# STRAT Analysis:
# Using Stratified Celeration Stacks to Summarize Charted Data

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Several methods have been used in the analysis of summary data on the Standard Celeration Chart. Celeration stacks (Miller and Calkin, 1980) and frequency distributions (Berquam and Siders, 1980) are two common procedures. In this article, a stratified trend line analysis (STRAT analysis) will be presented as another method for summarizing charted data.

As the name implies, this procedure involves the construction of a series of stratified celeration stacks. Chart 1 presents a celeration stack as it is usually constructed. The behavers are 4th graders. The movement is a paired-associate task -- see a word and write a number -- and is in the retention phase. Chart 2, Picture 1 presents the same celeration lines, except that they have been classified or stratified according to beginning performance and redrawn from the midpoint of each stratification. For example, all the lines with beginning performance between 60-69 were redrawn from a single point at a frequency of 65 correct per minute. All lines beginning between 50-59 were redrawn in a similar manner, continuing until all lines were redrawn. It would also be possible to use proportional stratification levels, although they would need to follow the distribution of the specific data set, or some of the lines would be distorted.

Chart 2, Picture 2 depicts the median celeration lines from each stratified stack. Note that the top two stacks were combined because of the small number of lines involved. When the median celeration lines are drawn, the relationship between beginning performance, ending performance, and celeration can be seen. This procedure is somewhat comparable to analysis of variance, using beginning performance as levels of the independent variable.

There are several advantages and some current limitations to this procedure. The first advantage concerns a basic characteristic of the Chart. When data are displayed on the Chart, proportional relationships are visible. Chart 3, Picture 1 presents two parallel lines. Parallel lines indicate that as data set A changes, set B changes in the same proportion, and in the same direction. Chart 3, Picture 2 presents divergent lines. This indicates that as data set C changes, set D changes in a way that produces an increase in the proportional differences between C and D. Chart 3, Picture 3 presents convergent lines. This indicates that as data set E changes, set F changes in a manner that produces a decrease in the proportional differences between E and F. STRAT analysis allows proportional relations to be analyzed. This is not as easily done with analysis of variance.

A second advantage of STRAT analysis is that median scores are used. This prevents extreme data points from adversely affecting the analysis. A third advantage is that both celeration and ending performance can be analyzed. A fourth advantage is that STRAT analysis can be done on the Chart, without the aid of computers.

A limitation to STRAT analysis at this time is the unavailability of

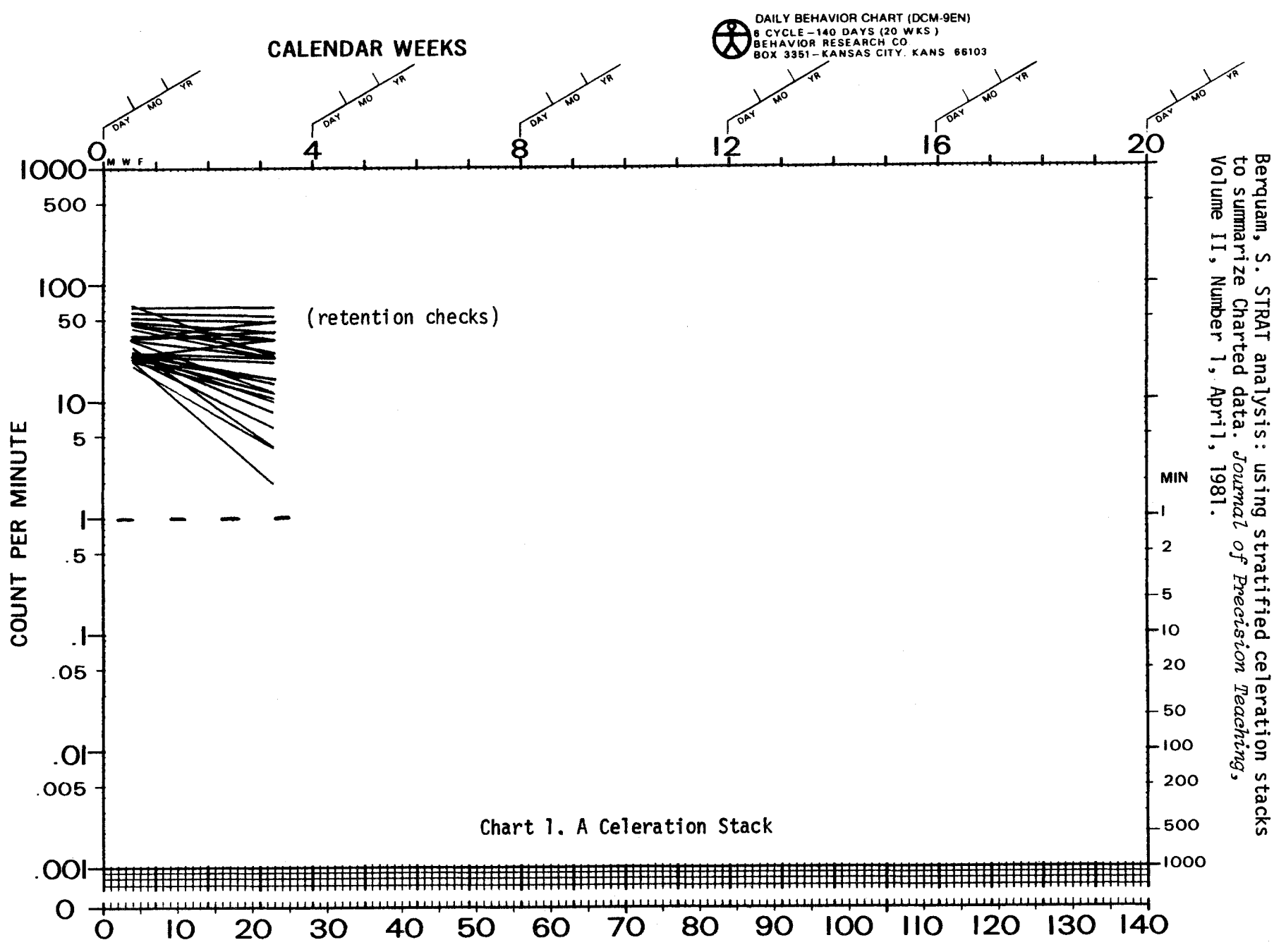


Chart 1. A Celeration Stack

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STUDENTS 4TH. GRADE SEE A WORD
BEHAVER AGE LABEL COUNTED

ORANGE COUNTY SCHOOLS ORLANDO, FLORIDA
DEPOSITOR AGENCY TIMER COUNTER CHARTER

AND WRITE A NUMBER

Berquam, S. STRAT analysis: using stratified celeration stacks to summarize Charted data. *Journal of Precision Teaching*, Volume II, Number 1, April, 1981.

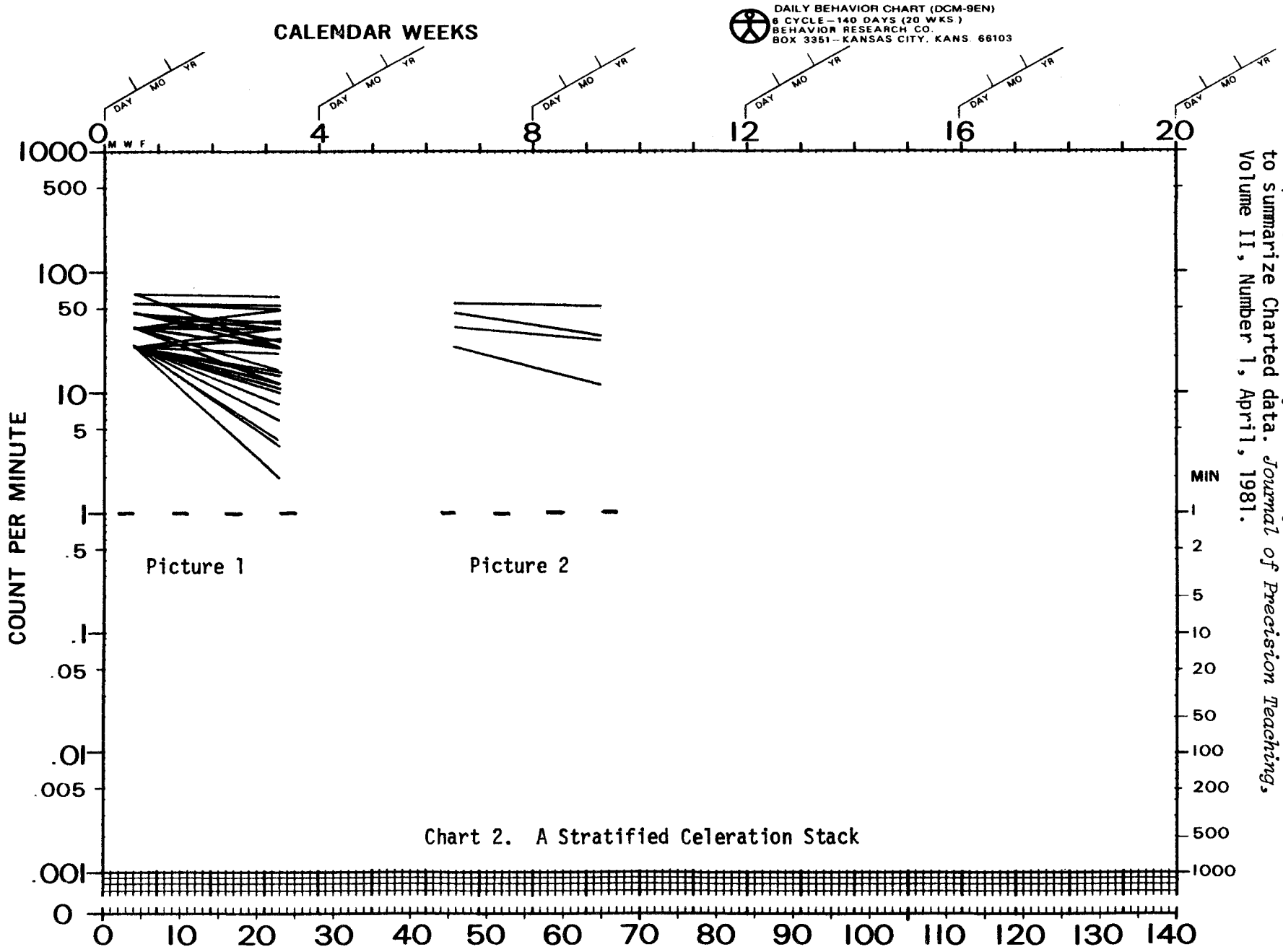


Chart 2. A Stratified Celeration Stack

S. BERQUAM | STUDENTS | 4TH. GRADE | SEE A WORD
SUPERVISOR | ADVISER | MANAGER | BEHAVER | AGE | LABEL | COUNTED AND WRITE A NUMBER

ORANGE COUNTY SCHOOLS | ORLANDO, FLORIDA
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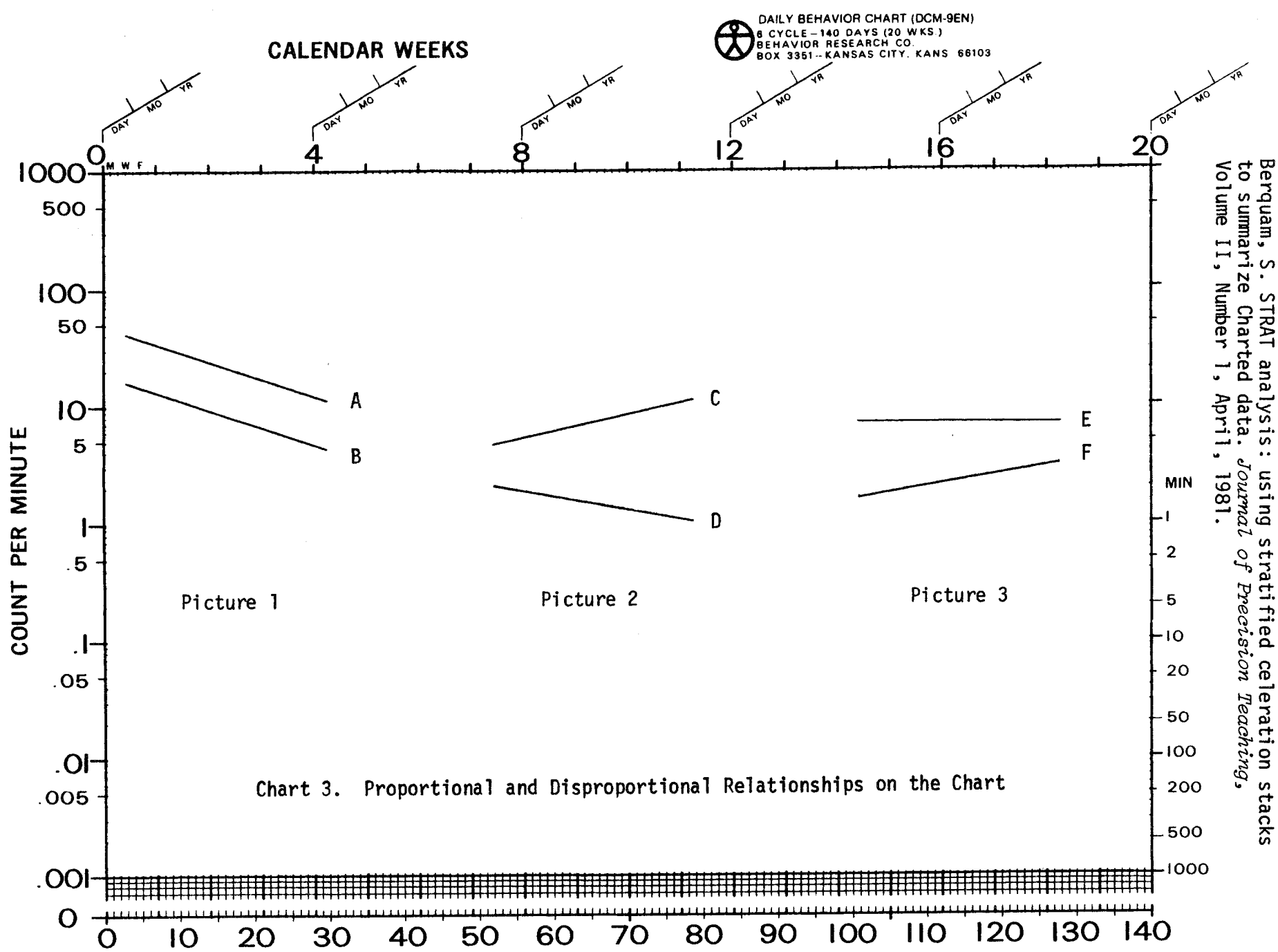


Chart 3. Proportional and Disproportional Relationships on the Chart

(This is not data; it is a visual description of how celeration "works")

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parameters for reliability. However, there are several possibilities for this development. One is the range in ending performance within each stratified stack. A second is the overlap between stratified stacks. These characteristics are independent, and can probably form the basis for a reliability test. At this time the parameters of such a test have not been established.

STRAT analysis has the potential to be quite useful in summarizing charted data. It must be kept in perspective, however. One of the strengths of Precision Teaching is the reliance on actual and individual scores, rather than on derived scores. With this caution in mind, STRAT analysis may prove useful as a data summary technique. Further work is needed to develop parameters and quidelines for its use.

## REFERENCES


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Miller, J. E. & Calkin, A. B. Using precision teaching in a secondary science class. Journal of Precision Teaching, 1980, 1, 10-17.


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## A SUCCESSFUL CONFERENCE

The Precision Teaching Winter Conference in Orlando, Florida was a tremendous success. Skip Berquam and the following Precision Teachers deserve our thanks and our congratulations:

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