RATE-TIME METHODS:
CONVENIENT AND POPULAR:
BUT
CONTAIN INHERENT INFIRMITIES

PROBLEM 3 AS LISTED ON PAGE 4:

"The first well, or wells, may drain more than their allotted spacing unit. Consequently they may produce substantially more than the average, and accordingly are not representative of what the formation - on average - is capable of producing."

An example of this drainage of unequal areas is shown on the next graph. Here the production history is carried far enough to show the interference effect of the new wells on the old wells.

This change in production decline rate gives notice that the initial well(s) drain more than its (their) allotted spacing unit(s). The difficulty in estimating average reservoir performance with this type of curve is that although it is known that drainage in excess of a well spacing unit occurred, there is no rational way to estimate the extent of the drainage, what may be expected of new wells coming on line, nor average performance of an undrilled portion of the same - or an analagous - reservoir.

Average reservoir characteristics will more accurately be depicted if one employs the rate-cumulative method on a per-well basis.

EXAMPLE OF TYPE CURVE
FOR
INITIAL WELL ON PROPERTY
DRAINING MORE THAN ITS
ALLOTTED SPACING UNIT
FOLLOWED BY
INTERFERENCE OF NEW WELLS

27% Per Year

6% Per Year

First Offset Well Of Infill Drilling Program
Commenced Production This Year
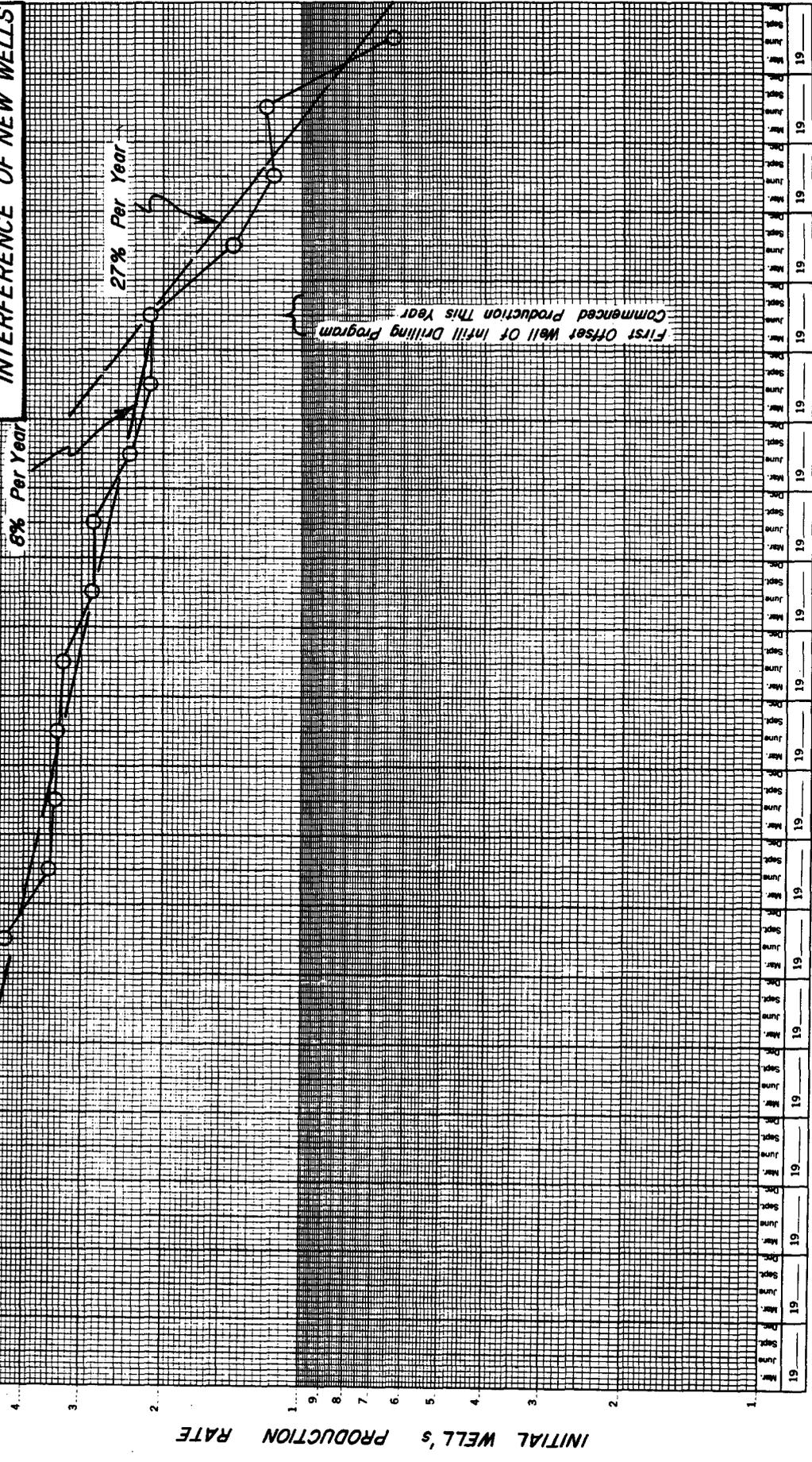
INITIAL WELL'S PRODUCTION RATE

STATISTICAL ANALYSES CONTINUED:
CONSTANT PERCENTAGE DECLINE

The previous examples were for wells drilled in a rather uniform sequence.

For variable rates of development, the following two pages exemplify curves that might result.