PERSONALITY CHARACTERISTICS OF STUDENT TEACHERS IN AGRICULTURAL EDUCATION AT OKLAHOMA STATE UNIVERSITY, 1969-1973

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PREFACE

This study is concerned with the personality characteristics of student teachers in agricultural education at Oklahoma State University who did their student teaching between the years 1969 and 1973, inclusive. The primary objective was to determine if variations existed from year to year between classes of student teachers. Also, baseline statistical data is presented to show the nature of the student teachers as a group.

The author wishes to express his gratitude to his major adviser, Dr. Lloyd L. Wiggins, for his guidance and assistance throughout this study. Appreciation is also expressed to Dr. James P. Key and Dr. Donald S. Phillips for their assistance in the completion of this study.

Note should also be made, and gratitude expressed, to Dr. P. Larry Claypool for assistance in the preparation of the computer program used in this study. Thanks are extended to Mr. Joseph Befecadu for his assistance in the tedious notation of the raw scores of the test instrument and to Mrs. Mary Rhoads for the excellence of the final copy and suggestions for format. In addition, appreciation is extended to the graduate assistants and faculty of the Department of Agricultural Education for their efforts in the administration and grading of the test instrument.

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INTRODUCTION

The Nature of the Problem

Cultural stereotypes of teachers have traditionally, and with a great degree of consistency, included personality characteristics as a part of that mental picture. For those more intimately concerned with education, the personality of the teacher has been considered to be of significance, and by some to be of primary significance, in the classroom. "The educational impact of an Ichabod Crane or a Mark Hopkins, of a Mr. Chips or a Socrates, is surely not due solely to what he knows, or even to what he does, but in a very real sense to what he is." (14)

The structure of the classroom and the comcomitant role of the teacher is changing. No longer do teachers function only as a storehouse of knowledge upon which the students may draw. (9) Teachers are now required to be managers, facilitators, and sensitive in the area of human relations. It is therefore imperative that teachers possess those personality characteristics which can accommodate these requirements. (23)

During his four years of college level preparation, the prospective teacher is judged as to his fitness to teach; and he is frequently judged by the faculty as to whether he possesses personality characteristics consistent with those perceived to be necessary for success in teaching. This judgment, however, is subjective in nature. It has been

the desire of the administration of the Department of Agricultural Education to establish a more empirically based method of evaluation.

The Statement of the Problem

The basic problem of this study was a need for greater objectivity in the measurement of personality characteristics of prospective teachers in agricultural education at Oklahoma State University. These measurements would be employed as a part of the guidance and counseling program in the Agricultural Education Department and possibly as criteria for selection of students in the teacher education program.

The Purpose of the Study

The purposes of this study were as follow:

1. To determine which, if any, personality traits were stable from year to year and which, if any, showed major changes from year to year among agricultural education student teachers at Oklahoma State University.
2. To determine baseline information regarding the personality characteristics of agricultural education student teachers at Oklahoma State University. This baseline of data would include the mean and standard deviation of each year's data for students enrolled in student teaching in agricultural education each year of the study. It would also include the mean, median, mode, range, and standard deviation of each scale for the sum total of all students enrolled in student teaching in agricultural education for the four-year period of the study.

3. To determine any differences between the personality characteristics of the agricultural education student teachers at Oklahoma State University and those of other male college students.

The Objectives of the Study

The objectives of this study were as follow:

1. To make a year-by-year comparison of the data for each scale collected each year between the academic years 1969-70 and 1972-73, inclusive, on the personality characteristics of the agricultural education student teachers at Oklahoma State University, as measured by the California Psychological Inventory (CPI). The scales were as follow:
   (1) Dominance (Do)
   (2) Capacity for Status (Cs)
   (3) Sociability (Sy)
   (4) Social Presence (Sp)
   (5) Self-Acceptance (Sa)
   (6) Sense of Well-Being (Wb)
   (7) Responsibility (Re)
   (8) Socialization (So)
   (9) Self-Control (Sc)
   (10) Tolerance (To)
   (11) Good Impression (Gi)
   (12) Communality (Cm)
   (13) Achievement via Conformance (Ac)
   (14) Achievement via Independence (Ai)

(15) Intellectual Efficiency (Ie)

(16) Psychological-Mindedness (Py)

(17) Flexibility (Fx)

(18) Femininity (Fe) (16)

2. To determine the mean and standard deviation of each scale of the CPI by year and the mean, median, mode, range, and standard deviation for each scale of the CPI for all agricultural education student teachers over the four-year period of this study.
3. To compare the scores obtained by the student teachers on each scale of the CPI with those of the norm group of the male college students established and published by the author of the CPI Manual.

Definition of Terms

Student Teaching -- Student teaching is a period of guided teaching during which the student, under the direction of a cooperating teacher, takes increasing responsibility for leading the school experiences of a given group of learners over an extended period of time and engages directly in many of the activities which constitute the wide range of a teacher's responsibilities. (35)

Student Teacher -- A college student who is working under the guidance of a certified teacher or teachers in an approved situation. (35)

Personality -- A stable set of characteristics and tendencies that determine those commonalities and differences in the psychological behavior (thoughts, feelings, and actions) of people that have continuity

in time and that may or may not be easily understood in terms of social and biological pressures of the immediate situation alone. (31)

Personality Characteristics -- Those enduring characteristics of an individual which are manifested by his behaving in a consistent way, and this in a wide variety of situations. (23) Operational definition: Those "folk concepts" for the measurement of which a scale on the CPI has been developed. (16)

Scope of the Study

The CPI was administered to each student teacher in the Department of Agricultural Education at Oklahoma State University each semester since the fall semester of the academic year 1969-70 and continuing through the spring semester of the academic year 1972-73. All of these students, except two, were the subjects of this study. These two students were females, and their scores were deleted from the study since the norms used did not include females.

Limitations of the Study

A vast number of studies of personality characteristics have taken place in this century. However, the complexity of the subject, due, in part, to the uniqueness of the individual, requires that care be taken in generalizing from the results of these studies. Therefore, conclusions derived from this study were within the confines outlined in the scope of the study and were relative to this study only.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter presents a review of selected published and unpublished works relating to the problem outlined in Chapter I. In it the importance of personality in student teaching in vocational agriculture will be presented. Personality and personology, the study of personality, will be defined and discussed. Some theories of personality will be presented, and a sampling of the applications of the California Psychological Inventory will complete this review.

Student Teaching in Vocational Agriculture

Those students in agricultural education who aspire to teach vocational agriculture are required to practice for part of a year in the student teaching program. This culminating laboratory experience in agricultural education differs from student teaching in other fields. The student teacher in agricultural education is not simply required to practice in the classroom. He must also become involved in community affairs, in the FFA program for vocational agriculture students, the Young Farmers Organization, adult education programs, and, generally, in all problems and activities associated with teaching vocational agriculture. (45)

Studies conducted in the past indicate the importance of personality in teaching vocational agriculture. Some of these studies were related

to student teachers. Others were related to certified teachers.

Pritchard (37), while studying beginning teachers rather than student teachers, indicated the importance of personality in teaching vocational agriculture. He stated that "the character of the local program becomes associated very closely with the personality of the individual teacher."

Islam (23) studied the personality characteristics of student teachers and compared them to those of the cooperating teachers. He described personality when he noted:

> Practically speaking there is no end of qualities and characteristics that a person may possess. The sum total of all his qualities, characteristics, behaviors, intelligence, knowledge, attitudes, interests, responses and interactions with his environment constitute his personality.

Wiggins (45) studied one of these aspects of the personality, attitudes. Specifically, he reported a change in attitude of student teachers as a result of their student teaching experience. That study used attitudes of student teachers toward the FFA program as a criterion measure and found that those student teachers practicing in the FFA program produced the greatest degree of favorable changes in attitude.

Updyke (44) also noted changes occuring in the attitudes of student teachers. The results of his study indicated that student teachers tended to change their attitudes in the direction of the attitudes held by the cooperating teacher under whose supervision they practiced.

Considering these studies, it becomes apparent that the personality, with its various aspects such as attitudes, interests, and values, is of prime importance to the prospective teacher. Indeed, it may be critical to his success in the field.

Personality and Personology

Many homemakers are familiar with the plaster of Paris wall plaques depicting the two dramatic masks representing comedy and tragedy. Masks upon which these plaques are patterned were worn by the actors in ancient Greek dramas. The Greek word for such a mask was persona. The masks concealed the true identity of the player, thus enabling him to project the image of a character other than himself.

In the Roman Empire, persona meant "as one appears to others," and this is the root word for the English word personality. The extension of the persona concept through time and many cultures envisioned the external nature of a person, or that part of his nature which was observable by others, not necessarily his true self. (30)

Contemporarily, it is a commonplace to refer to the nature of a person's personality as being good or bad, depending upon external manifestations or behaviors and their relative agreement or disagreement with the values of the observer. This value judgment is also dependent upon the accuracy of the observer's perception of these external manifestations, but it is nevertheless made. The persona concept is therefore still a viable part of the social life of a man.

Definitions of Personality and Personology

Personology has been defined by Maddi (31) as the study of personality. A personologist is, therefore, someone who is expert in the field of study and understanding of personality. The definition of the term personality is not quite so simply stated.

Scientific enquiry and the behavioral sciences have been responsible for broadening the fairly restrictive persona concept into a wide range

of viewpoints regarding personality. These theoretical positions vary, for the most part, in the stress which they place on a particular aspect of personality.

Behavioral scientists generally may be viewed as opting for emphasis upon either the external or internal level of personality, which may be equated with an emphasis upon behavioral characteristics or psychological states. (21)

Hollander (21) spoke of the internal level when he noted:

> The intra-psychic features of the individual--including his attitudes and values, his interests, and motivations in the psychological field--represent a set of inter-relationships on the internal level.

Lundin (30) categorizes the psychologist's approach to the definition of personality into four categories. The first of these is the "omnibus" category. This is an attempt to embrace both the internal and external levels of personality, but in so doing the attempt loses some of its effectiveness. (30) Typical of the omnibus definitions is that of John Watson, the behaviorist. He considered personality to be the "sum total of one's behavior." Hollander (21) enlarges upon this definition somewhat when he defines personality as the "sum total of an individual's characteristics which make him unique." Major criticism of this approach centers around a lack of order or organizing principle.

The second category is the "integrative" approach. Emphasis in this approach is placed upon some organizational function or unifying principle. It perceives order in behavior rather than a disconnected, disoriented group of reflexes. Lundin (30) quotes Norman Cameron, a behavior pathologist, to define personality to be:

> . . . the dynamic organization of interlocking behavior systems that each of us possesses, as he grows from a

> biological newborn to a biosocial adult in an environment of other individuals and cultural products.

The integrative approach is also subscribed to by Lundin (30). He defines personality as "that organization of unique behavior equipment an individual has acquired under the special conditions of his development."

The third category, titled the "heirarchial" by Lundin (30), proposes layers of traits or characteristics with a demarcation of functions according to the trait or characteristic. Sigmund Freud characterizes this viewpoint.

Freud conceived the personality as being composed of the "id," "ego," and "super-ego" levels. The function of the id is to provide an energy discharge. This results in what Freud called "pleasure principle functioning," which is, as he viewed it, the primary or basic principle of life. This might also be understood as the biological component of personality. (30)

The ego, or psychological component, has two functions. The first is to provide the cognitive and actional background for satisfaction of the id. It also provides a measure of control over the id, requiring a practical, sensible discharge of energy that is in keeping with the requirements of society. This Freud called "reality principle functioning." (30)

The super-ego, or the social component of personality, may be considered the moral branch of the personality. It is the moral code by which a person lives. It is developed by assimilation of the standards of proper conduct observed in parents, peers, and others (30).

The fourth category, "adjustment," considers personality in terms of adjustment. Emphasis is placed on characteristics or behaviors which

will assist the person in adjusting or getting along in his environment. Shafer and Shobern defined personality as "persistent tendencies to make certain kinds and qualities of adjustment." (30)

Hilgard incorporated the concept of the uniqueness of the individual in his "adjustment" definition.

> . . . The term personality is used to mean the configuration of individual characteristics and ways of behaving which determines an individual's unique adjustment to his environment. We stress particularly those personal traits that affect the individual's getting along with other people and with himself. Hence, personality includes any characteristics that are important in the individual's personal adjustment, in his maintenance or self-respect. (23)

Common to all categories is a recognition of individual differences and uniqueness. Some view only the external level, some only the internal, and some incorporate both. All consider personality to be crucial for the individual's successful adaptation to and functioning within the environment. In this study, the researcher is concerned primarily with the internal level of the personality of the subjects under study. He therefore accepted for this study the definition of personality offered by Maddi (31). Personality is:

> A stable set of characteristics and tendencies that determine those commonalities and differences in the pscyhological behavior (thoughts, feelings, and actions) of people that have continuity in time and that may or may not be easily understood in terms of social and biological pressures of the immediate situation alone.

Theories of Personality

Maddi (31) proposes three models of personality theory. These are the (1) conflict model, (2) fulfillment model, and (3) consistency model.

The Conflict Model

This model conceives a person as existing in the clash between two great, opposing forces. Life is conceived to be a compromise which, optimally, requires a dynamic balance between the forces, and, minimally, may involve an attempt to ignore one of them, which attempt is doomed to failure. The content of the two forces is stated in the theory and is considered to be unchangeable.

The conflict model may be subdivided into two sub-categories: the psycosocial version and the intrapsychic version. The psycosocial version conceives the sources of one of the great forces to be the person as an individual and the other to be groups or societies. Freud, Murray, and Sullivan characterized this position. (31)

The intrapsychic version views both forces as arising from within the individual and is characterized by Jung, Rank, and Angyal and Bakan.

The Fulfillment Model

Theorists under this model conceive only one great force localized in the person. Living, to the fulfillment theorist, is not a compromise, but rather a process of the one great force postulated. This force is stated in the positions and, like those of the conflict model, is considered to be unchangeable. In the fulfillment model conflict is possible, but is not necessary, and, of course, cannot be considered to be continuous. Indeed, when conflict does occur, it constitutes an "unfortunate failure in living." (31)

This model is also subdivided into two versions--the actualization version, characterized by Rogers and Maslow, and the perfection version, typified by Adler, White, Allport, and Fromm. In the humanistic

actualization fulfillment theory the one great force is conceived to be a genetic blueprint which determines the individual's unique capabilities, potentialities, or talents, based on the individual's genetic make-up. To the idealistic perfection fulfillment theorist, the force is rather the tendency to strive toward ideals of that which is fine, meaningful, or excellent in life, regardless of the genetic superiorities or inferiorities of the individual.

Consistency Model

The emphasis of consistency theorists is placed on the importance and formative influence of feedback, in the form of information and emotional experience, the person receives from interaction with the environment. If the feedback is consistent with what is expected or customary, his personality will be affected so that the likelihood of more interaction is increased. Thus, interaction becomes self-reinforcing. The personality, to the consistency theorist, is much more greatly influenced by the feedback from interaction than by any inherited attributes.

As with the previously discussed models, the consistency model is also subdivided into two versions. The cognitive dissonance version, subscribed to by Kelly and McClelland, regards the relevant aspects in the determination of consistency to be cognitive in nature. These cognitions, if they are discrepant with each other, produce an emotional state which requires a move toward consistency and thus will energize and direct behavior. Kelly's theory exemplifies this position.

The activation version, characterized by Fiske and Maddi, places its stress upon the consistency of inconsistency between customary and actual levels of activation or tension.

Applications of the CPI

It was thought to be appropriate to present a sampling of the uses to which the CPI is currently being put in research. The following descriptions of studies are not to be considered comprehensive, but is presented as representative of the types of studies for which the CPI is considered appropriate.

Bajaj (2)

This study examined the personality traits of 160 county extension directors and agents in the state of Oklahoma and examined the relationship between the traits of the CPI and selected professional and social variables. The results indicated that a majority of the county extension personnel scored average or above on the CPI scales as compared to the norms established for college graduates. Several significant relationships between certain traits and certain of the social and professional variables were also found. The highest CPI scores were obtained by those personnel with advanced formal education, previous experience in teaching, knowledge of social sciences, preference for participation in fraternal as well as religious organizations, and whose fathers occupied a high status occupation.

Islam (23)

The investigation presented in this study proposed to compare the personality traits measured by the CPI of student teachers in vocational agriculture and the cooperating teachers responsible for their student teaching experiences. Islam also investigated the relationships between the CPI traits and selected professional, social, and economic variables.

The cooperating teachers, as a group, obtained scores superior to those of the student teachers on all scales except Social Presence, Self-Acceptance, and Flexibility. However, total profiles for both groups fell within plus or minus one standard deviation of the established CPI mean. Those personnel with attributes such as advanced formal education, longer tenure as teachers, middle aged, experience in leadership roles in high school and college, and whose father had at least a high school education tended toward the higher scores across the CPI profile. Both student teachers and cooperating teachers scored below the norms in the traits of Capacity for Status, Responsibility, Good Impression, and Intellectual Efficiency.

Levin and Karni (28)

In this investigation, the Fe scale of the CPI was validated in Israel. The questions composing the Fe scale were translated into Hebrew and administered to male and female subjects. The difference in mean scores for each sex was highly significant ($P < .001$), and the scale was proposed as valid.

Sherrick, Davenport, and Colina (40)

This study examined the relationship between the Fx scale and satisfaction with the college major. The investigators predicted that social science majors who were satisfied with their major would score higher on the Fx scale than social science majors who were dissatisfied. They also predicted that natural science majors satisfied with their major would be less flexible than natural science majors dissatisfied with their majors. Both hypotheses were confirmed.

Berman and Eisenberg (3)

This investigation examined personality characteristics as correlates to achievement in a Montreal, Canada, high school. The subjects for the study were in the 11th grade in the school. Correlations were found to be significant for a number of traits, especially those related to drive or ambition. Most of the factors correlating with achievement also had significant, but lower, correlations with intelligence.

Wilson and Greene (46)

These investigators attempted to determine differences in personality profiles for female homosexuals and female heterosexuals. They employed the CPI, the Eysenck Personality Inventory (EPI), and the Edwards Personal Preference Schedule (EPPS). Homosexual females scored significantly higher ($p < .05$) than heterosexual females in the Do, Cs, Gi, and Ie scales. They scored significantly lower ($p < .05$) on the Fe scale.

Dyer, Monson, and Van Drimmelin (11)

This investigation examined the relationship between administrative position, age, and educational preparation and the CPI scales. The randomly selected subjects were 1,018 registered nurses in 31 Veteran's Administration Hospitals. Supervisory nurses had generally higher profiles than did head or staff nurses. The highest profiles were obtained by older nurses in administrative positions who had continued their educational preparation. The lowest profiles were obtained by older nurses in supervisory assignments who had not pursued their education.

Administrative position correlated significantly ($p < .05$) with the Ai, Py, and Fx scales. Age correlated at the same level of significance with Sy, Sp, Sa, So, Sc, Gi, Cm, Ai, Ie, and Fx scales. Educational preparation correlated at the .05 level with the Do, Cs, Sy, Sp, Sa, To, Ai, Ie, Py, and Fx scales.

Stroup (42)

In this study a comparison was made of the predictive power of the CPI and the Math and Verbal Scholastic Aptitude Test (SAT) for academic success for freshmen in college. All entering freshmen at Wooster College, Wooster, Ohio, were administered both tests for a period of four years. Correlations were computed between the results of these tests and the cumulative GPA at the end of the freshman year. The SAT seemed to provide greater efficiency as a prediction instrument than the CPI. However, even greater predictive ability was obtained by combining the SAT scores with the So, Ac, and Fx scales for the female subjects and the So, Fx, and Fe scales for the male students.

De Coster and Rhode (10)

These investigators made a comparison of the differences in personality traits between male certified public accounting firm employees (N = 56) and male undergraduate accounting students (N = 24). The undergraduate students obtained scores significantly higher ($p < .05$) on the Sp and Fx scales and significantly lower ($p < .05$) on the Wb, Re, ($p < .01$) Sc, and Ac scales. Older accountants were found to be more conservative than younger accountants.

Summary

In reviewing the literature it was found that personality is an important consideration in the practice of education and has previously been the subject of studies relating to student teachers in agricultural education. It was found that personality has characteristically been viewed as consisting of an external and internal level, and the internal level was decided upon as appropriate for this study. Three models of personality theory were presented. These models, when subdivided, represent six positions relating to personality held by outstanding theorists in the field. Finally, studies were presented which are representative of studies employing the CPI.

CHAPTER III

METHODOLOGY

Introduction

This chapter presents the design and methods employed in this study. As stated earlier, the purposes of this study were (1) to determine which, if any, personality traits of the student teachers were stable from year to year and which, if any, showed major changes from year to year; (2) to determine baseline information regarding the personality characteristics of the student teachers; and (3) to determine any differences between the personality characteristics of the agricultural education student teachers at Oklahoma State University and those of other male college students.

This study was undertaken as a result of a personal conference between the head of the Department of Agricultural Education, the associate professor of Agricultural Education for research, and the investigator. The faculty members indicated that no longitudinal studies had been done on the personality characteristics of agricultural education student teachers. It was agreed that such a study would prove valuable in the administration of the agricultural education program at Oklahoma State University.

The Population

The data for this study were collected over a four-year period of

time from the student teachers in agricultural education at Oklahoma State University. The period of time covered was the academic years 1969-70, 1970-71, 1971-72, and 1972-73. During these four years, a total of 293 students teachers were tested. Two of the student teachers were females; these scores were considered to introduce a new variable into the study which could not be adequately treated since only two sets of data were avilable. For this reason, these scores were deleted from this study. Therefore, scores for 291 student teachers, all males, are reported and treated in this study.

Student teaching is required for graduation in agricultural education and is taken in the senior year. Enrollment in the course lasts for a full semester; however, the student is actually practicing in the classroom with the fully qualified cooperating teacher for only eight weeks of the semester. The rest of the time is spent at the university in preparation for or critiqueing the teaching experiences. It was during the period of preparation that the CPI was administered to the student teachers by personnel of the Department of Agricultural Education.

Instrumentation

The California Psychological Inventory was developed by, and secured for use in this study from, Dr. Harrison G. Gough, Professor of Psychology and Associate Director, Institute of Personality Assessment and Research, University of California, Berkely.

The inventory was developed for use with subjects who show no evidence of psychiatric disturbance and are "normally" socially functioning. The goals established by Gough in the development of the

inventory were (1) "to develop descriptive concepts which possess broad personal and social relevance," and (2) "to develop brief, accurate, and dependable subscales for the identification and measurement of the variables chosen for inclusion in the inventory." (16)

The scales were constructed, basically, by the application of the "empirical technique." (16) That is, those test items were retained which correctly differentiated between persons who were shown by some independent means to be characterized, either positively or negatively, by the trait being tested. This method was employed for the construction of the Dominance (Do), Capacity for Status (Cs), Sociability (Sy), Responsibility (Re), Socialization (So), Tolerance (To), Achievement via Conformance (Ac), Achievement via Independence (Ai), Psychological-Mindedness (Py), and Femininity (Fe) scales. The Social Presence (Sp), Self-Acceptance (Sa), Self-Control (Sc), and Flexibility (Fx) scales were constructed by the application of internal consistency analysis. The remaining three scales were developed to detect dissimulation or faking. The Sense of Well-Being (Wb) scale was developed empirically; the Good Impression (Gi) scale was constructed with research samples; and the Communality (Cm) scale was based on response agreement among all research samples taken. (16)

Scoring of the CPI for this study was accomplished by hand. A set of templates was provided by the publisher which, when placed over the answer sheet, identified responses consistent with the characteristic or characteristics measured by each template. The number of responses so identified by each template became the raw score for the individual on that specific trait. Raw scores for the subjects in this study are shown in Appendix A.

Statistical Treatment

Treatment of the data was based upon the purpose to which the information was intended. To determine stability or change of personality traits from year to year, the single-classification analysis of variance was employed. To establish the baseline of information measure of central tendency, mean, median and mode, and measures of dispersion, range and standard deviation were determined. To compare the student teachers' scores with those of the male college students' norm group was accomplished with the t-test.

To justify the use of these statistical treatments it was considered that there existed a potential distribution of scores on each of the scales of the CPI for agricultural education student teachers. The scores reported in this study, taken together or separated by year, represent a biased sample of that theoretically potential distribution. It then becomes possible to apply statistical treatment to the data, recognizing the implicit limitations for generalization.

Single-Classification Analysis of Variance

This statistical technique is a method for testing the means of two or more groups for significant differences. This test is generally applied when more than two independent variables are being considered. In the instances where it was employed in this study the independent variables being considered were the years in which the students enrolled in student teaching and consequently were tested. The dependent variable was, of course, the mean of the test scores for the students on each of the scales of the CPI. It became necessary, then, to compute 18 different analyses of variance. This was accomplished on the computer

using the Statistical Analysis System (SAS 2) program.

Measures of Central Tendency and Dispersion

The mean, median, and mode were computed for each scale as well as the range and standard deviation. Raw score data was used for these computations. Tabular presentation, while desirable and useful, did not, by itself, adequately present the tendencies displayed by the distribution of the scores. Therefore, it was felt to be necessary to construct graphic presentations of the raw score distributions. These graphs are presented in Appendix B.

t-Test

Prior to application of the t-Test, it was first necessary to test for homogeneity of variance. The F-test was employed to this end. Those scales displaying homogeneity of variance with the male college student norms required the use of the pooled variance model of the t-Test. Those displaying heterogeneity of variance required the use of the separate variance model. (36)

Pooled variance model:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left(\frac{x_1^2 + x_2^2}{N_1 + N_2 - 2}\right)\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

Separate variance model:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}}$$

Hypotheses of the Study

The following hypotheses were tested in this study. They vary only in the scale of the CPI being tested and stated in the null are:

(1) There is no significant difference in the scores of student teachers from year to year for the trait Do.

(2) There is no significant difference in the scores of student teachers from year to year for the trait Cs.

(3) There is no significant difference in the scores of student teachers from year to year for the trait Sy.

(4) There is no significant difference in the scores of student teachers from year to year for the trait Sp.

(5) There is no significant difference in the scores of student teachers from year to year for the trait Sa.

(6) There is no significant difference in the scores of student teachers from year to year for the trait Wb.

(7) There is no significant difference in the scores of student teachers from year to year for the trait Re.

(8) There is no significant difference in the scores of student teachers from year to year for the trait So.

(9) There is no significant difference in the scores of student teachers from year to year for the trait Sc.

(10) There is no significant difference in the scores of student teachers from year to year for the trait To.

(11) There is no significant difference in the scores of student teachers from year to year for the trait Gi.

(12) There is no significant difference in the scores of student teachers from year to year for the trait Cm.

(13) There is no significant difference in the scores of student teachers from year to year for the trait Ac.

(14) There is no significant difference in the scores of student teachers from year to year for the trait Ai.

(15) There is no significant difference in the scores of student teachers from year to year for the trait Ie.

(16) There is no significant difference in the scores of student teachers from year to year for the trait Py.

(17) There is no significant difference in the scores of student teachers from year to year for the trait Fx.

(18) There is no significant difference in the scores of student teachers from year to year for the trait Fe.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The findings of this study are reported under three major divisions: (1) comparison of CPI trait scores by years, (2) total CPI trait scores, and (3) comparison of student teachers with male college student norms.

As was stated earlier, this study involved all male student teachers in agricultural education for the four academic years 1969-70, 1970-71, 1971-72, and 1972-73. Table I presents the number of students in each year included in the study.

TABLE I

STUDENT TEACHERS TESTED BY THE CPI PER YEAR

Year	Number of Student Teachers
1969 - 1970	79
1970 - 1971	68
1971 - 1972	70
1972 - 1973	74
Total	291

Comparison of CPI Trait Scores by Years

The initial step required to determine any significant differences on each of the traits measured by the CPI between years was the computation of the mean score of each trait by year. This step then allowed the single-classification analysis of variance to be computed for each scale to determine whether significant changes had occurred in the personality characteristics of the student teachers on a yearly basis.

The computation of the mean for each trait by year was accomplished in the Oklahoma State University Computer Center employing the Statistical Analysis System (SAS 2) program. The results of that computation are presented in Table II.

Employing the same program in the same location, the single-classification analysis of variance was computed to determine significant differences in the means of each year's student teachers' scores on each scale. Because of the highly theoretical justification for employing the analysis of variance technique to the data of this study, the investigator set a conservative level of significance for rejecting the null hypotheses. The alpha level was set at .01. The results of the computation of the analysis of variance and the resulting F value for each scale are presented in Table III. As can be seen in Table III, the statistical treatment of the data failed to reject any of the null hypotheses regarding differences between years for the traits of the CPI. The results indicated stability from year to year for the personality characteristics of the student teachers.

TABLE II

RAW SCORE MEAN AND STANDARD DEVIATION OF CPI TRAITS BY YEAR

	1969-1970		1970-1971		1971-1972		1972-1973	
Trait	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Do	27.81	5.69	25.22	5.78	27.46	5.46	27.88	5.12
Cs	17.32	3.73	16.97	3.48	18.31	3.61	17.74	3.64
Sy	24.27	4.53	22.43	5.13	24.41	5.19	23.99	5.12
Sp	34.80	5.76	34.41	4.99	35.70	5.36	35.82	4.85
Sa	21.97	3.69	21.18	3.86	22.15	4.00	21.81	3.70
Wb	36.53	4.87	34.94	5.20	36.94	4.27	35.74	6.61
Re	28.22	4.69	25.97	4.50	26.91	4.54	26.31	4.71
So	38.86	5.25	37.12	5.88	37.34	4.69	35.97	5.49
Sc	28.92	6.74	27.26	8.13	29.33	7.10	28.74	8.20
To	21.25	4.51	19.03	5.06	20.66	4.65	20.69	5.31
Gi	16.99	6.16	16.04	6.01	16.01	5.57	17.61	6.34
Cm	26.08	2.07	25.04	3.46	25.43	2.70	24.85	3.88
Ac	26.68	4.80	25.81	4.28	27.26	4.42	26.68	5.02
Ai	17.57	3.43	17.24	4.10	18.46	3.33	17.49	4.47
Ie	36.43	4.63	34.10	5.12	36.59	5.03	35.22	5.87
Py	10.81	2.24	10.69	2.91	11.96	2.27	11.28	2.63
Fx	8.84	3.14	9.34	3.49	8.93	3.50	8.61	3.57
Fe	14.91	2.85	15.38	3.31	15.19	3.57	14.95	3.27

TABLE III

ANALYSIS OF VARIANCE OF CPI TRAITS BY YEAR

Trait of the CPI	F Value	Probability*
Dominance (Do)	3.65	.0130
Capacity for Status (Cs)	1.79	.1474
Sociability (Sy)	2.33	.0728
Social Presence (Sp)	1.18	.3164
Self-Acceptance (Sa)	.87	.5389
Sense of Well-Being (Wb)	1.94	.1215
Responsibility (Re)	3.46	.0167
Socialization (So)	3.79	.0109
Self-Control (Sc)	.98	.5975
Tolerance (To)	2.73	.0434
Good Impression (Gi)	1.19	.3146
Communality (Cm)	2.32	.0733
Achievement via Conformance (Ac)	1.14	.3348
Achievement via Independence (Ai)	1.33	.2626
Intellectual Efficiency (Ie)	3.55	.0148
Psychological-Mindedness (Py)	3.69	.0123
Flexibility (Fx)	.56	.6466
Feminity (Fe)	.33	.8049

*d.f. = 3 and 287.

Total CPI Trait Scores

Measures of Central Tendency

The CPI instrument used in the study measured 18 personality traits of the student teachers in agricultural education. Measures of Central Tendency derived from those raw scores obtained for the CPI were calculated and included the mean, median, and mode. These scores are shown in Table IV.

Gough demonstrated that raw scores of the various traits can be converted directly to standard scores. He established two norm groups, one male and one female, with a standard score mean of 50 and a standard deviation of 10. The male norm group, appropriate for this study, included 6,000 males representing a wide cross-section of the male population of the United States. (26) Figure 1 shows the relationship of the mean scores obtained by the student teachers to the mean score line established by Gough for the CPI male norm group. It should be noted that this line does not represent the mean scores of the male college students, but rather the general population. Mean scores of the male college students will be discussed and compared later in the study. Table V shows the mean raw score and its equivalent standard score in tabular form.

Analysis of the mean scores indicate that the student teachers scored below the mean of the general male population for traits Cs, Sy, Wb, Re, Sc, To, Gi, Ac, Ai, Ie, Fx, and Fe. They scored above the mean for traits Do, Sp, Sa, So, Cm, and Py.

TABLE IV

MEASURES OF CENTRAL TENDENCY OF PERSONALITY RAW SCORES OF AGRICULTURAL EDUCATION STUDENT TEACHERS AS MEASURED BY THE CPI

Trait of the CPI	Measures of Central Tendency N = 292		
	Mean	Median	Mode
Dominance (Do)	27.14	27	29
Capacity for Status (Cs)	17.58	18	18
Sociability (Sy)	23.80	24	26
Social Presence (Sp)	35.19	35	35
Self-Acceptance (Sa)	21.79	22	22
Sense of Well-Being (Wb)	36.05	37	39
Responsibility (Re)	26.89	27	29
Socialization (So)	37.35	38	37, 41
Self-Control (Sc)	28.59	29	34
Tolerance (To)	20.45	21	22
Good Impression (Gi)	16.69	16	15, 16
Communality (Cm)	25.37	26	27
Achievement via Conformance (Ac)	26.62	27	26
Achievement via Independence (Ai)	17.68	18	18
Intellectual Efficiency (Ie)	35.62	36	35
Psychological-Mindedness (Py)	11.18	11	11
Flexibility (Fx)	8.92	9	10
Femininity (Fe)	15.10	15	14, 15

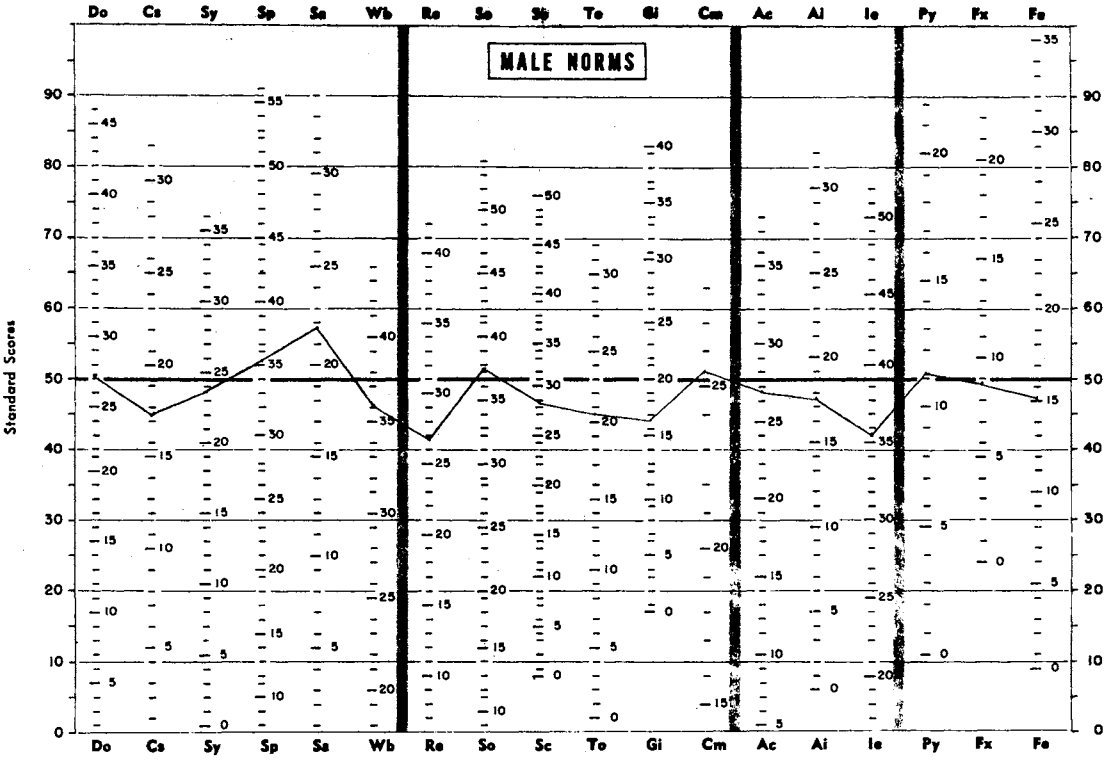

Figure 1. Mean Profile of Agricultural Education Student Teachers as Plotted on the CPI Mean Standard Score Line

TABLE V

MEAN PERSONALITY SCORES OF AGRICULTURAL EDUCATION STUDENT TEACHERS AS MEASURED BY THE CPI

Trait of CPI	Student Teachers' Mean Scores N = 292	
	Raw Score	Standard Score
Dominance (Do)	27.14	50.30
Capacity for Status (Cs)	17.58	45.18
Sociability (Sy)	23.80	48.44
Social Presence (Sp)	35.19	52.40
Self-Acceptance (Sa)	21.79	57.49
Sense of Well-Being (Wb)	36.05	46.12
Responsibility (Re)	26.89	41.72
Socialization (So)	37.35	51.36
Self-Control (Sc)	28.59	46.59
Tolerance (To)	20.45	44.90
Good Impression (Gi)	16.69	44.34
Communality (Cm)	25.37	51.05
Achievement via Conformance (Ac)	26.62	48.50
Achievement via Independence (Ai)	17.68	47.36
Intellectual Efficiency (Ie)	35.62	42.20
Psychological-Mindedness (Py)	11.18	50.40
Flexibility (Fx)	8.92	49.67
Femininity (Fe)	15.10	47.24

It may be readily discerned from Figure 1 that the greatest elevation above the general male population mean for any one trait occurred for the trait Sa. Conversely, the greatest deflection below the mean line of the general male population occurred on traits Re and Ie. Those also showing marked deflections were traits Cs, Wb, and Gi.

Measures of Dispersion

The measures of central tendency presented previously did not reflect the distribution of the scores. In order to determine the variation within the score distributions, the range and standard deviation for each of the traits was calculated. These measures are presented in Table VI.

Those traits showing the widest range of scores were Sc, Wb, So, and Gi. The most narrow range of scores was obtained for scales Py, Fe, Cs, Sa, and Cm.

Those traits with the highest standard deviations were Sc, Gi, Do, So, Wb, and Ie. The lowest standard deviations were derived from traits Sa, Py, Cm, Fe, and Fx.

Graphic presentations of the underlying distributions for each trait are presented in Appendix B. These graphs adequately depict the dispersion of the scores around the mean.

Comparison of Student Teachers with Male College Student Norms

Gough (16) has presented the mean scores and standard deviations of 1,133 male college students for each scale. Dr. Wallace B. Hall of the Institute of Personality Assessment in Berkely, California, indicated

TABLE VI

MEASURES OF DISPERSION OF PERSONALITY RAW SCORES OF AGRICULTURAL EDUCATION STUDENT TEACHERS AS MEASURED BY THE CPI

Trait of the CPI	Measures of Dispersion	
	Raw Score Range	Raw Score Standard Deviation
Dominance (Do)	40 - 13 = 27	5.61
Capacity for Status (Cs)	27 - 8 = 19	3.62
Sociability (Sy)	35 - 11 = 24	4.88
Social Presence (Sp)	49 - 19 = 30	4.95
Self-Acceptance (Sa)	30 - 10 = 20	2.23
Sense of Well-Being (Wb)	44 - 11 = 33	5.27
Responsibility (Re)	38 - 16 = 22	4.63
Socialization (So)	50 - 15 = 35	5.42
Self-Control (Sc)	46 - 8 = 38	7.57
Tolerance (To)	31 - 6 = 25	4.91
Good Impression (Gi)	36 - 5 = 31	6.03
Communality (Cm)	28 - 8 = 20	3.08
Achievement via Conformance (Ac)	37 - 10 = 27	3.77
Achievement via Independence (Ai)	28 - 6 = 22	3.95
Intellectual Efficiency (Ie)	47 - 17 = 30	5.23
Psychological-Mindedness (Py)	19 - 4 = 15	2.68
Flexibility (Fx)	17 - 1 = 16	3.37
Femininity (Fe)	26 - 4 = 22	3.26

that the norm group comprised a representative group from varied sizes of colleges and universities across the entire country. The mean scores and standard deviations for each scale for both the male college student norm group and the agricultural education student teachers is presented in Table VII. A comparison of the profiles, plotted on the mean line of the general male population, is presented in Figure 2.

It can readily be seen that the scores of the student teachers fall below those of the male college students for all scales except So and Sc. The significance of the differences existing between the two groups is more readily discernable from the profile chart, but truly meaningful significance can only be determined statistically.

To determine which of the differences were significant, the t-test was employed. Prior to application of this test, another test, the F-test, was employed to determine homogeneity of variance of the scores for each scale between the groups. The results of the F-test are presented in Table VIII. Significance at the .05 level was required to determine heterogeneity of variance.

For those traits which displayed homogeneity of variance, the pooled variance model of the t-test was employed. For those variances which were heterogeneous, the separate variance model of the t-test was employed. The results of the t-tests are also presented in Table VIII. Significance was determined at the .05 level of probability.

Based on the data presented in Table VIII, the investigator found significant differences for the traits Do, Cs, Sy, Sp, Re, Sc, To, Ac, Ai, Ie, Fx, and Fe. The data revealed no significant differences for the traits Sa, Wb, So, Gi, Cm, and Py.

TABLE VII

MEAN RAW SCORES AND STANDARD DEVIATIONS FOR TRAIT SCORES OF STUDENT TEACHERS AND MALE COLLEGE STUDENTS AS MEASURED BY THE CPI

Trait of the CPI	Student Teachers N = 292		Male College Students N = 1,133	
	Mean	Std. Dev.	Mean	Std. Dev.
Dominance (Do)	27.14	5.61	28.3	6.3
Capacity for Status (Cs)	17.48	3.62	20.9	3.8
Sociability (Sy)	23.80	4.88	25.4	5.0
Social Presence (Sp)	35.19	4.95	37.3	5.8
Self-Acceptance (Sa)	21.79	2.23	22.3	3.8
Sense of Well-Being (Wb)	36.05	5.27	36.6	4.6
Responsibility (Re)	26.89	4.63	30.8	4.5
Socialization (So)	37.35	5.42	36.8	5.2
Self-Control (Sc)	28.59	7.57	27.6	7.5
Tolerance (To)	20.45	4.91	23.3	4.8
Good Impression (Gi)	16.69	6.03	17.2	6.2
Communality (Cm)	25.37	3.08	25.5	2.0
Achievement via Conformance (Ac)	26.62	3.77	27.4	4.5
Achievement via Independence (Ai)	17.68	3.95	20.9	4.2
Intellectual Efficiency (Ie)	35.62	5.23	39.8	5.0
Psychological-Mindedness (Py)	11.18	2.68	11.4	3.0
Flexibility (Fx)	8.92	3.37	11.1	3.8
Femininity (Fe)	15.10	3.26	16.7	3.7

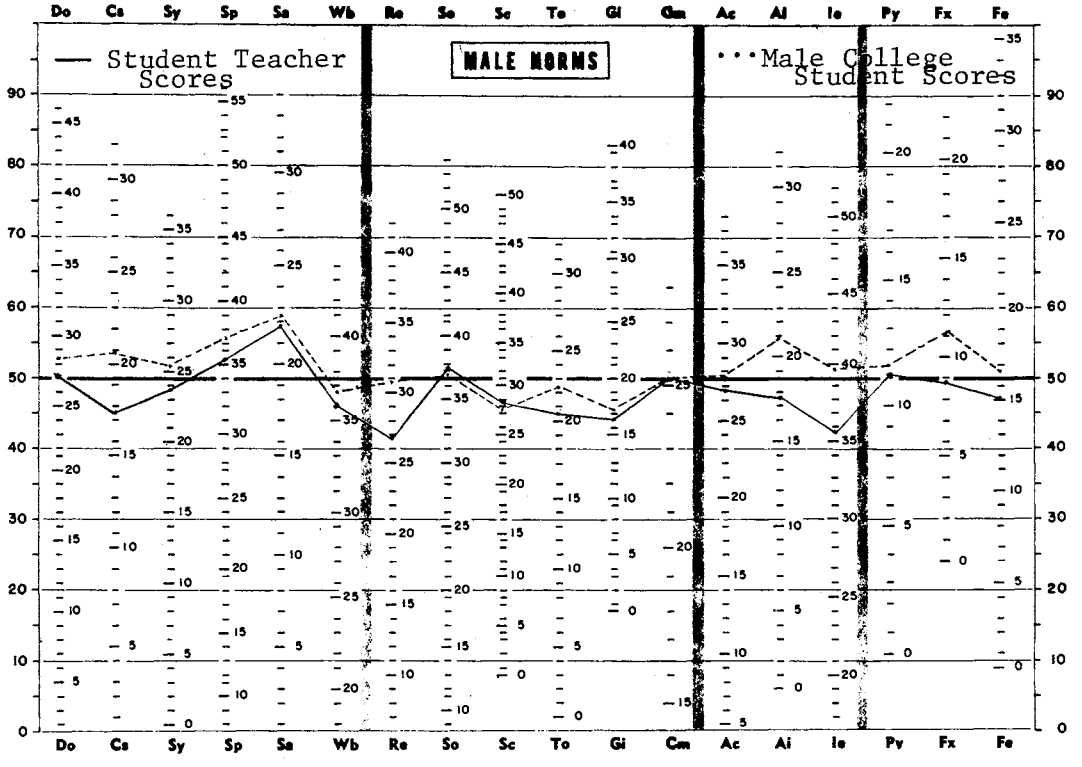

Figure 2. Comparison of Mean Profiles of Student Teachers and Male College Students as Plotted on the CPI Mean Standard Score Line

TABLE VIII

F AND t VALUES OF THE DIFFERENCE BETWEEN MEAN SCORES OF STUDENT TEACHERS AND MALE COLLEGE STUDENTS ON TRAITS MEASURED BY THE CPI

Trait of the CPI	F	t
Dominance (Do)	1.26*	3.05**
Capacity for Status (Cs)	1.10	12.75***
Sociability (Sy)	1.05	5.38***
Social Presence (Sp)	1.37**	6.23***
Self-Acceptance (Sa)	2.91**	1.10
Sense of Well-Being (Wb)	1.31**	1.66
Responsibility (Re)	1.06	12.93***
Socialization (So)	1.09	1.62
Self-Control (Sc)	1.02	2.00*
Tolerance (To)	1.05	8.99***
Good Impression (Gi)	1.06	1.31
Communality (Cm)	2.36	.47
Achievement via Conformance (Ac)	1.43**	2.51*
Achievement via Independence (Ai)	1.13	11.79***
Intellectual Efficiency (Ie)	1.10	12.65***
Psychological-Mindedness (Py)	1.25*	.82
Flexibility (Fx)	1.27*	9.69***
Femininity (Fe)	1.29**	7.18***

* $P < .05$

** $P < .01$

*** $P < .001$

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Methodology

The population for this study consisted of 291 student teachers in agricultural education at Oklahoma State University. The California Psychological Inventory (CPI) was administered to the student teachers, covering four academic years, during the semester in which they were enrolled in student teaching. Analyses of variance were computed to determine if significant changes in the personality characteristics of the student teachers occurred from year to year. Measures of central tendency and dispersion were computed for the scores; distribution of the scores were graphed; means were plotted on the mean score line developed by the CPI for the general male population. A t-test was calculated to compare the student teachers' mean scores to those of the male college student norm group established by the CPI.

Summary and Conclusions

It was found that no significant differences existed between the student teachers' personality characteristics on a yearly basis. From this finding, it is concluded that student teachers in agricultural education are similar in their personality characteristics from year to year. From this finding it may also be concluded that student teachers in agricultural education may be characterized by certain personality

traits.

It was found that mean scores for the student teachers were above the mean scores of the CPI general population male norms on traits Do, Sp, Sa, So, Cm, and Py. They were below the mean on traits Cs, Sy, Wb, Sc, To, Gi, Ac, Ai, Ie, Fx, and Fe. It is important to note that all of the mean scores fell within one standard deviation of the mean for the general male population. This would indicate that the student teachers are representative of a generally normal population.

The greatest elevation above the mean line occurred on the trait Sa. Gough (16) describes high scorers on this trait as being "intelligent, outspoken, sharp-witted, demanding, aggressive, and self-centered; as being persuasive and verbally fluent; and as possessing self-confidence and self-assurance."

Conversely, the greatest deflections below the mean line appeared for traits Re and Ie. Low scorers for trait Re are seen by Gough (16) as tending to be "immature, moody, lazy, awkward, changeable, and disbelieving; as being influenced by personal bias, spite, and dogmatism; and as under-controlled and impulsive in behavior." Low scorers for trait Ie tend to be seen as "cautious, confused, easy-going, defensive, shallow, and unambitious; as being conventional and stereotyped in thinking; and as lacking in self-direction and self-discipline."

Fairly deep deflections also occurred on traits Cs and Gi. Low scorers on trait Cs are seen by Gough (16) as "apathetic, shy, conventional, dull, mild, simple, and slow; as being stereotyped in thinking; restricted in outlook and interests; and as being uneasy and awkward in new or unfamiliar social situations." A low score for trait Gi is seen as tending to reflect a person who is "inhibited, cautious, shrewd,

wary, aloof and resntful; as being cool and distant in their relationships with others; and as being self-centered and too little concerned with the needs and wants of others."

Gough (16) states that:

> . . . when behaviors suggested by two or more extreme scores seem to be similar, they may well reinforce each other; if they seem opposing or contradictory, they may serve to counteract or ameliorate one another.

He also states that the further the scores depart from the mean line, the more likely the set of adjectives is to characterize the person. Again, it must be emphasized that all of the trait scores of the student teachers are within one standard deviation of the mean line of the norm group; therefore, these adjectives must be tempered in their extremity. With these factors in mind, then, and by looking for similarities in the foregoing descriptions, personality characterization of the student teachers as a group may be drawn.

It would appear that the student teachers would tend to be somewhat conventional and stereotyped in their thinking. They would appear to tend toward difficulty in entering into meaningful interpersonal relationships. They would appear to hold their values very rigidly and would be uncomfortable in an atmosphere of change. They would also appear to be somewhat awkward and uncomfortable in an unfamiliar social setting, but would appear to be aggressive in and thriving on competition.

The comparison of the mean scores of the student teachers to those of the male college student norm group on the CPI yielded significant differences on traits Do, Cs, Sy, Sp, Re, Sc, To, Ac, Ai, Py, Fx, and Fe. The student teachers were significantly below the male college student norm groups on all of these scales except Sc. From these

results it may be concluded that the student teachers in agricultural education differ in personality from the male college student norm group presented by Gough (16).

It is interesting to note that no significant differences existed on scales Wb, Gi, and Cm. These scales were constructed by Gough to detect response bias, dissimulations, and faking. Their homogeneity with the norm group would tend to validate the scores obtained over the testing period.

Implications and Recommendations

The implications of this study lie in three general areas. They are (1) administration of the agricultural teacher education program, (2) guidance and counseling services for agricultural education students, and (3) future research.

It is the immediate concern of the administrators of the Agricultural Education Department to insure the total preparedness of teachers of vocational agriculture. This awesome responsibility must necessarily include an evaluation of the personality of the individual students. This study may be used as a baseline of information for such an evaluation. It may also serve to denote areas of concern. Remediation measures may be considered for improving the potential of agricultural education students for interpersonal relationships and is so recommended.

The implications of the study for the guidance and counseling program suggest that a greater stress may be placed in the area of human relations. Greater emphasis on social issues is indicated as being desirable to create a wider range of understanding and outlook, and is so recommended.

The implications for further research are limited only by the imagination of the researchers. Now that a baseline has been established, longitudinal studies may be considered to determine relationships of personality characteristics with such variables as persistence in the teaching profession, continuation into post baccalaureate work, success in teaching, and many more. This research would most likely be conducted with a view toward the development of a predictive measure.

A measure for prediction of high quality work in all fields of education has remained an elusive goal throughout decades of research. It is, after all, the ultimate goal of all educators to upgrade the quality of education being offered. An integral part of this goal is the upgrading and selection of teaching personnel best suited for the profession. Personality is vital to this issue and may well prove to be instrumental in the establishment of such a measure.

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APPENDIXES

APPENDIX A

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TITLE 'AGED STUDENT TEACHERS CPI SCORES';
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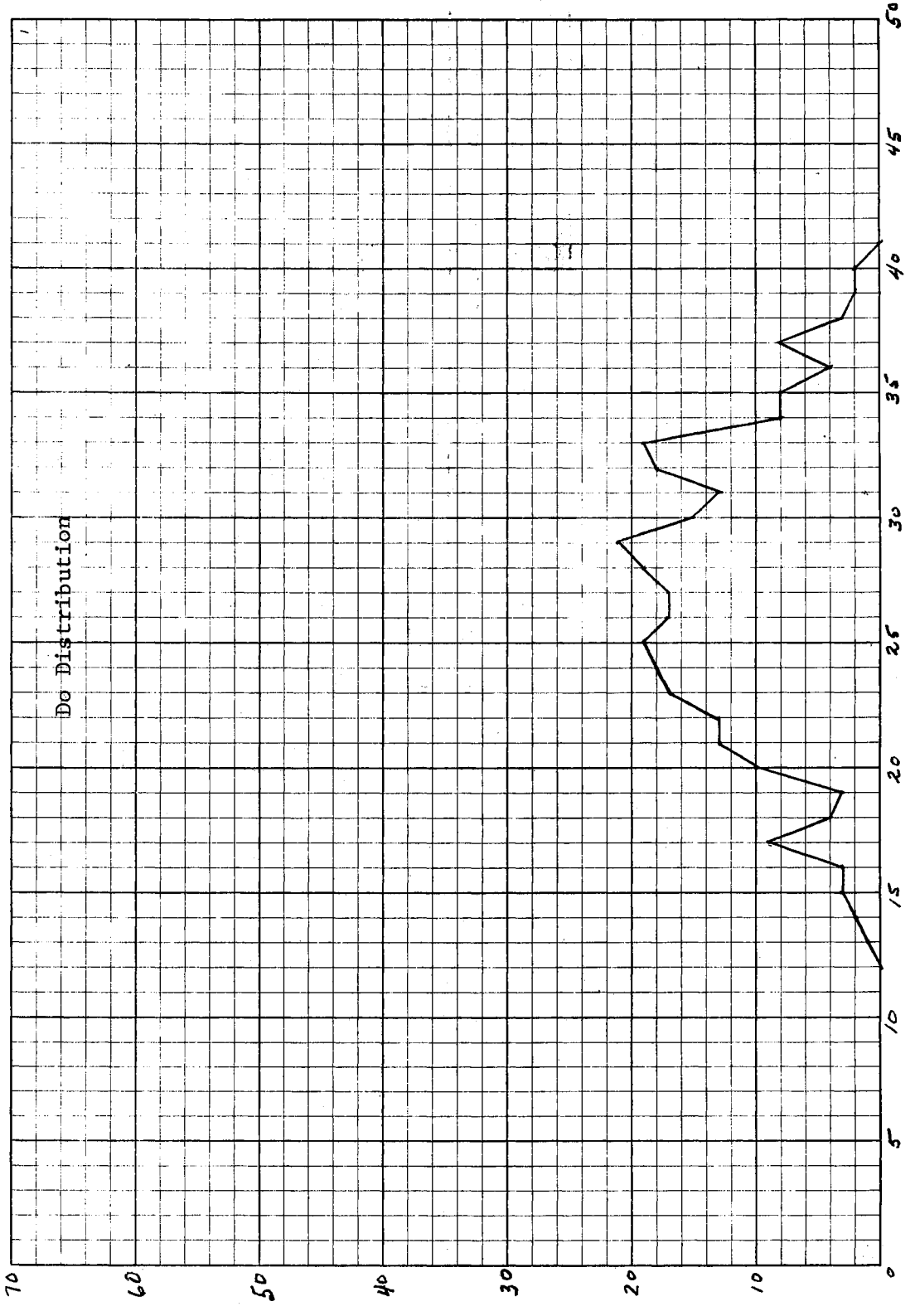
APPENDIX B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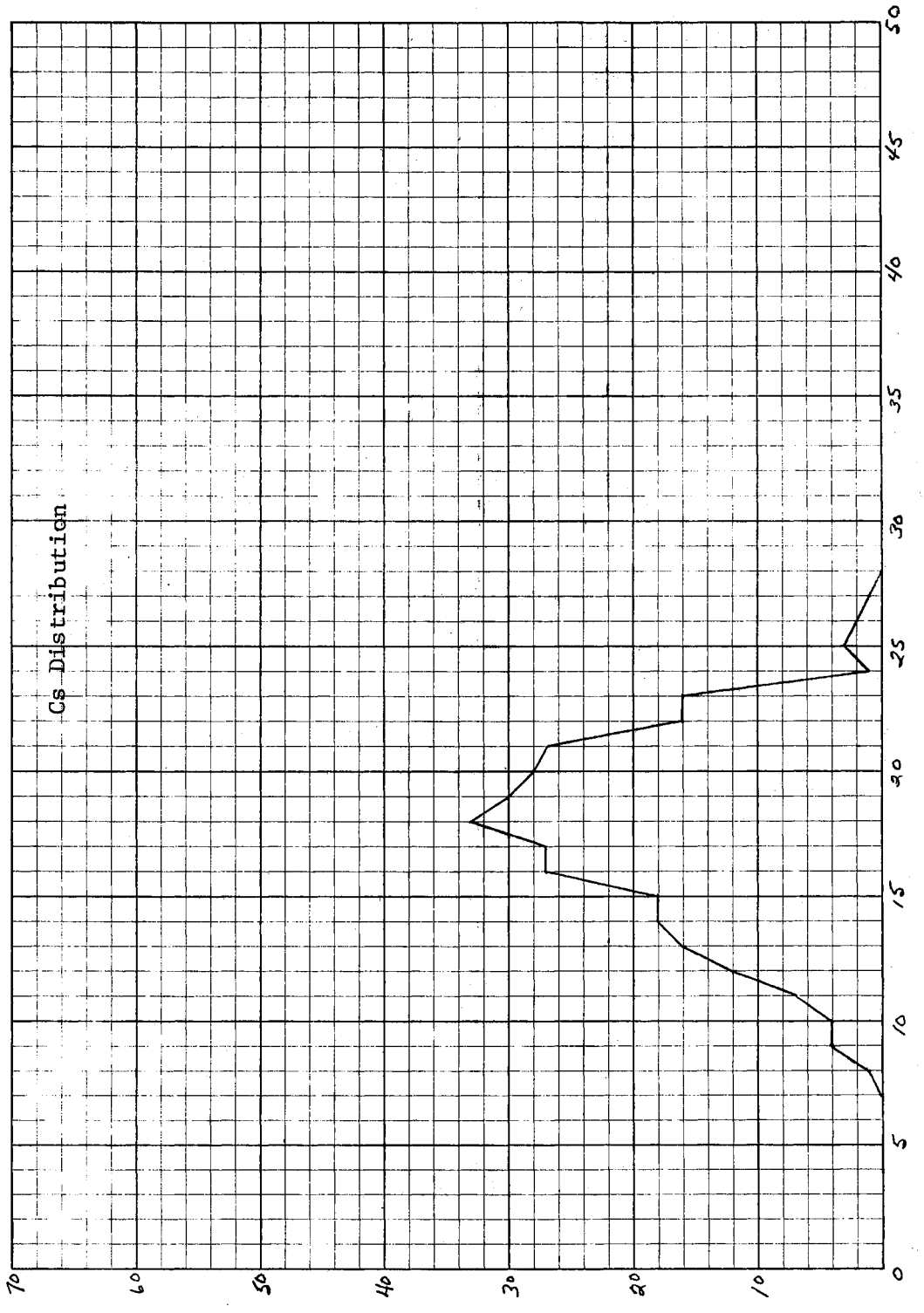
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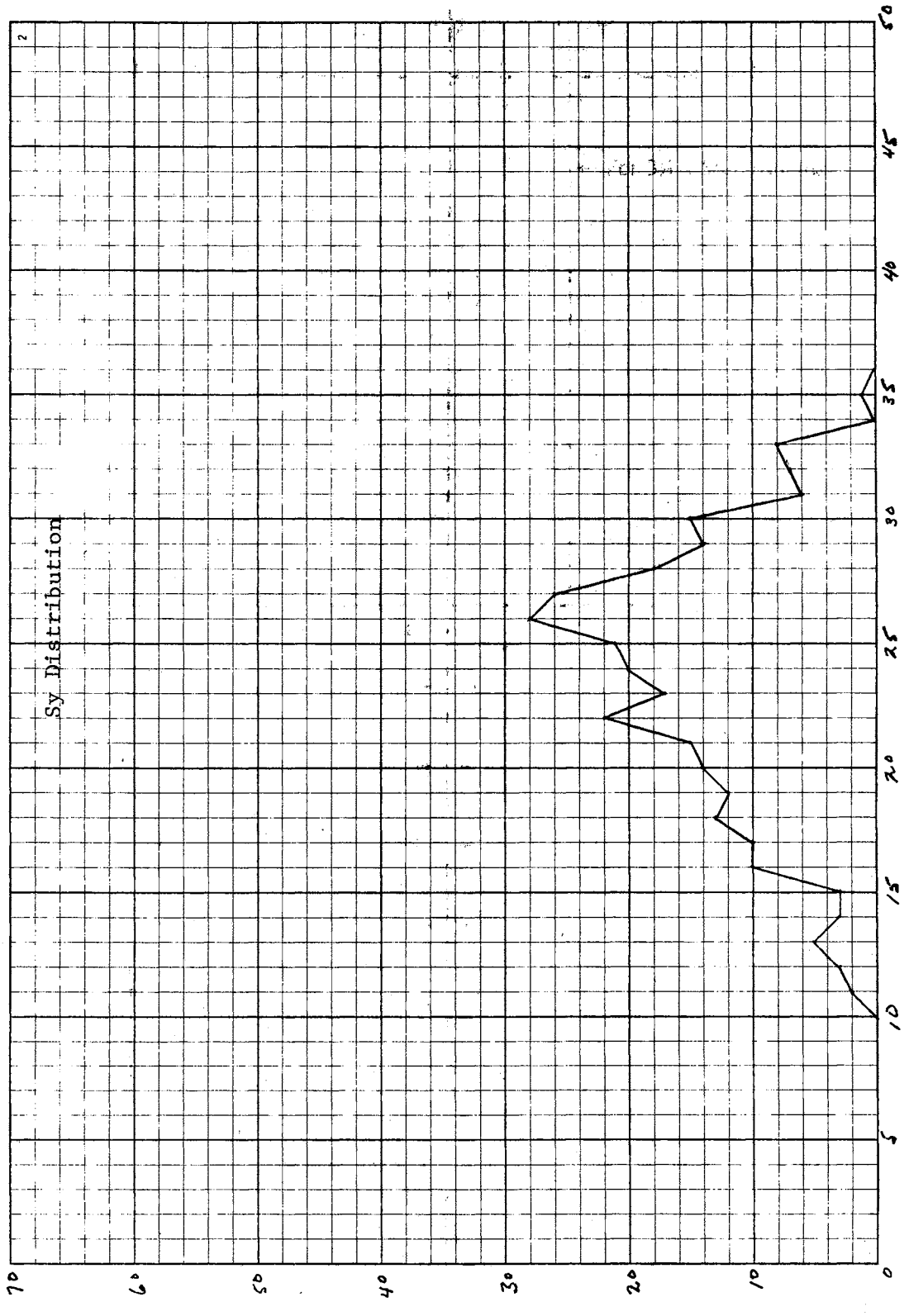
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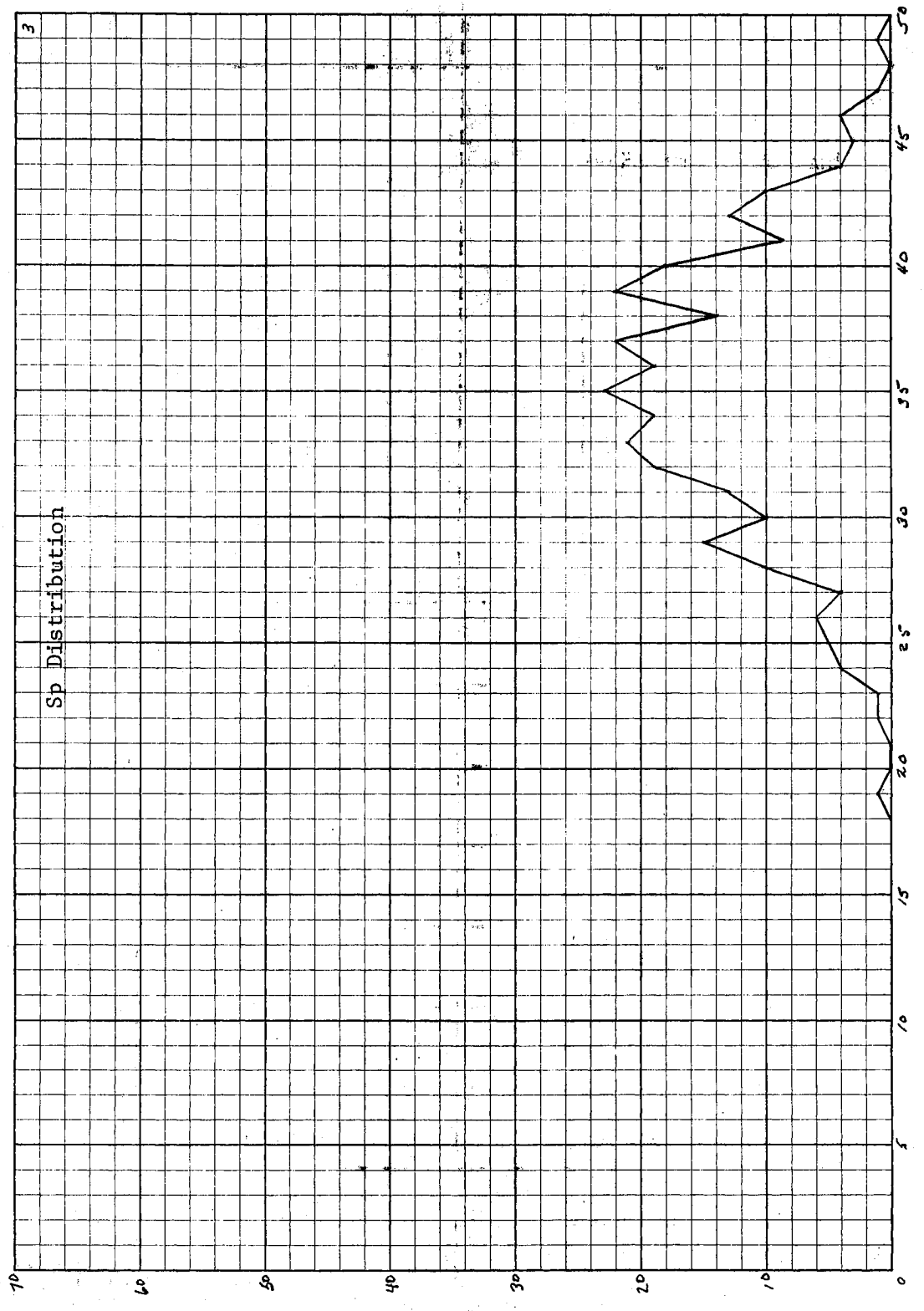
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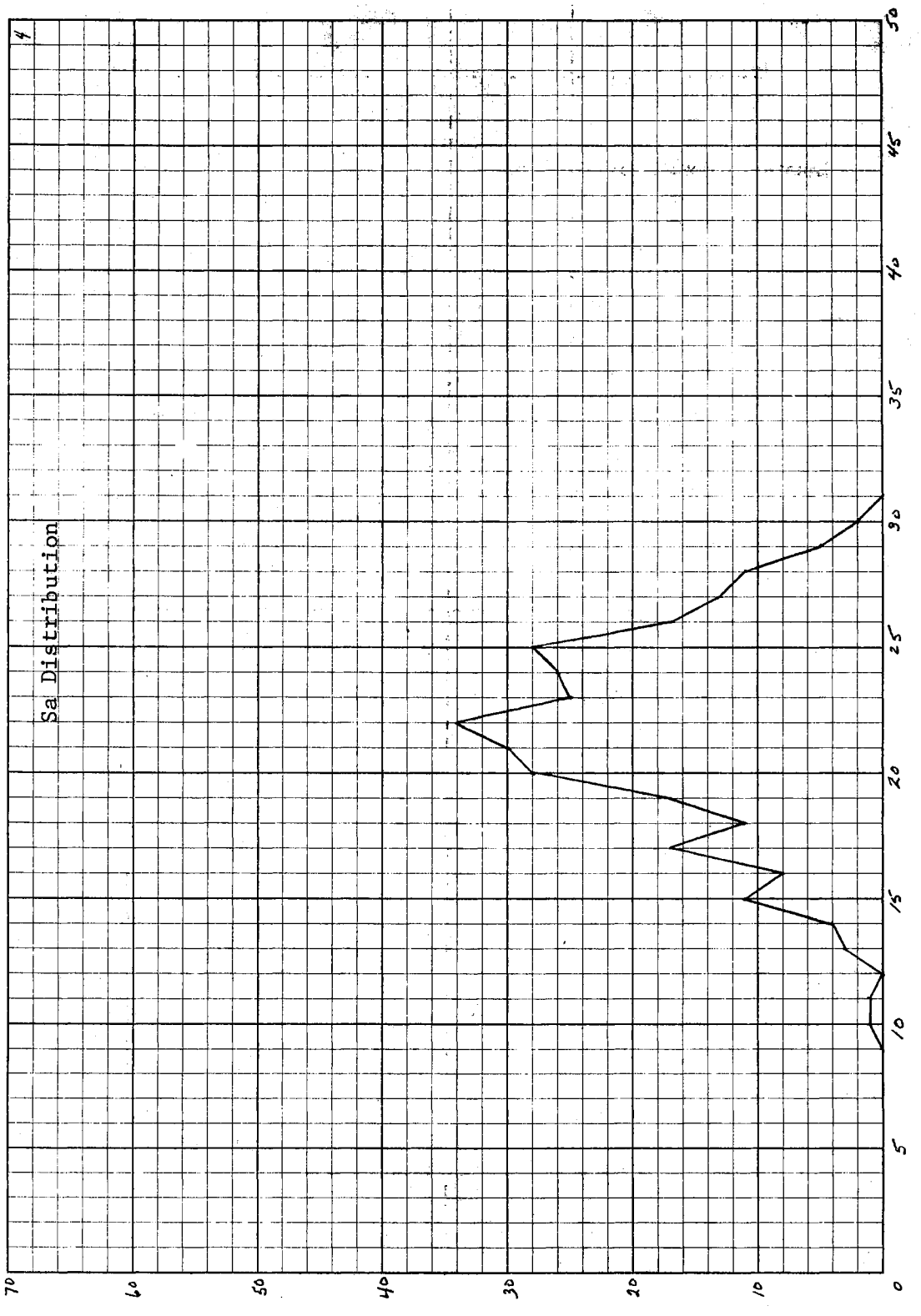
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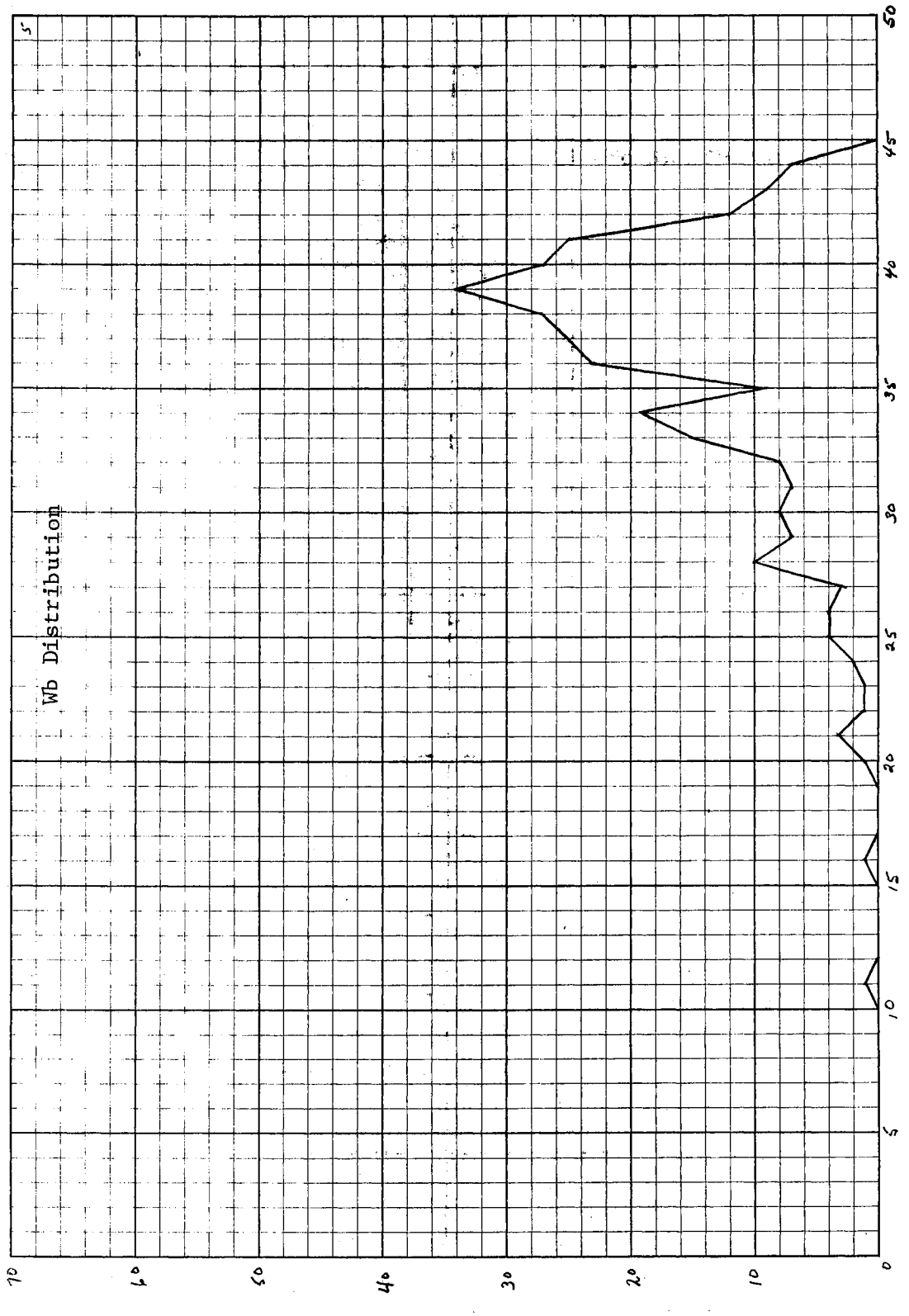
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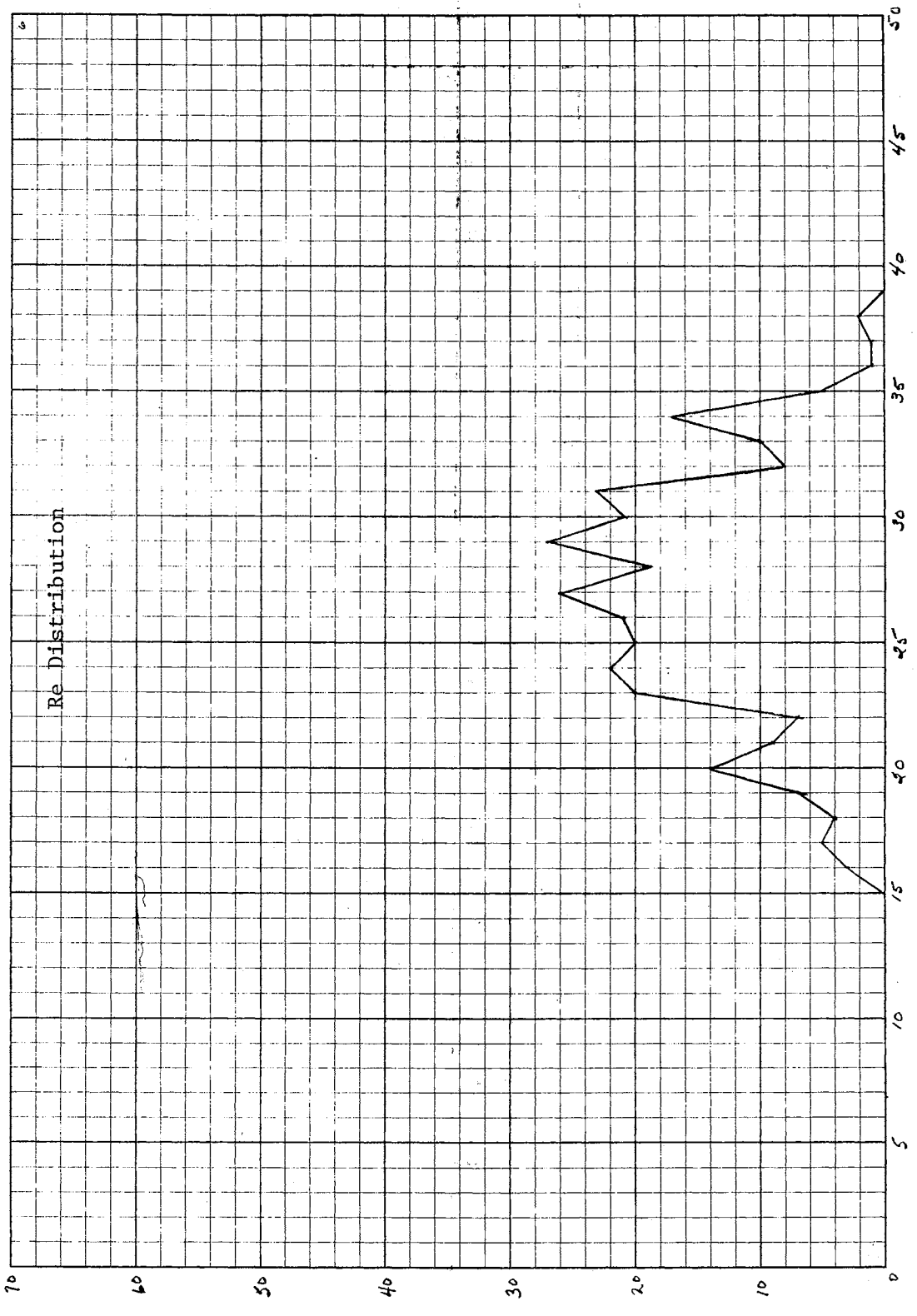
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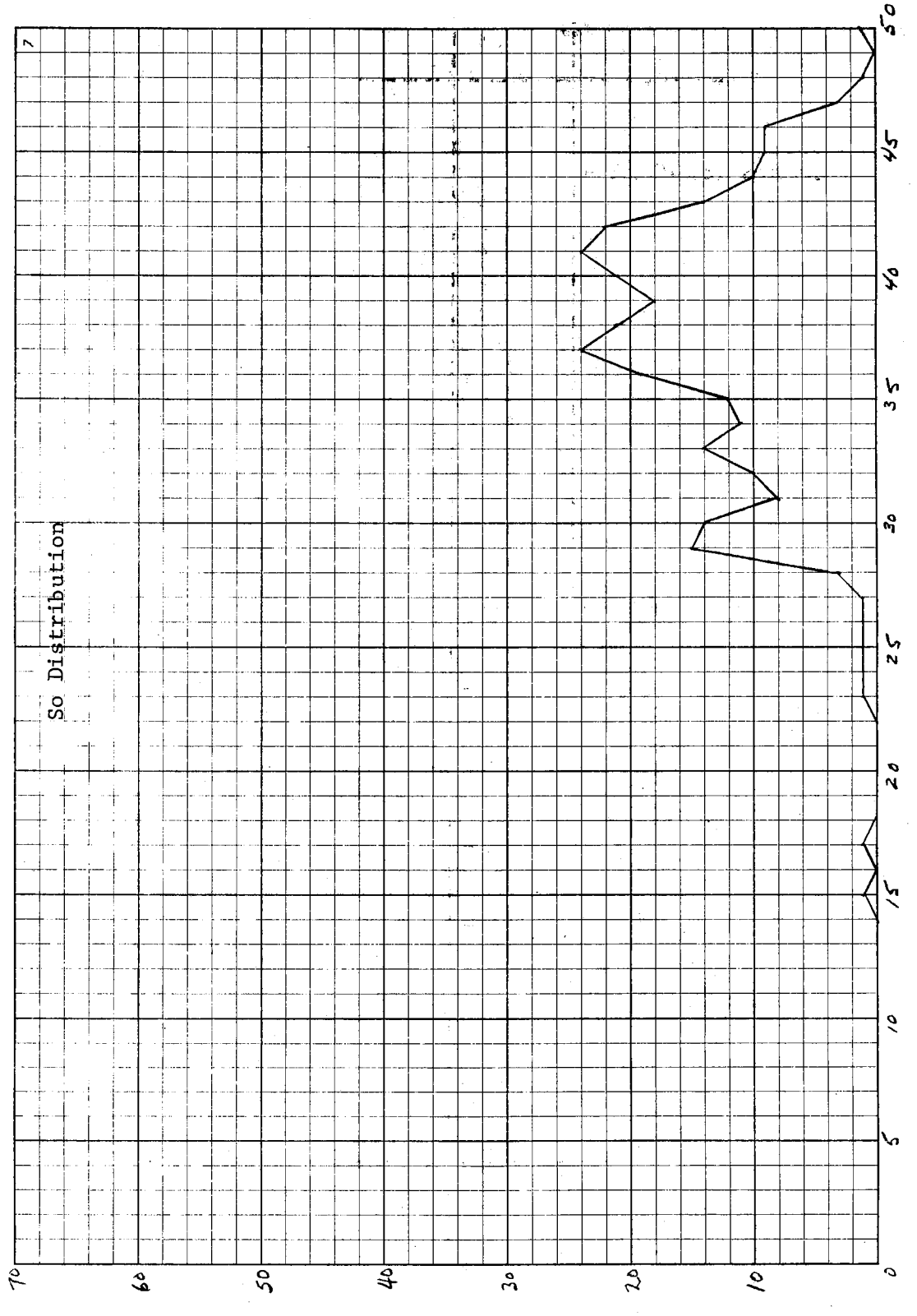
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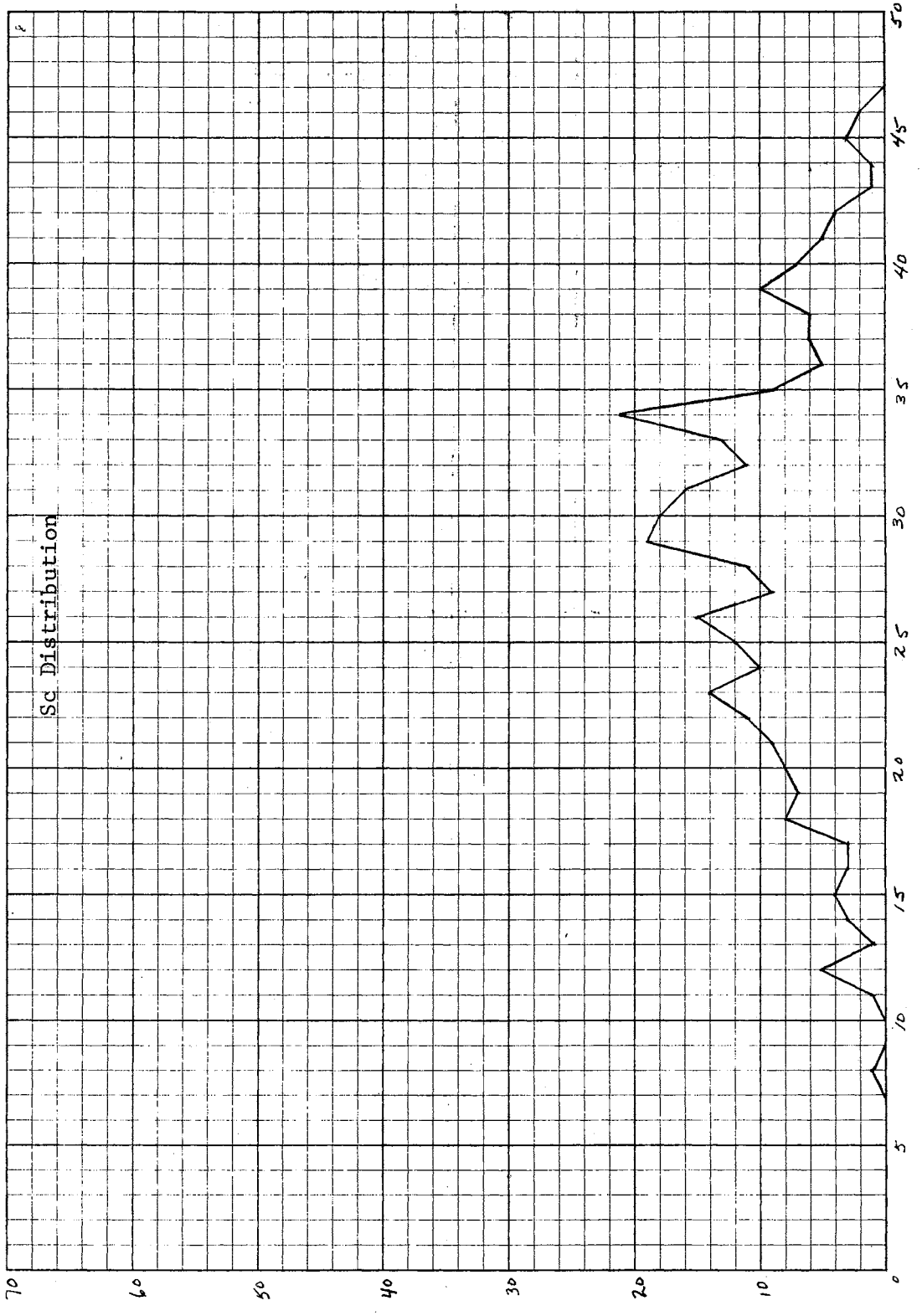
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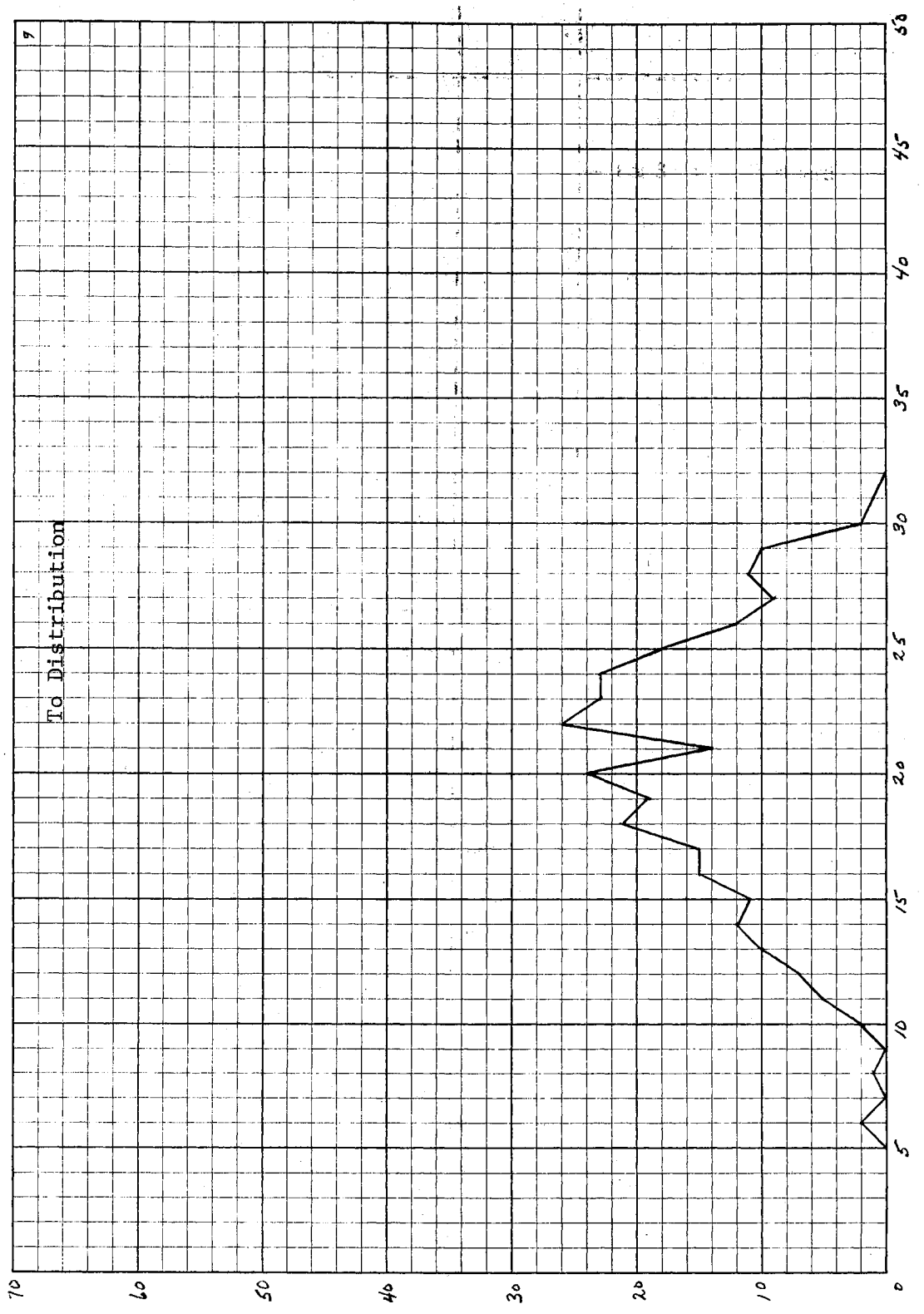
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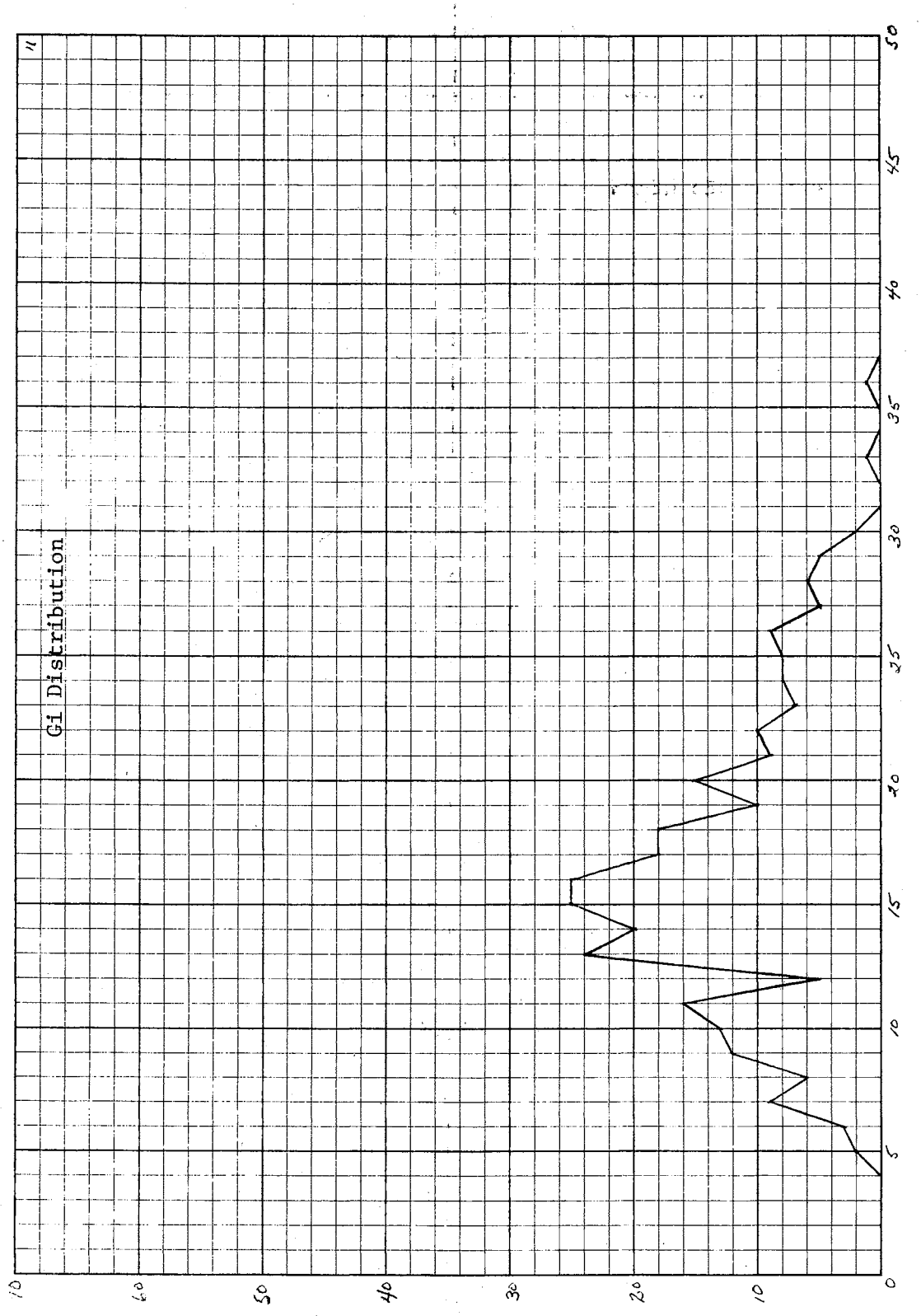
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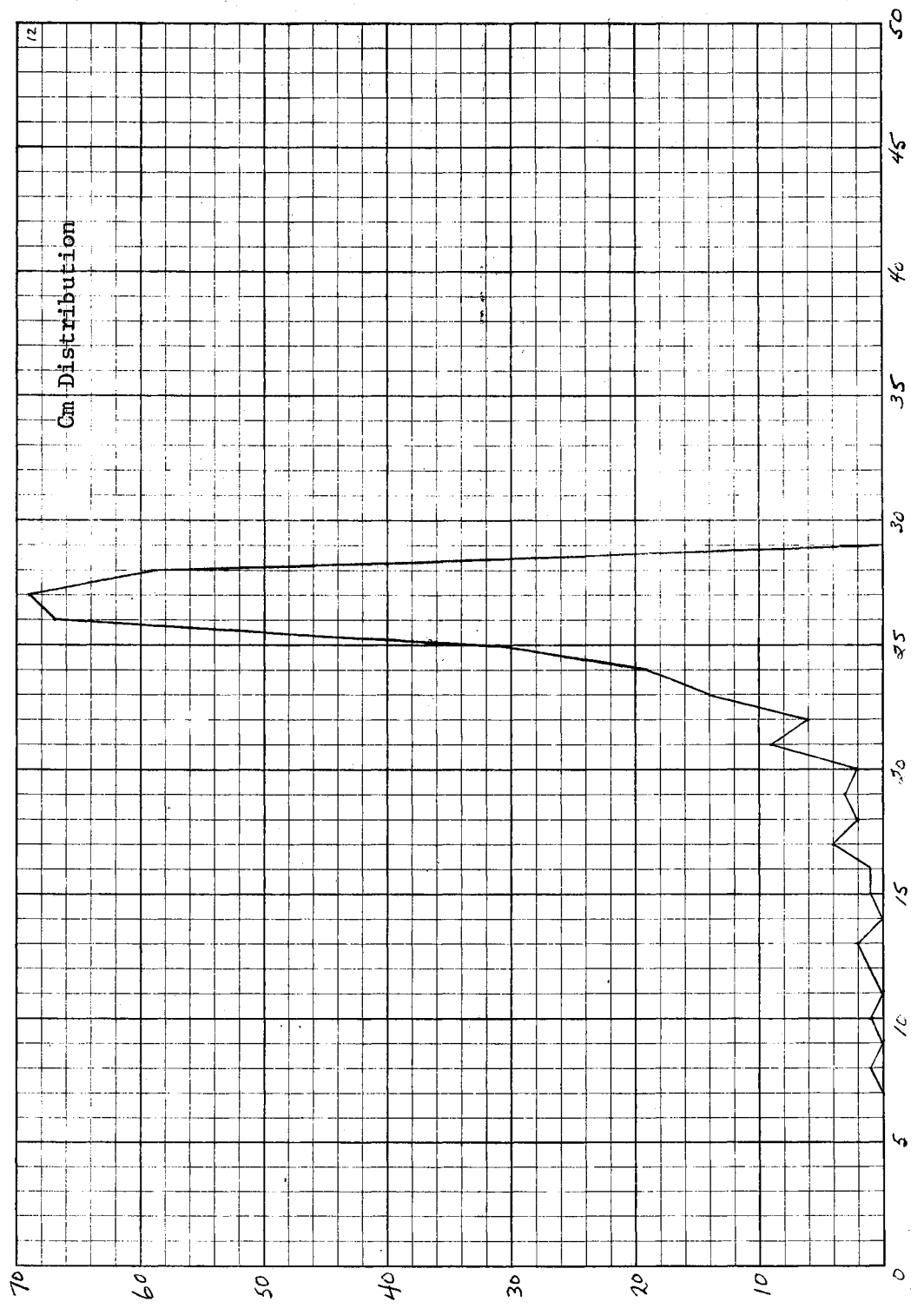
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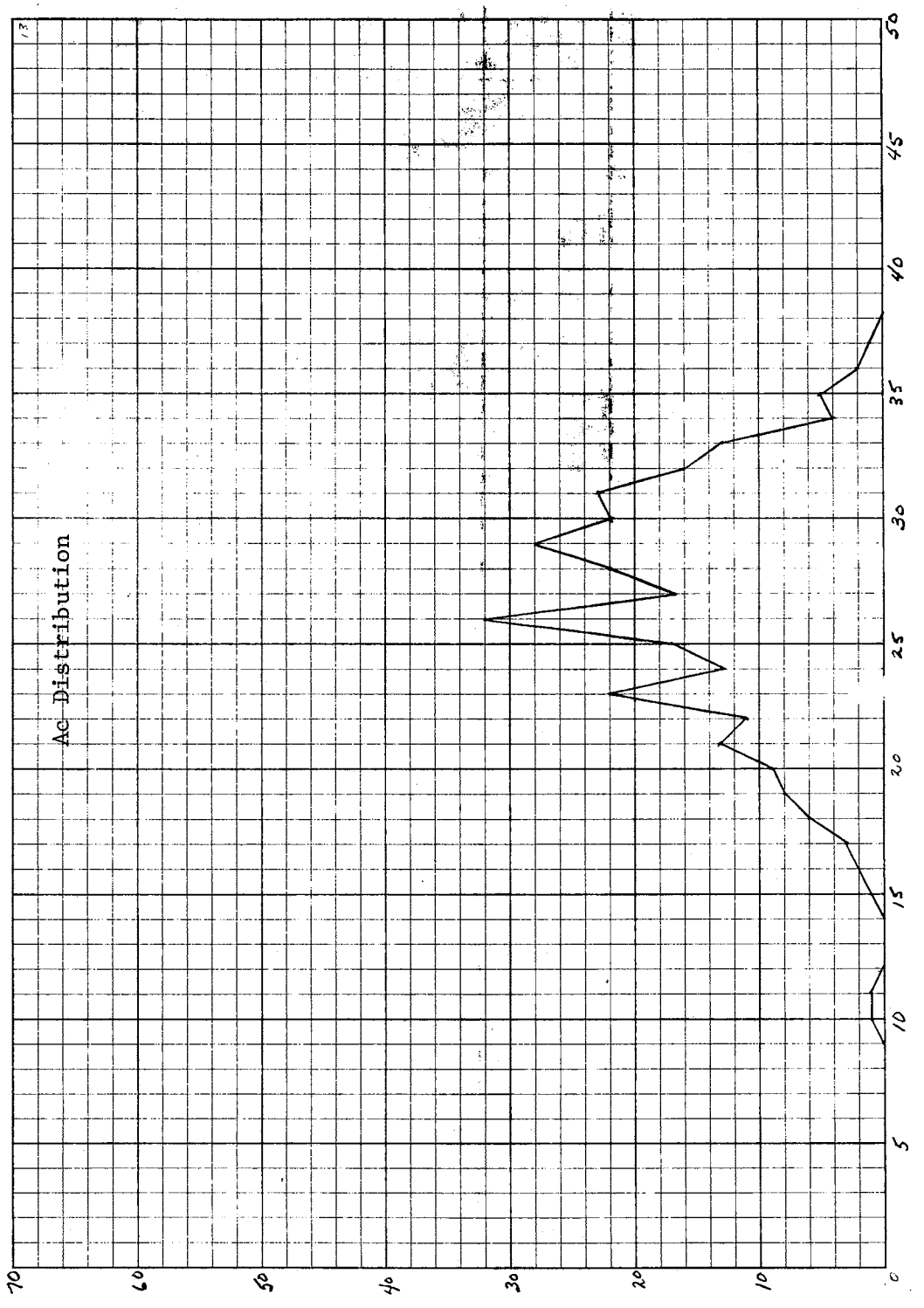
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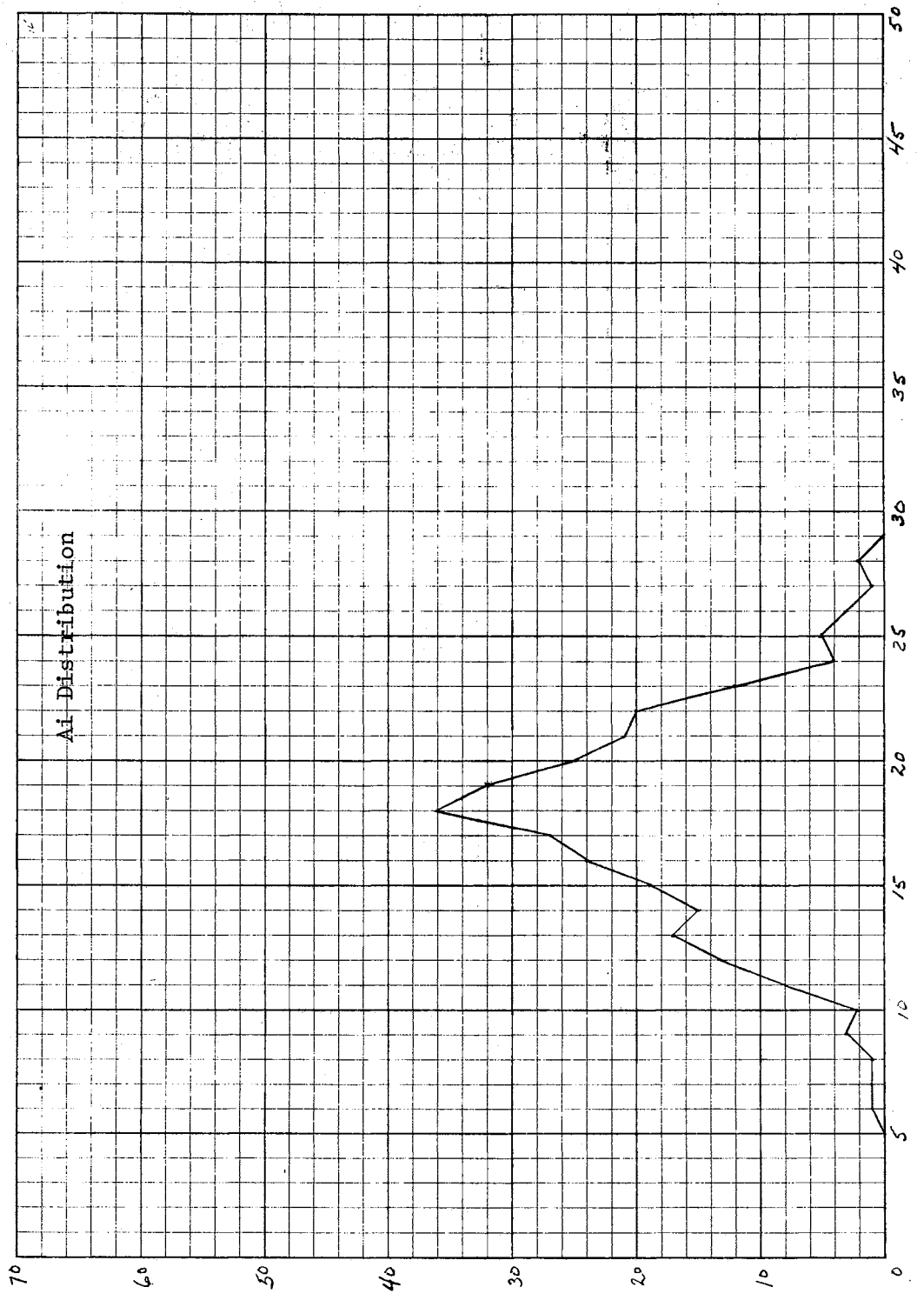
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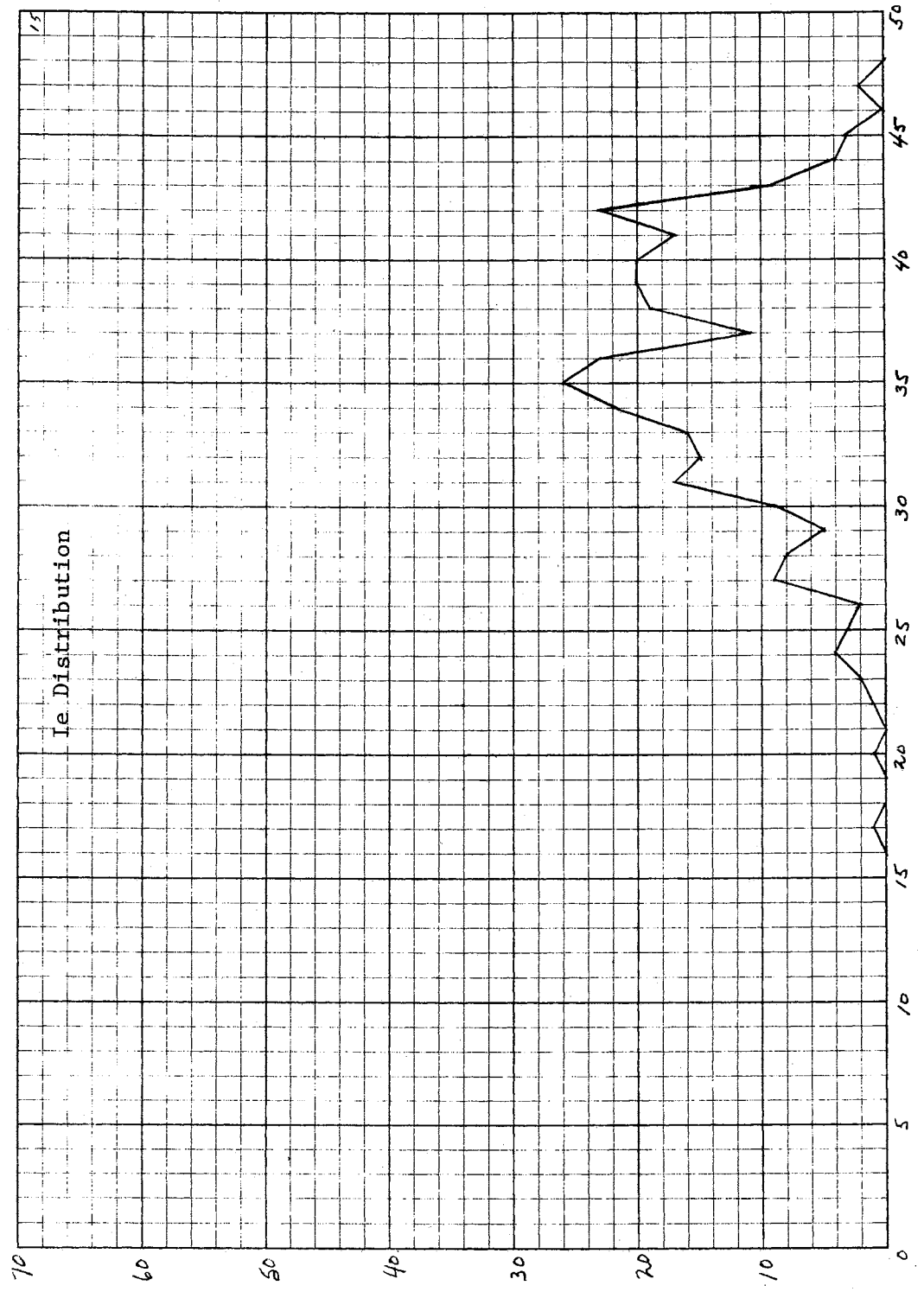
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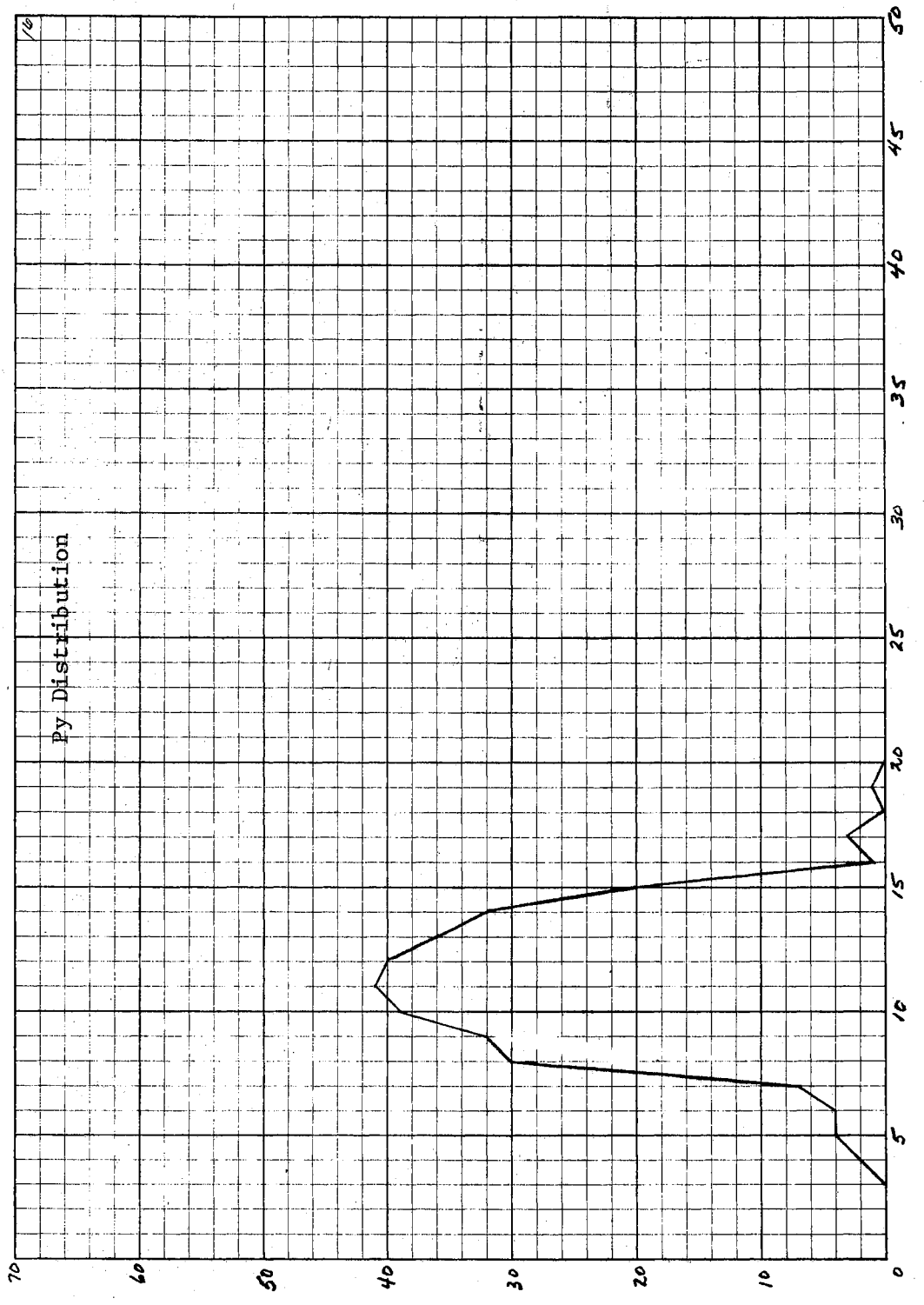
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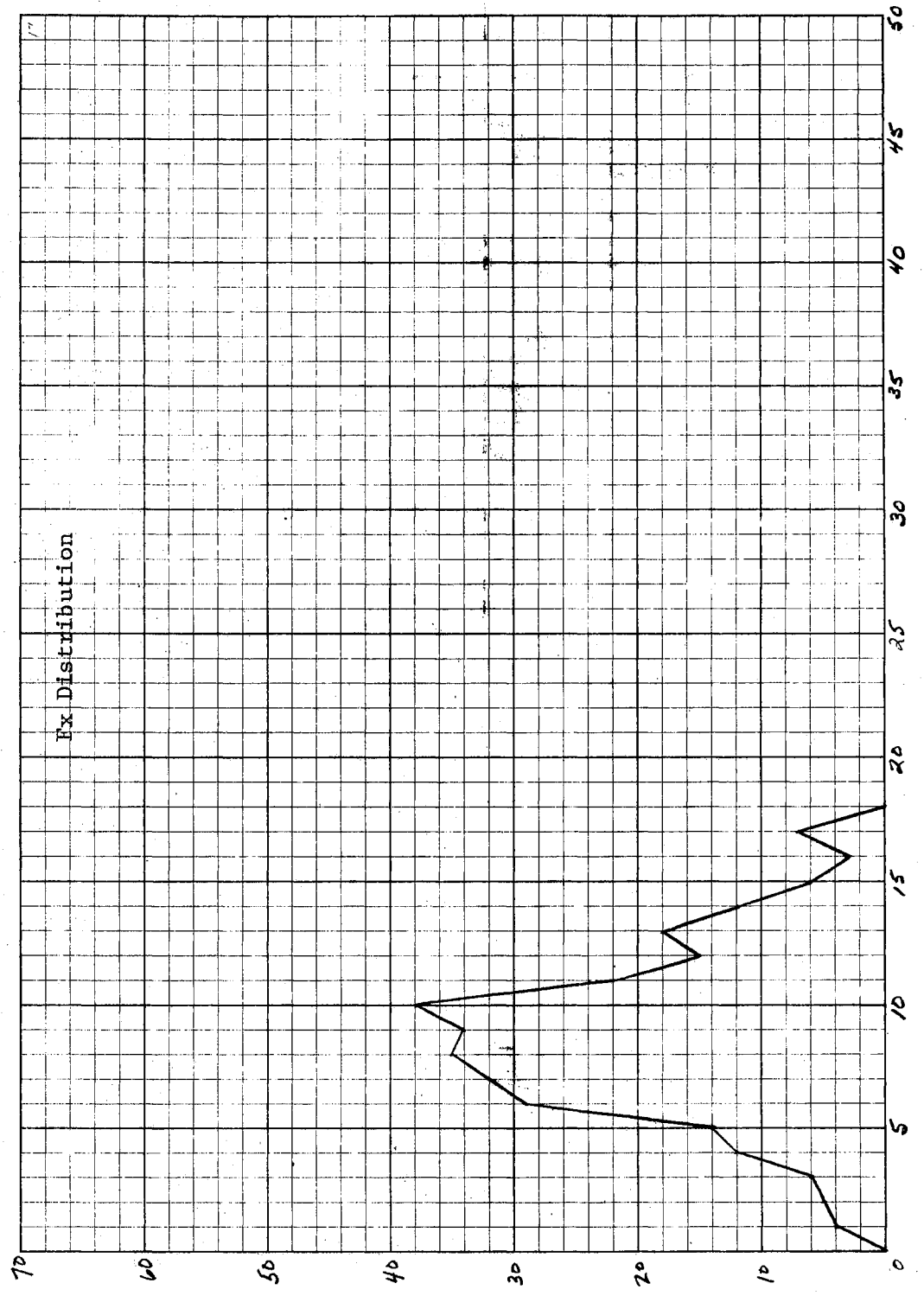
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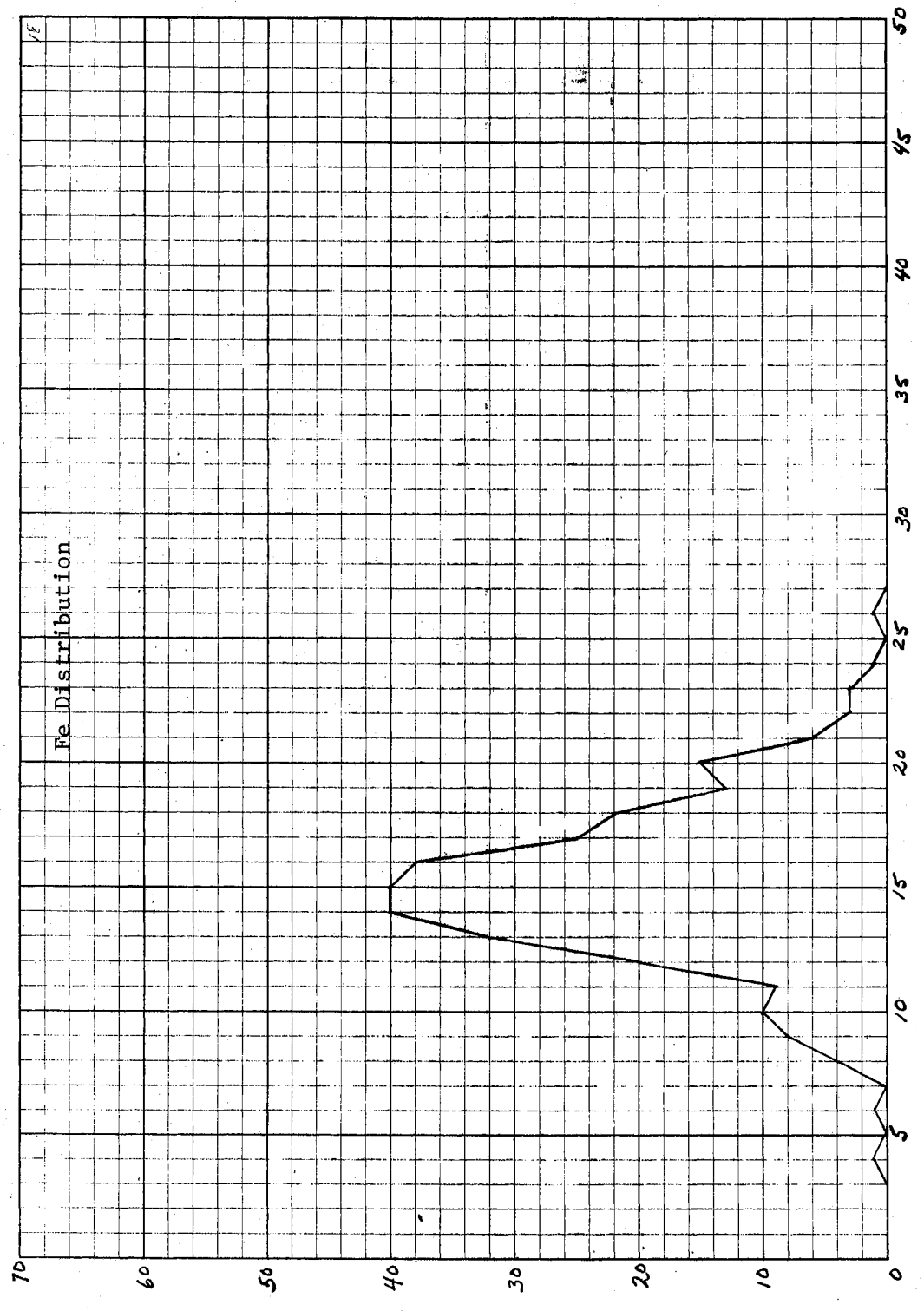
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VITA

Paul Dean McCarrell

Candidate for the Degree of

Master of Science

Thesis: PERSONALITY CHARACTERISTICS OF STUDENT TEACHERS IN AGRICULTURAL EDUCATION AT OKLAHOMA STATE UNIVERSITY, 1969-1973

Major Field: Vocational, Technical, and Career Education

Biographical:

Personal Data: Born in Amarillo, Texas, February 26, 1933, the son of Mr. and Mrs. Charles E. McCarrell.

Education: Graduated from Del Norte High School, Del Norte, Colorado, in May, 1950; received Bachelor of Arts degree in English from Adams State College in 1958; enrolled in graduate studies in guidance and counseling at University of Oklahoma in 1969; completed requirements for the Master of Science degree at Oklahoma State University in July, 1973.

Professional Experience: Assistant Director, Southern Oklahoma Rural Skills Center, 1970-72; Director, Project Transition, Ft. Sill, Oklahoma, 1969-70; Educational Counselor, Ft. Sill, Oklahoma, 1968-69; Assistant Director, McCook Job Corps Conservation Center, 1966-67; Instructor, McCook Job Corps Conservation Center, 1966; High School English Teacher, Zion-Benton Township High School, Zion, Illinois, 1958-59; Elementary Teacher, Moffat Consolidated Schools, Moffat, Colorado, 1956-57.