERVISOR	ADVISER	MANAGER	BEHAVER	AGE	LABEL	COUNTED
Lynn	Y.S.U. psych	Graf	Paul, Michele	Lynn Priester		
DEPOSITOR	AGENCY	TIMER	COUNTER	CHARTER		



X deck

Graph	Sweeney	Morrison	Lynn Priester	22	Y 734	Seefront	SAYBACK SAFMEDS 1
SUPERVISOR	ADVISER	MANAGER	BEHAVER	AGE	LABEL	COUNTED	
Lynn	Y.S.U. psych	GRAF Alarmclock	Paul, Michele Roy, Troy	Lynn Priester	9-25		
DEPARTOR	AGENCY	TIMER	COUNTER	CHARTER			


DAILY BEHAVIOR CHART (DC-9EN)
6 CYCLE—140 DAYS (20 WKS.)
BEHAVIOR RESEARCH CO.
BOX 3357 KANSAS CITY, KANS. 66103
CALENDAR WEEKS
6 | Sp | 92
4 | Oc | 92
1 | Nv | 92
29 | Nv | 92
27 | Dc | 92
24 | Jr | 93
DAY MO YR
0 4 8 12 16 20
M W F 13 20 27 1 11 18 25 8 15 22 6 13 20
1000 500 100 50 10 5 1 .5 .1 .05 .01 .005 .001 0
COUNT PER MINUTE
MID-COURSE EVALUATIONS
—V DAY
—THANKSGIVING
788 points
23 per day
COUNTING PERIOD FLOORS
MIN HRS
1 2 5 10 20 50 100 200 500 1000
¼ ½ 1 2 5 8 16 24
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
SUCCESSIVE CALENDAR DAYS
SUPERVISOR ADVISER MANAGER
Troy Barnett
BEHAVER AGE LABEL COUNTED
DEPOSITOR AGENCY TIMER COUNTER CHARTER

MEMO

To: Copresenters

From: Dick Malott

Date: Monday, November 16, 1992

Subject: ABA Symposium

Here's a copy of our submission to ABA, modified with the addition of multiple columns and the elimination of page breaks to conserve paper. I appreciate your participation. Looks like it should be an excellent seminar.

I would like to keep each presentation to 10 minutes. This way we can prevent audience burnout and still have time for interesting commentary by each participant on the presentations of the others and questions and comments from the audience.

Symposium: Using Behavior Analysis to Teach Behavior Analysis

1. **Format:**
   Symposium
2. **Duration:**
   80 minutes
3. **Session Title:**
   Teaching Behavior Analysis
4. **Chair:**
   RICHARD W. MALOTT (Western Michigan University)
   Department of Psychology,
   Western Michigan University,
   Kalamazoo, MI 49008-5052
5. **Discussant:**
   None
6. **Presentations:**
   Cost-Benefit Analysis of a PSI Course for Graduate Students
   DOUGLAS GREER and Cynthia Phelan (Columbia University-New York, NY and The Fred S. Keller School-Yonkers, NY)

   Free Operant Responding: An Alternative for Evaluating Student Performance in Higher Education.
   JOHN O. COOPER (The Ohio State University-Columbus, OH)

   Teaching Behavior Analysis to Undergraduate Physical Education Majors
   PHILLIP WARD (The Ohio State University-Columbus, OH)

   Behavior Analysis at Youngstown State University
   STEPHEN A. GRAF (Youngstown State University-Youngstown, OH)

   Using Contingency Diagraming to Teach Behavior Analysis
   RICHARD W. MALOTT and Guillermo Yaber (Western Michigan University-Kalamazoo, MI)
7. **Descriptors:**
   EDC, Higher Education
8. **Content type:**
   Descriptive Reports and Data-Based Studies
9. **Convention assistance:**
   Richard W. Malott
   Department of Psychology,
   Western Michigan University,
   Kalamazoo, MI 49008-5052
10. **Assurance:**
    If the proposed session is accepted, I agree to conduct it or arrange for it to be conducted at
    the 1993 Convention as scheduled by the Program Committee. I have received assurances from the other participants that they also agree to deliver their presentations or arrange for them to be delivered, as proposed for this session.

    signed:

    _____
    Richard W. Malott

Overall Session Abstract:

1. **Title of Symposium.**
   Teaching Behavior Analysis
2. **Name of the chair and affiliation.**
   RICHARD W. MALOTT (Western Michigan University)
3. **Name of the discussant and affiliation.**
   None
4. **Abstract.**
   Many members of ABA teach behavior analysis at the university level. Many of those teachers use behavioral technology to teach behavior analysis. Many of those users of this behavioral technology no longer share their technology with their colleagues. This symposium is a small step toward correcting that problem.

Individual Presentation Abstract: GREER

1. **Title.**
   Cost-Benefit Analysis of a PSI Course for Graduate Students

2. **Authors and affiliations.**
   R. DOUGLAS GREER and Cynthia Phelan (Columbia University-New York, NY and The Fred S. Keller School-Yonker's, NY)

3. **Abstract.**
   Procedures for doing cost-benefit analyses in schools were applied to a graduate-training course that used the PSI model. The course was an introductory course on behavirology, behavior selectionism, and the science of pedagogy. Procedures used in the course have evolved over a twenty-year period. The current model allows for a cost-benefit analysis tied to learn units, course objectives, and tuition cost. The data and the operations for performing a cost-benefit analysis will be shared with participants.

Individual Presentation Abstract: COOPER

1. **Title.**
   Free Operant Responding: An Alternative for Evaluating Student Performance in Higher Education.

2. **Authors and affiliations.**
   JOHN O. COOPER (The Ohio State University)
   Educational Services and Research
   356 Arps Hall
   The Ohio State University
   Columbus, OH 43210

3. **Abstract.**
   Written responses to multiple-choice questions, true-false questions, fill in the blanks, and matching items are the most common procedures used to evaluate student performances in higher education. The professor controls the performance of the learner. These evaluation procedures have ceiling scores (i.e., you cannot do any better than all correct) and do not record the amount of time used to respond. The procedures are not evaluations of how well the learner can perform. This presentation will consider alternatives to the common restricted-operant evaluations in higher education. The audience will learn how a large class of students, rather than the instructor, can control their individual performance evaluations. Most higher-education performance evaluations use a see-to-write learning channel set (i.e., the student sees the question and circles the answer, writes the answer, or draws a line to match items). The audience will learn how a variety of learning channel sets can be used for evaluation (e.g., think-to-say, see-to-say, and think-to-write).

Individual Presentation Abstract: GRAF

1. **Title.**
   Behavior Analysis at Youngstown State University

2. **Authors and affiliations.**
   Stephen A. Graf
   Department of Psychology
   Youngstown State University
   Youngstown, OH 44555

3. **Abstract.**
   In the applied behavior analysis course at Youngstown State University, students engage in timed practices covering course material each class period, monitor their own performance daily, and spend most of class time orally explaining concepts and examples to their instructor and classmates. Instructor behavior does not include lecturing. The course uses Whaley, Malott, and Malott's 1993 *Elementary Principles of Behavior* as text, along with Lindsley's 1991 unpublished paper *Skinner on Measurement.* Each class begins with a four-minute free-write on the reading assignment. Students develop structured writing styles and receive points for appropriately organized relevant chunks of information. Students then pair off and take turns doing one-minute SAFMEDS timings. Students see a definition or phrase on the front of a card and attempt to say the concept label found

on the back. The students monitor their daily progress on three SAFMEDS decks using Standard Celeration Charts. During the remainder of class, students provide oral answers to either study questions from the reading assignment or contingency diagrams involving examples. They receive points for appropriate contributions. Students earn grades based on prespecified point totals and degree of SAFMEDS fluency. They evaluate the course highly on facts learned and daily effort expended.

Individual Presentation Abstract: WARD

1. **Title.**
   Teaching Behavior Analysis to Undergraduate Physical Education Majors

2. **Authors and affiliations.**
   PHILLIP WARD (The Ohio State University-Columbus, OH)

3. **Abstract.**
   This paper describes the instructional design of a required two-course sequence in behavior analysis taught to undergraduate physical education majors at The Ohio State University. The course, titled "Behavioral Dimensions of Educational Settings: Principles and Applications," meets three days per week for an hour per day across two quarters. The content of the course was derived from the text *Applied Behavior Analysis* (Cooper, Heron, & Heward, 1987). The instructional strategies used in the course were selected from research on teaching using effective Precision Teaching and Behavior Analysis strategies. These strategies, derive principally from elementary-school and special-education settings, were modified slightly to meet the particular requirements of the undergraduate setting. Specific strategies included time trials using SAFMEDS (Say-All-Fast-One-Minute-Each-Day-Shuffle) , response cards, human-operant laboratory tasks analogous to those used in a "rat lab," and weekly exams which test for generalization. Data from the SAFMEDS trials and weekly exams are reported as well as some initial tests for maintenance conducted one quarter after the conclusion of the course.

Individual Presentation Abstract: MALOTT

1. **Title.**
   Using Contingency Diagraming to Teach Behavior Analysis

2. **Authors and affiliations.**
   RICHARD W. MALOTT and Guillermo Yaber (Western Michigan University-Kalamazoo, MI)

3. **Abstract.**
   The authors have a combined history of 40 years teaching behavior analysis. They think they have almost figured out how to do it--at least 60 percent of it. However, they are still trying to figure out what *it* is. They think *it* is that their students be able to reliably recognize, generate, and apply the concepts and principles of behavior analysis to novel examples. To this end, their students a) read a text with definitions, examples, and contingency diagrams (e.g.,

   before [rat has no water] ==> behavior [rat presses lever] ==> after [rat has water]
   before [boy has tokens] ==> behavior [boy disrupts class] ==> after [boy has no tokens]),

   b) use *Think Fast* (a computerized flashcard program and regular preprinted flashcards to memorize definitions and diagramed examples, c) use contingency diagrams to generate and analyze novel examples, d) use job aids to analyze contingencies, e)use structured seminars to share feedback and practice analyses. The authors support their timid claims of success with performance measures and social validation data.
   a)

Final Preparation

1. **List of authors' names and addresses**

Douglas Greer
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Kalamazoo, MI 49008-5052

Guillermo Yaber
Department of Psychology
Western Michigan University
Kalamazoo, MI 49008-5052

2. **Self-addressed, stamped envelope.**
3. **Self-addressed, stamped postcard.**