Chart-sharing

COUNTING FETAL MOVEMENT

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While I started counting fetal movement prior to the publication of any research articles on the topic, it is important to note what has since been done in the field. According to Dean (1970), fetal distress was indicated by a sudden increase in movement prior to the final decrease. No one had defined "a sudden increase" in frequency terms, however. Edwards and Edwards (1970) published a Standard Celeration Chart reporting fetal movement during one pregnancy. Lindsley (1975) shared data on five fetal movement charts charted in 1968 and 1969. The Edwards and Edwards and the Lindsley charts show data collected daily for approximately five months.

In studies done in Wales (Pearson & Weaver, 1976) and in Philadelphia (Liston, Cohen, Mennuti, & Gabbe, 1982) mothers counted movements from 9 a.m. to 9 p.m. The mother counted ten movements and marked the time of the tenth movement. If she had not felt 10 movements by 9 p.m., she was to notify the doctor. Counting began in the 28th week and continued for the remaining three and a half months of pregnancy. This method is known as the Cardiff procedure. The Liston, Cohen, Mennuti, and Gabbe (1982) study supported the previous work done by Pearson and Weaver (1976) and showed that "movement counting is an acceptable and reliable indicator of fetal health" (p. 426)[1]

When Diana Dean (1970) first suggested that I count fetal movement I was fascinated by the idea, fascinated and intrigued enough that I started about a month too soon. This fortuitous mistake did give me an opportunity to specify what I was counting. Initially I termed the sensations "cramps," then feelings, then pleasant feelings, and finally kicks, movements, ripples, and hiccoughs. I decided to count the latter four items based on discussions with Dean (1970) and Honeyman-Colvin (1970).

I used a golf counter to count the fetal movements and the pain. Each time I felt a movement I pushed the knob on the counter and it recorded the movements up to 99, before returning to 00 and beginning again. On a small piece of masking tape attached to the counter, I tallied the hundreds each day. To count the pains I turned the knob of the single digit recorder also located on the face of the counter. I had purchased the counter at a sporting goods store.

A kick was a sudden movement similar to a firm touch to the skin. As the fetus grows these become firmer and stronger. A ripple was a flutter or a series of rapid flutters. Each hiccough was counted separately since they were distinguishable and since a hiccough is a movement of the diaphragm. A hiccough session might last from one to three minutes and produce 50 to 180 movements. Movements included counts of all other events that occurred. Of those the most noticeable was when the fetus turned. Given that a movement has a beginning and an end to it, if I perceived the sensation end, I counted that as one movement even though it might be one of a series of five or six movements in the process of turning.

Since there was no movement for six days during the fourth and fifth weeks of counting, I had a phase before the movement began. (Once movement begins, it is generally believed that if there is no movement felt for 24 hours the fetus is no longer alive.) I began to feel fetal movement during the fifth or sixth week of counting.

The remainder of the chart may be analyzed into four parts through trend analysis. The first trend was three weeks long and showed an acceleration of x7 from a frequency of zero to about 100. This was the fourth month of pregnancy. The second trend was the following twelve weeks (months five, six, and seven) and showed a maintenance of frequency. The range was from 80 movements per day to 426 with a median of 210 per day. The third trend was during the eighth month and showed an increase in the frequency range from about 270 to a high of 746 movements per day. This month had a median of 380 per day and showed no change in celeration. The first two weeks of the ninth month showed a deceleration and a leveling off with a median of 240 movements per day.

On August 24th, my obstetrician informed me the fetus had an irregular heartbeat. Since there was no record of that occurring in a fetus, he

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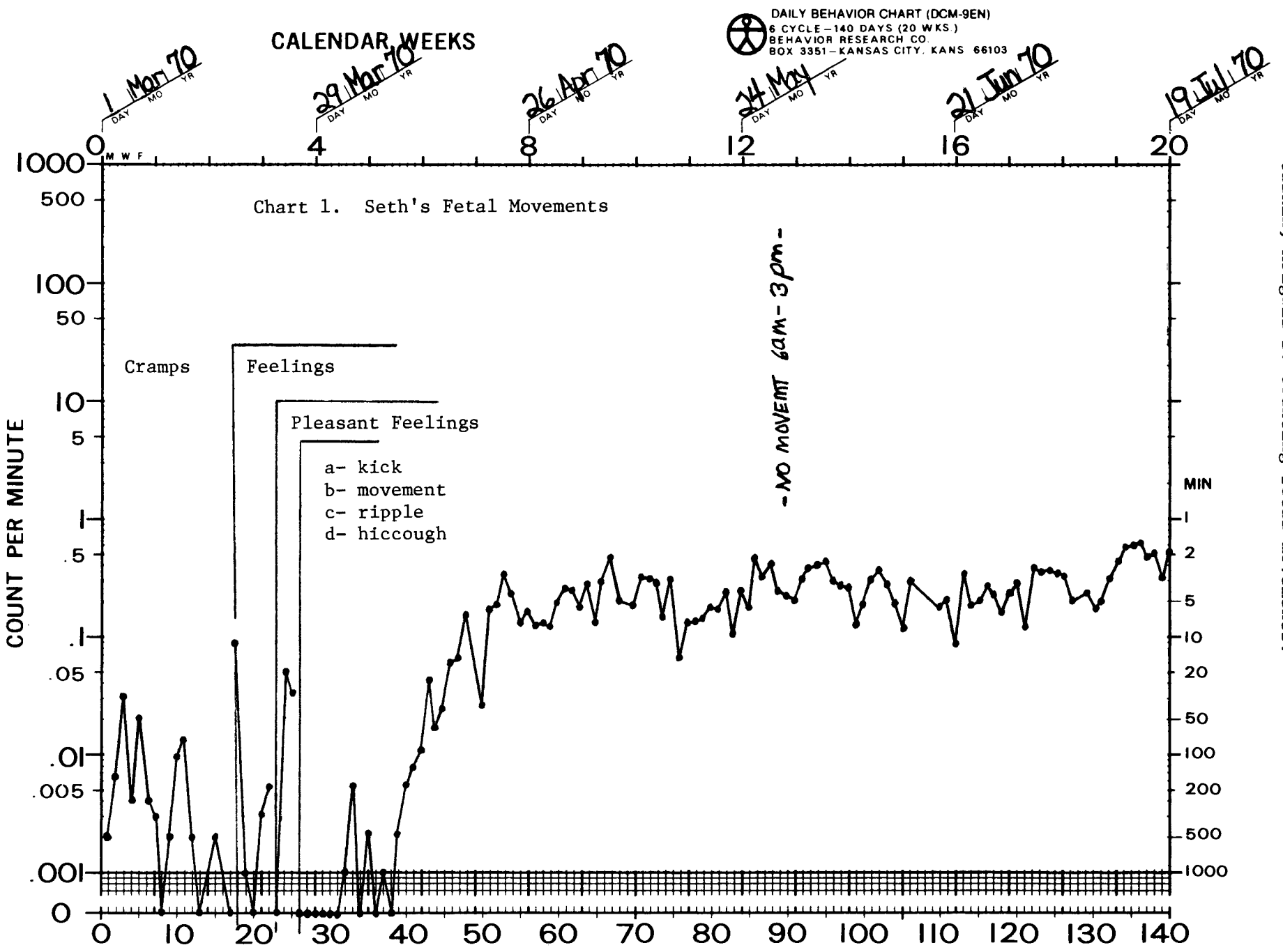
[1]My thanks to Kathy Porter for her lead on finding these articles.


DAILY BEHAVIOR CHART (DCM-9EN)
6 CYCLE—140 DAYS (20 WKS.)
BEHAVIOR RESEARCH CO.
BOX 3351—KANSAS CITY, KANS 66103
CALENDAR WEEKS
1 Mar 70
29 Mar 70
26 Apr 70
24 May
21 Jun 70
19 Jul 70
M W F
Chart 1. Seth's Fetal Movements
Cramps
Feelings
Pleasant Feelings
a- kick
b- movement
c- ripple
d- hiccough
-NO MOVEMT 6am-3pm-
COUNT PER MINUTE
MIN
SUCCESSIVE CALENDAR DAYS
D. Dean
SUPERVISOR
D. Dean
ADVISER
A. Calkin
MANAGER
Seth McKenzie Koch*
BEHAVER
AGE
LABEL
makes fetal movements
COUNTED
*born: 25 Aug 70
DEPOSITOR
AGENCY
TIMER
COUNTER

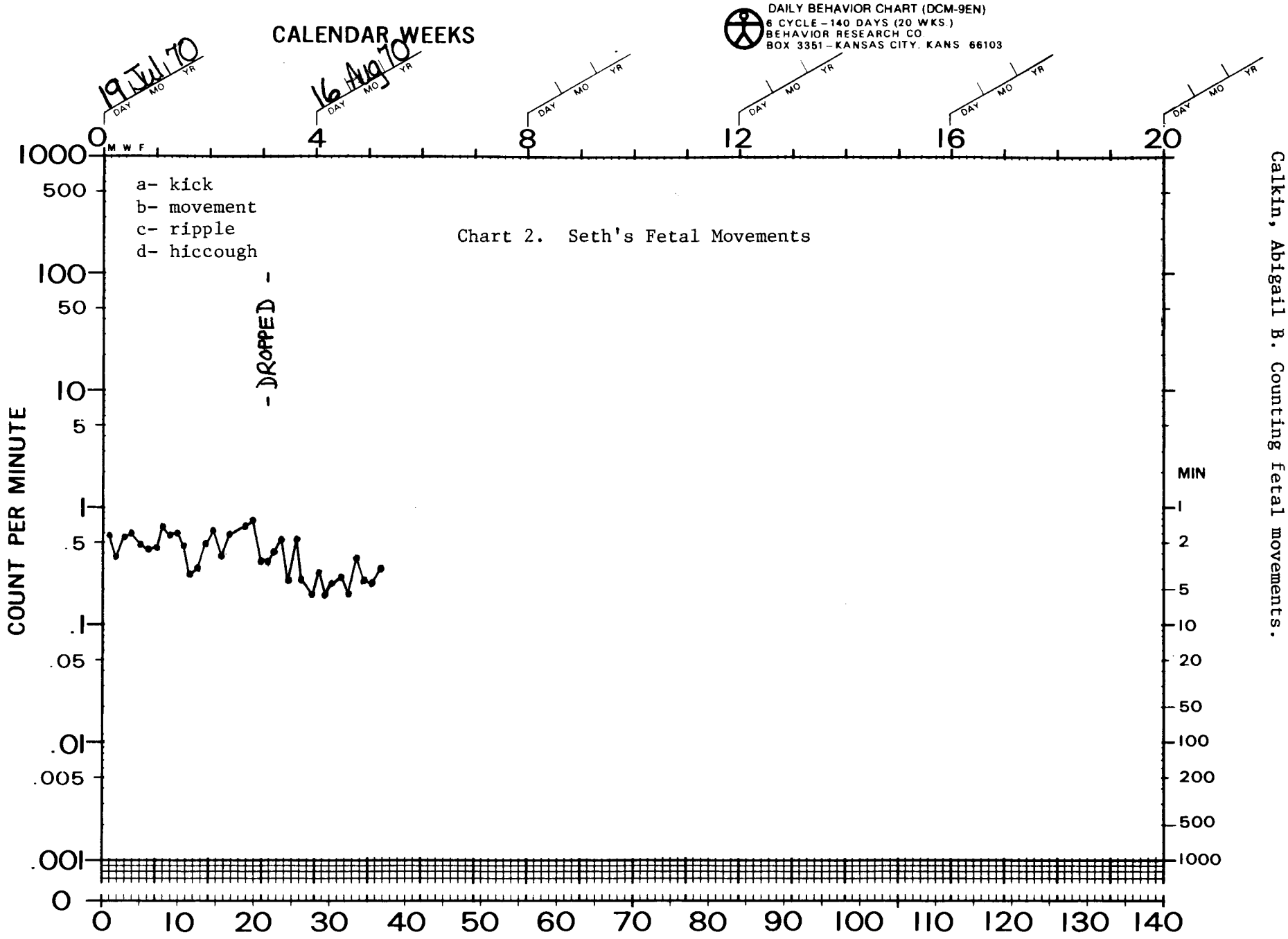


Chart 2. Seth's Fetal Movements

Calkin, Abigail B. Counting fetal movements.

D. Dean	D. Dean	A. Calkin						
SUPERVISOR	ADVISER	MANAGER			BEHAVER	AGE	LABEL	COUNTED
DEPOSITOR	AGENCY		TIMER	COUNTER	CHARTER			

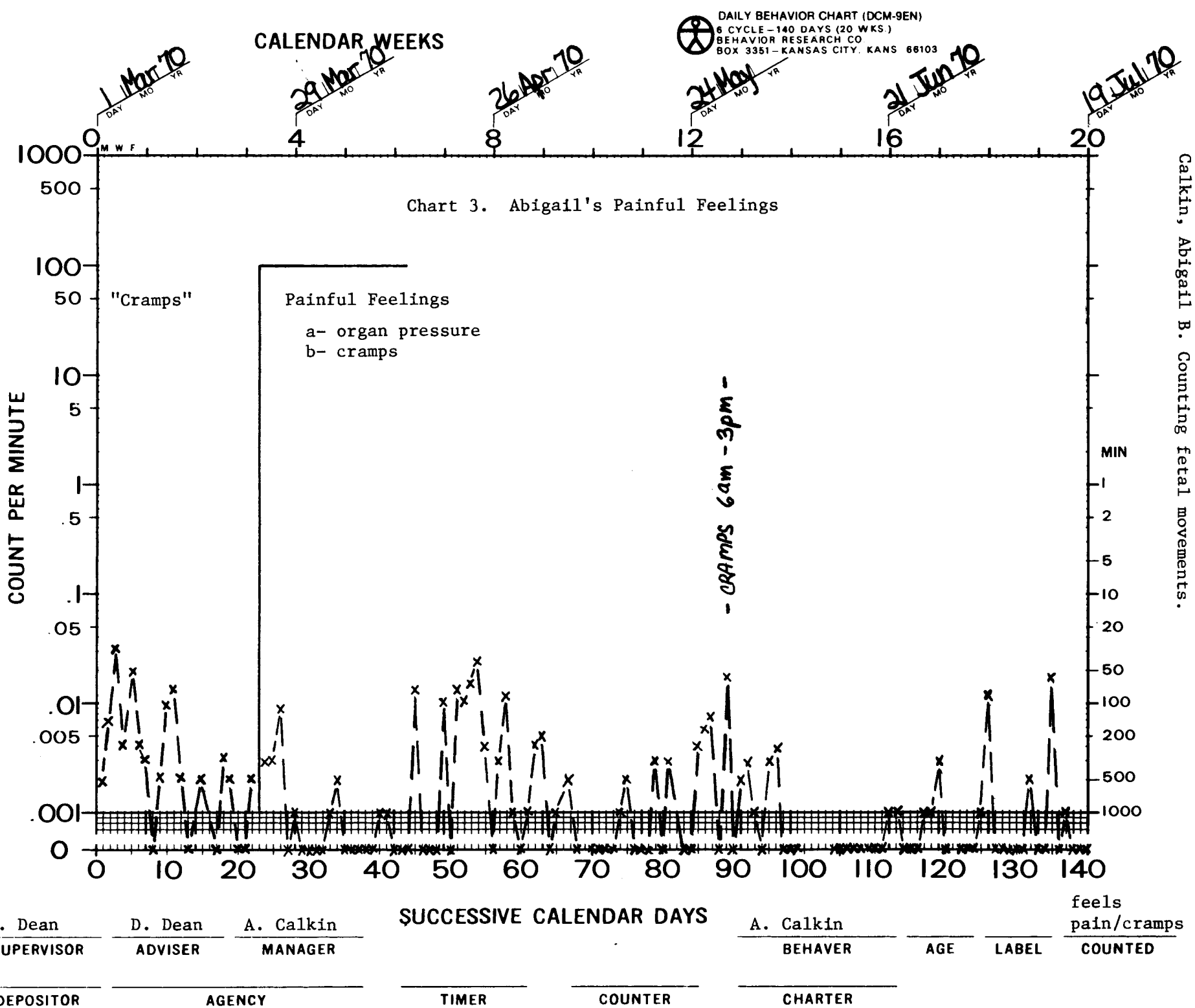


Chart 3. Abigail's Painful Feelings

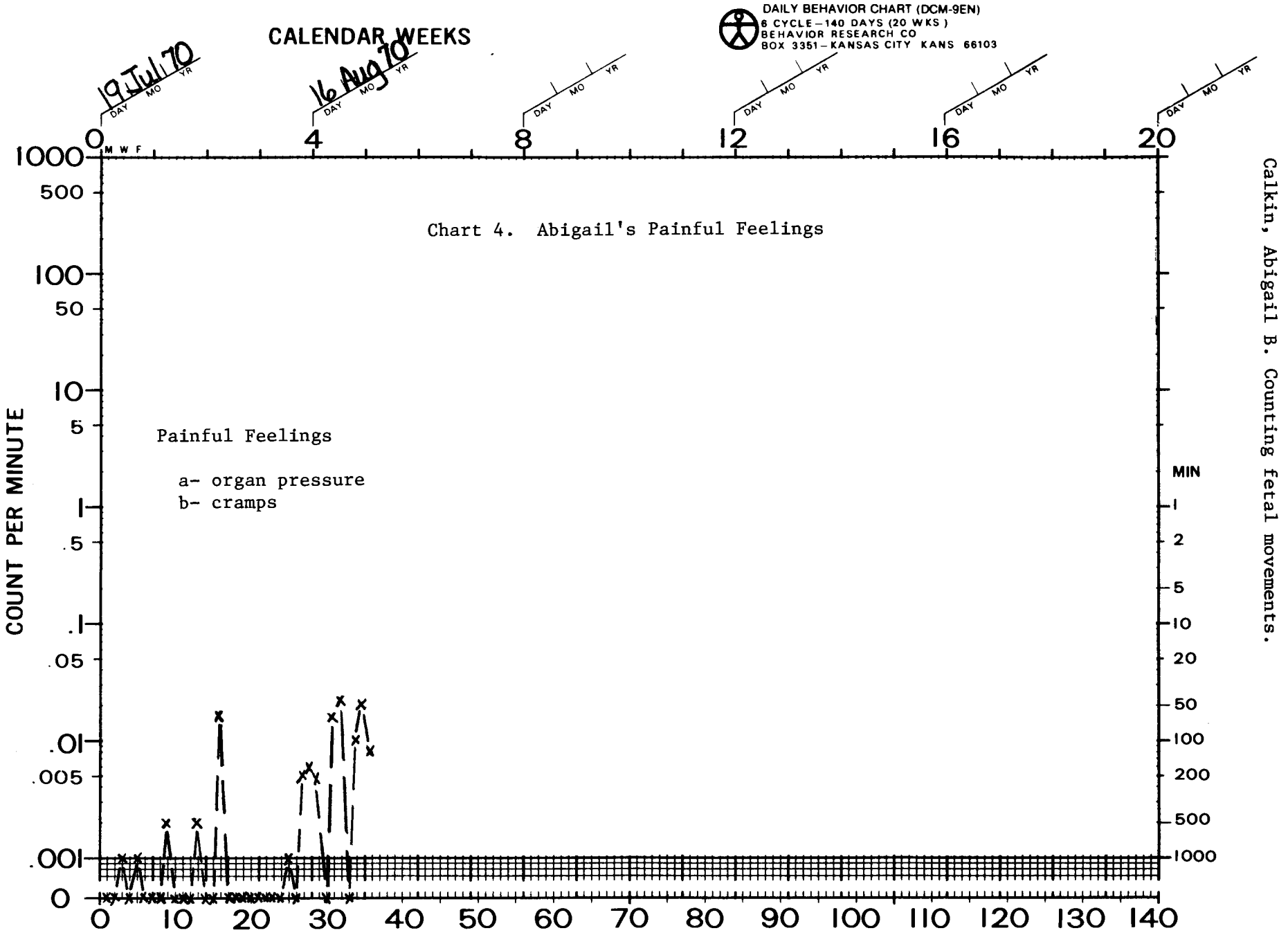


Chart 4. Abigail's Painful Feelings

Calkin, Abigail B. Counting fetal movements.

D. Dean	D. Dean	A. Calkin		A. Calkin			feels pain/cramps
SUPERVISOR	ADVISER	MANAGER		BEHAVER	AGE	LABEL	COUNTED
DEPOSITOR	AGENCY		TIMER	COUNTER	CHARTER		

decided a Caesarean was the best idea. The doctors found Seth had no specific cause for the irregularity. Irregular heartbeats are found usually in middle aged adults as a result of one or more of three excesses: caffeine, nicotine, or stress. I did not chart my caffeine or nicotine consumption that summer but do know that I consumed 175mg. to 325mg. of caffeine per day (a cup of coffee contains 80 to 180mg.) (Guthrie, 1979), smoked about one pack of cigarettes per day, and had an unusual amount and intensity of stressful events. I have assumed while I was able to absorb all that without it affecting my pulse rate, the fetus was not able to do likewise. While the irregular heartbeat was not life-threatening to the fetus, the doctors did not know this until after delivery. In comparing Seth's chart to Pearson and Weaver's (1976) fetal distress charts, his fetal movement was still normal and showed no sign of distress.

In addition to counting fetal movement I also counted painful or cramping sensations. These included organ pressure, pain, cramps, and contractions. It is impossible to say if the increase in the last two weeks would have continued during the remainder of a full term pregnancy. It is possible that these counts coupled with the decrease of fetal movement could give some very positive and helpful indications of imminent delivery and/or fetal distress.

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HOW PRECISION TEACHING DECELERATED INAPPROPRIATE PHYSICAL CONTACTS

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I'd like to share the results of a Precision Teaching project conducted in a classroom for severely and profoundly handicapped children in a public elementary school. Melissa, a student in the classroom, was a very appealing child, but she was stubborn and somewhat unpredictable. She seemed to enjoy observing other students and their reactions to her behavior. The more her behavior disrupted the class, the happier she appeared to be. The main purpose of this project was to reduce her most disruptive behavior. I'll also report results obtained in a follow-up study nearly a year after the original intervention.

Melissa was a nine year old Down's Syndrome child in the severely retarded range. She disrupted most group activities with various inappropriate behaviors. The target behavior was labeled "inappropriate physical contacts." This broad target included hitting, kicking, pushing, poking, and pulling at other students or their clothing. These behaviors occurred most often during group activities, so intervention occurred and data were gathered at this time.

I used a counter to record each occurrence of the target behavior during 30 minutes of group activities daily. Before intervention data were gathered for a total of eight days. The three days of the first week showed a much lower frequency than was expected. It was the consensus of all who worked with Melissa that the second week's data were more typical of Melissa's actual behavior. For that reason the median frequency of that second week of the before intervention phase (1.4 per minute) was used in all comparison calculations.

I discussed the target behavior with the classroom teacher, who was serving as my advisor, and we agreed that the behavior was occurring at an unacceptable frequency. We then decided on an intervention procedure. Immediately after every inappropriate physical contact Melissa was removed from the group and given a brief explanation such as, "No, don't kick." She was kept away from the group for 30 seconds while I held her wrists so that she could not engage in any self-consequating activities. When she behaved appropriately in the group she received the natural consequences of group participation. She was also given verbal praise contingent on every five to ten minutes of appropriate behavior. As shown in Chart 1, this