

**SURVEY OF CRITERIA FOR SELECTION OF PARTICIPANTS  
IN THE SUMMER SCIENCE INSTITUTES**

By

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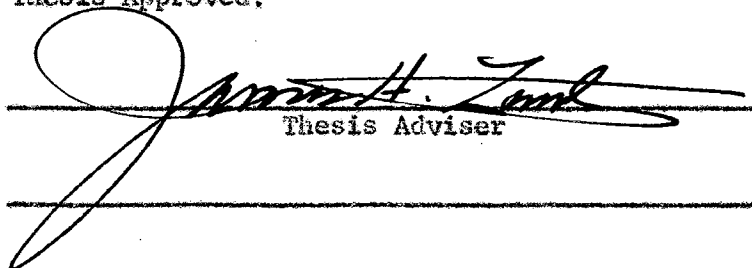
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Thesis Approved:



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Thesis Adviser



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Dean of the Graduate School

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## PREFACE

It has been an honor and a privilege to participate in the Academic Year Institute for High School Teachers of Science and Mathematics sponsored by the National Science Foundation and located at Oklahoma State University.

I wish to thank Dr. James H. Zant, Director of the Program, for his cordial counsel and advice in writing this report and express my appreciation for the use of two Director's Reports which were used in the survey. I especially wish to thank my father, Dr. Otto H. Smith, Director Emeritus of the Research Foundation of Oklahoma State University for making available the Director's Reports on which this survey was made and for his generous help and gracious encouragement.

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## CHAPTER I

### INTRODUCTION

It would be platitudinous to reiterate the shortages that exist in the United States with respect to scientific personnel. The need for qualified research scientists, technicians, engineers and teachers has been well documented in books, articles in the nation's press, popular magazines, technical and trade journals and talks before scientific and educational societies. A number of efforts have been undertaken by various groups and organizations to find solutions to this problem. Among these efforts are the attempts to improve science teaching in the public schools on the assumption that such improvement will stimulate more students to elect careers in science. To provide the nation with science teachers who will be an inspiration and ideal to the young student and who can show him the true values of a scientific career appears to be one of the best ways to assure an adequate supply of future scientists. The science teacher thus holds the key to the future manpower supply in the scientific and technological fields.

That the well informed and enthusiastic science teacher plays the major role in the motivation of talented young people to seek and prepare for careers in the science area has been well demonstrated in a study by Columbia University's Teachers College.<sup>1</sup> One thousand high schools

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<sup>1</sup>F. L. Fitzpatrick, "Scientific Manpower Problem and the Program at Teachers College, Columbia University," Science Education, 41 (1957), 140-145.

reported an absolute relationship between good teaching and rising science enrollment. Wherever growing interest and enrollment in physics, chemistry, and mathematics is found, the principal reason given is the influence and attraction of a good science teacher. In high schools having a decline in science enrollment the teacher is named as the number one factor. Here the teacher is labeled as uninspiring, uninteresting, and very poorly prepared in the subject. The report reflects the immense importance of the high school and junior high school years in developing the country's future scientists and technicians.

Unfortunately, increasing numbers of the science teachers today are unable to guide and inspire the more capable students, whereas the good teachers are an ever increasing scarcity as they go into other areas to seek better economic and social position. It would appear that many science teachers have spent a great deal of time studying how to teach but have been willing to devote comparatively little time to mastering the subject they are to teach. It has become increasingly clear that even if the capable person is dedicated to teaching and to science, he may not be adequately prepared. For these persons, present salary scales and the expense of continued graduate study has been a formidable barrier. There have been some isolated programs undertaken to improve the training of teachers of specialized subjects. However, little or no emphasis has been placed on the upgrading of the qualifications of the teachers in the general education courses in science. It is at this level that there has been great need for improving science teaching.

Of the programs being developed by private and governmental agencies as well as colleges and universities to alleviate the shortage of science manpower, it is believed that the raising of the quality of the in-service science teacher will have the most immediate effect. Thus, the National

Science Foundation sponsored the development of the Academic Year Institutes for College and High School Teachers of Science and Mathematics. The first Academic Year Institutes were held at the University of Wisconsin, in Madison and at the Oklahoma Agricultural and Mechanical College, in Stillwater, Oklahoma during the scholastic year of 1956-1957. During the summer of 1957, a total of ninety-five Summer Institutes were organized and conducted at the various colleges and universities throughout the United States, Alaska, Puerto Rico and Hawaii.

The National Science Foundation made grants, upon the approval of a proposal submitted by a group of interested faculty and officials, to the university or college, to cover the expenses of creating and directing an Institute program. Included in the grant is an allowance for the expenses incurred by the individuals in attending the program and was usually divided into three groups, the fees and tuition to attend the college or university, travel allotment and a stipend to the participant to cover room, board and incidental expenses.

The selection of the participants and the awarding of the stipends was in the province of the Director and staff of the Institute, and was accomplished by a selection committee which fabricated and applied a set of standards designated as criteria. Thus, though the aggregate of criteria were dissimilar due to the variety of origin, the characteristics of the integrants were akin. A survey of the selective factors will aid in the identification of the preferential components.

## CHAPTER II

### METHOD AND PROCEDURE

The aims and objectives of the Summer Institute program are to improve the basic subject matter competence of the teachers with modern courses in science and mathematics; to strengthen the capacity of these teachers to motivate students to careers in science and mathematics by increasing the student's comprehension of basic science and mathematics; and to bring these teachers in personal contact with the highly productive scientists with the view of stimulating interest and increasing their professional prestige.

These objectives were the basis of the aims of the individual Summer Institutes in the organization and the development of their program. The disparate types of programs which evolved represented multiplicity of interpretations of the objectives and the facilities of the institution. The selection of the persons to participate in the institutes was, therefore, a cumulative result of the nature of the program.

The purpose of this report is to survey and compile the criteria utilized in the selection of the participants who were invited and awarded a stipend to attend one of the ninety-five Summer Institutes in session during the summer of 1957. The reports of the Institute Director to the National Science Foundation headquarters in Washington, D. C. furnished the material from which this data is drawn. Of the reports from the ninety-five Institutes, thirty-one were accessible as source material. On the basis of the limited number available to the writer, it



is not valid to say that the criteria thus delineated are representative of the total Institutes. However, this seems to be a random sampling which in all probability would be found valid on the investigation of all of the reports and it does indicate the trends in the selective factors.

This compilation will aid in the determination of the predominant factors comprising the qualifications thought to be desirable in the selected participants. The constituents included in the reports provided a list of nineteen points of consideration found in three or more of them.

It has been difficult to categorize each point of consideration due to the fact that diverse opinions in the preferences desired ranged from one extreme to that diametrically opposed. Thus each group includes all the mentions of the point regardless of the direction or the degree. In addition, a miscellaneous designation was made for those items which could not be classified in the established categories. In all probability, a wider scope of survey would provide more categories for efficient classifying, but due to the individuality of the programs, the size of the miscellaneous group would indubitably increase as well.

With each host institution independently organizing their own Institute, the programs were indeed diversified and individual. Of the ninety-five Summer Institutes (1957), forty-one or 43.16 per cent offered a specialized program in a single field, while the remaining 54 or 56.84 per cent designed a general program in several fields. It might be assumed that the specialized programs would require a prerequisite of an undergraduate major in the field, with work offered in the graduate area, while the general programs would be developed on a lower scholastic level. There seems to have been little correlation between the type of the program and the level of the work offered.

The Institutes with the specialized fields did tend to have fewer numbers of participants than those with the generalized programs. One Institute, arranged by a director obviously interested in research, was planned for only ten participants. "Since we were running a small program of a specialized type, we felt that we could be most effective by taking those with unusually good course background in chemistry and biological sciences." Five of the specialized group had less than fifty-one and the largest one had sixty-four students, while those with the general programs ranged from a low of thirty persons to two hundred and five, with the median of fifty-six individuals.

Wide variation was found in the reports with some containing little reference concerning the basis of the selection or of the process, while in others, the determinates and methods were described in informative detail. The system of selection of the participants was the responsibility and the discretion of the director who created and conducted, in varying degrees, the activities of a selection committee.

In most cases, this group consisted of the director and some members of the college or university faculty and administration, or in other cases, it was composed of the director with the individuals who were to comprise the Institute staff. One director included with the faculty members, a representative of the state department of education and a principal of a high school. In the report of the largest Institute surveyed, the committee was assembled with a representative from the Department of Education of the university, the past president of the National Science Teachers Association, the supervisor of science in the public schools of the city, in addition to the Institute Director. In all situations, it appeared that the selection committee was carefully chosen with due regard to their aptitudes and abilities and it was

evident that the members were conscientiously diligent. "All soon became convinced that this committee was wisely selected and that it carried out its job most successfully, in fact, we do not feel the need for other selection criteria than arose for consideration in the deliberations of this committee....The selection committee took its job most seriously and many hours were spent in deliberation. I believe that the selection function must be the responsibility of not one or two but of several individuals of a college or university faculty. Evidence of academic need, ability to profit from the program and a 'career' attitude toward their jobs constitute the most important selection criteria, however, compromise is necessary and there is no short cut to good selection of participants."

From a superficial reading of the reports, it was evident that the sentiments were shared by other directors. It was obvious that many hours were spent in the weighing of the applications and the qualifications of the individuals. "For example, one member of the committee felt that the previous academic record should be almost the sole basis for selecting participants, in that this record indicated ability and that that was our principal concern. Another member of the committee felt that if a record of an applicant showed low grades previously in science that such a person was just the one who needed our help the most and should thereby be awarded a stipend. Other members of the committee believed that the most valid basis for selection lay between these two extremes and so, in almost every case, the selection of the participant was a compromise." In quite a few reports, the director emphasized the fact that criteria could not be applied unaltered with every application because of extenuating circumstances. All of the selectors found it necessary to weigh and compare the merits in each application.

## CHAPTER III

### CRITERIA

Most of the selecting was accomplished from the information contained in the application, the applicant's note and the letters of recommendation. In one instance the committee attempted to interview personally all the candidates by either having them come to the University or by the committee arranging a meeting in a central location for several persons.

From the repetition of mention by the selectors, the most pertinent requisite was the present position held by the applicant. The range of preference lay from that of "teaching one or more science courses" to that of "full-time science teacher." In several instances, the position held, or likely to be held, disqualified the individual. This was especially true for those in administrative situations. "Applicants with masters degrees in administration would be carefully scrutinized to determine whether they plan to continue teaching or expect to be in administration in a few years." Also, "Principals, superintendents and coaches were not considered." Those teachers "unprepared in the courses they now teach" were given preference as were those who "already had a Masters degree, but who were teaching out of their fields." In two institutes, those teaching the specific courses, such as biology, chemistry and physics, were preferred over those who were mainly general science teachers. This was particularly true in the specialized programs, but there was also one instance in the generalized program.

Coupled with the category of the present position held was the consideration of the applicant's preparation for teaching a specific subject and being qualified to meet the prerequisites in that subject matter work of the program. It determined the placement of the individual in a definite level of course work during the summer session or in some cases of the individuals being too well prepared for the program, it was the basis on which an application was denied. In four of the thirty-one reports, the director stated that some applicants were too advanced scholastically and advised them to apply elsewhere. One requirement specified that the applicant "must be able to work in biology at a graduate level" and another should "have sufficient background to take advanced work." Conversely, other committees felt that those with "a poor background in chemistry or physics" or "a limited number of courses in the field," and "those with one year in the field rather than more" were the individuals to whom the session would be advantageous.

The teaching of a variety of courses was thought in one case to be important when considering the length of experience, but generally the basis of determination was the number of years definitely stated. Some committees thought that persons with five or less years of teaching would benefit more from the work while another group of selectors indicated that those with five or more years should be the ones to be invited. Although some persons with only one year of experience in the science teaching field were accepted, it was the consensus of opinion that those who had taught from three to five years were more likely to benefit. One group had a range of teaching experience of one to thirty years though the average of the Institute groups seemed to lie between seven and twelve years. There were numerous exceptions to the definitely stated number of years, both in those Institutes requesting the applicant

to have above five years of experience and those who wanted the applicant to have less than five years of teaching experience. It was also a bit difficult to decide how to classify an applicant like the individual who had been teaching for nineteen years and only during the last year had begun to teach science courses. Would the experience of the nineteen years in other fields be indicative of capable and effective science teaching?

In the objectives of one Institute, it was stated that the program was designed to "up-grade the qualifications in the general education science level" and proposed a follow-up program to determine the effectiveness of the improvement in the quality of teaching by measuring the motivation of the students to choosing a scientific curriculum. This necessitated limiting the participants geographically to state-wide distribution in anticipation of the long term program.

Some of the selectors felt that the Institutes were designed to meet the needs of the teachers in that state to the greatest extent, while some felt that the immediate surrounding states should be included and a still larger group of the committees felt that the wide geographical distribution of the selectees was to be an advantage to the session. With the point system of preferences used in some evaluations, the applicants from the state were given more points, while in others, the applicants were selected on a percentage basis of forty to sixty-five per cent being from the state and the remaining selectees from the rest of the United States. Slightly more than half of those making mention of the geographical factor in the selection desired that the participants be drawn from a wide geographical area in view of the benefit of the many exchanges of experience from different backgrounds.

In the category of academic achievement, the selection committees

agreed most consistently as to the direction of desirability. They were concerned with "the general record," "adequate academic record," "C grade or better" and "science grades weighed carefully." While none of the Institutes gave preference to applicants with poor grades, only two specified that "the better students" and "good record was the first consideration." Associated with this category is that of the requirement of an academic degree, "the possession of a bachelor's degree," "able to qualify to graduate work in the field of interest," or "to be admitted to graduate school."

With very few exceptions, only those were considered who were able to qualify for graduate work in some field, either in the field of education or in a subject matter field. "Working toward, but have not completed a master's degree," or "who already had a Master's degree, but who were teaching out of their field," was the type of individual who was given preference. "No applicants with a subject matter master's degree were selected, but a master's degree in education was not considered in making selections and a substantial number of those selected had such degrees." One Institute stipulated, "entrants must have a bachelor's degree with a major either in science or mathematics, or with five one-year courses in mathematics and science. This background must include chemistry, physics, and integral calculus." In two Institutes, the majority of the applicants not selected was on the basis of ineligibility for graduate school.

The category of the letters of recommendation revealed critical opinions as to their utility. In two Institutes, the selection committee labeled them "extremely useful" and gave them "critical attention" while a third derived "pertinent quotes" from them and a fourth "rated the letters of applications." A fifth committee "gave little consideration to mimeographed letters of recommendation." Though some committees

"examined them" and others "gave them consideration," there were three notable exceptions. These stated that the letters "served little useful purpose except in the demonstration of a career attitude," and "little value except for determining teaching ability." Several suggested that the purpose would be served as well with one letter rather than several.

The category of the ability to profit could in some cases be combined with that of the background of prerequisite courses in that the ability to benefit from the session could be deduced from the ability to complete successfully the undergraduate curriculum. However, this category also includes "evidence from the employer that the applicant is capable of profiting," and "inadequate training with sufficient native ability" as preferred factors in the individual. In several reports, this was the fundamental criterion and in two others, "the most good that could be accomplished" was the basic and only criteria.

This category also might have been combined with that of the evidence of competent teaching in that "evidence from the employer indicating capable teaching," "adaptability and proficiency in teaching" and "ability and indicated interest" was closely related to the anticipated ability of the selectees to utilize summer experiences effectively. The "general attitude and the demonstration of a career attitude" was summed up in the succinct criterion of "attempted to select competent people and improve them."

The major interests in the field of work that the participant wished to study was a determining factor in several Institutes. In one, the interest indicated the motivation of the individual to profit from the session especially in the case of those wishing to work toward a master's degree. In another, the interest aided the directors in the organization of the classes in the subject matter area. For those who were willing to



go into a second or third choice area when the first choice was filled, an offer of a stipend was usually available. This was an aid to the forming of homogeneous or "workable" groups, which, in some cases indicated that the background of the teachers was similar, while in other situations, it meant that the applicants were chosen with the view of having the same number of students in each subject. In one of the specialized programs, the background of the group was considered, "homogeneous as far as professional interests were concerned." It was observed, "It had been originally desired, as far as possible, to select students with uniform academic achievement in several fields, but this was soon recognized to be impossible because of the varied background and training of the teachers....When the final selections were completed, however, the classes were fairly well balanced in numbers of the participants." One of the generalized programs had a problem in the selection with a disproportionate number in biology and mathematics applying. With the smaller number applications from the physics and chemistry teachers, they had to take a poorer group academically than the biology and mathematics group in order to keep a good adjustment in the size of the group. The applications concentrated in the biological field, both numerically and in terms of quality, in one Institute with a general program. "An attempt was made from the beginning to try to keep the four groups, mathematics, physics, chemistry and biology of equal strength, but it was soon found that the applications did not warrant such a classification. Therefore, more people were picked in biology and mathematics, than in physics and chemistry. If the applicants had been chosen solely on the basis of the quality of the applications, even more would have been in the biological field."

The applicant was required to write a note with the application

giving the reasons for wishing to attend the Institute and sketching the benefits which he hoped to derive from it. These were considered by a few committees. "The personal note on the back page of the application often contained pertinent information that helped to evaluate the real need of the applicant. In many instances this helped the committee to make up its mind."

Preference was given to those who had never attended a Summer Institute. "A few who attended previous institutes were selected but in general we are not interested in repeaters." Of the same level of consideration, the extracurricular activities of the applicants and the demonstration of an "unusual interest in science clubs, science fairs and other extracurricular activities" concerned only five of the committees. Of these, only one group of selectors felt that such an interest was of much importance.

The recency of the course work taken, the size of the school, the 'need' of the applicant were points that were considered by some of the selection committees as the last basis on which to make a decision. The lack of completion of the application forms by the deadline eliminated applicants in some institutions while in others, the incompleteness was a deterrent to selection. The teacher's position in the science department was a criterion that was given but in neither of two cases was there any amplifying comment. One of the last basis of judgment was "All other things being equal, the applicants with dependents were given preference over those without." As a final decision was the statement, "The criteria was not applied to the registrants who paid their own expenses."

## CHAPTER IV

### SUMMARY

The diversity of opinions as to the degree of importance allocated to each criterion, to the antithetical preferences of the selectors and to the subtle interrelationship between two components is indicative of the difficulty in attempting to rank criterion in order of importance. However, each factor can be rated relevant to the aggregate of representation in the reports of the selection process. Thus, a credible gradation of precedence can be achieved.

It was found that the selectors were most concerned with the present position and teaching load in the science fields and in the background of previous courses taken while the applicant was an undergraduate. The conception of the selectors of the Institutes being designed to provide the opportunity for the active science teachers to improve their qualifications was well demonstrated by the insistence that only those engaged in teaching science should be selected. The awareness of the overwhelming size of the field of teachers whose subject matter competence is in need of improvement, was reflected in the selection of only those individuals whose previous work in science courses indicated an ability to reach the level of the course work given during the session.

The academic record was next in line in precedence and was employed somewhat as a barometer in prospect of the successful completion of the Program. The stipulation of the length of teaching experience was a means of determining the dedication of the teacher to the career of science

teaching and also a method of assurance of the teacher's awareness of the various problems encountered in the profession.

Though the letters of recommendation were subjected to the most divergent opinions expressed, over half of the committees felt they were important enough to mention.

The category of the geographical distribution indicated that while some selectors felt that serving the immediate community was of great importance, the majority felt that the exchanges of experiences from many backgrounds of far more value to the individual participant.

The eligibility of the applicant to be admitted to graduate school was an indication of the successful completion of undergraduate work, and is an indication of the anticipation of the successful completion of the Program work. The ability to profit category concerns the measure of the administrator's opinions of the teacher's attitude and his ability to assimilate the subject matter offered during the Institute. It also implies that the individual will use the material in the classroom to facilitate the student's comprehension of the subject. The category of the course work desired by the applicant evinces the fact that the applicant is aware of his deficiencies and wishes to amend the situation.

In the selection of the middle and younger age group of individuals the committees were attempting to assure a long-term period of influence for years of service. The very young lack the necessary experience while those due to retire in a few years would not be able to profit to full advantage.

The numerical consideration of the category of the teacher's previous competence, show that over a third of the selectors were interested in finding those who were already fairly effective teachers. This category is closely related to the one of the applicant's ability to profit.

The concern of the selection committee with the homogeneous grouping of the participants seemed to be an effort to spread the effects of the improvement over as many science fields in the high school as possible, or to provide groups for study during the session that were easy for the administrators to handle. The major interests and the desired courses categories determined the divisions of some groups.

The applicant's motivation and need determined from the applicant's note was next in line of precedence with the extracurricular activities and the recency of scholastic training following closely. The size of the school, the dependents, the adequate completion of the applications, the racial or creed factors were of minor importance to most of the selectors.

To recapitulate, the table below is a numerical comprehensive summary.

Present position, teaching load	22	Desired courses - major interests	11
Prerequisites - Previous courses	22	Homogeneous and workable groups	8
Teaching experience	18	Completion of applications	8
Academic record	17	Applicant's note in application	7
Letters of recommendation	17	Previous attendance at Institute	4
Admittance to graduate school	15	Extracurricular activities	4
Geographical distribution	15	Recency of training	3
Ability to profit from program	13	Size of school	3
Age of applicant	12	Applicants from single school	2
Evidence of competent teaching	11	Miscellaneous category	11

The compendium of the criteria for the selection of the participants of the Summer Science Institutes is manifested in the statement, "We attempted to select competent people and improve them."

## BIBLIOGRAPHY

### INSTITUTIONS PARTICIPATING IN N. S. F. SUMMER INSTITUTIONS FROM WHICH DIRECTOR'S REPORTS WERE DRAWN

Allegheny College	Meadville, Pennsylvania
Baylor University	Waco, Texas
Bucknell University	Lewisburg, Pennsylvania
Howard University	Washington, District of Columbia
Kansas State Teachers College	Emporia, Kansas
Louisiana State University	Baton Rouge, Louisiana
Marshall College	Huntington, West Virginia
Michigan State University	East Lansing, Michigan
Montana State College	Bozeman, Montana
Morgan State College	Baltimore, Maryland
Murray State College	Murray, Kentucky
Ohio Wesleyan University	Delaware, Ohio
Oklahoma State University	Stillwater, Oklahoma
Rensselaer Polytechnic Institute	Troy, New York
Rutgers University	New Brunswick, New Jersey
Tuskegee Institute	Tuskegee, Alabama
University of Alabama	University, Alabama
University of Alaska	College, Alaska
University of Arizona	Tucson, Arizona
University of Arkansas	Fayetteville, Arkansas
University of California	Berkeley, California

University of California	Berkeley, California
University of Minnesota	Duluth, Minnesota
University of Mississippi	University, Mississippi
University of New Hampshire	Durham, New Hampshire
University of North Carolina	Chapel Hill, North Carolina
University of Wisconsin	Madison, Wisconsin
Utah State University	Logan, Utah
Virginia Polytechnic Institute	Blacksburg, Virginia
Western Michigan College	Kalamazoo, Michigan

APPENDIX

TYPE OF INSTITUTE PROGRAM

Allegheny College	General
Baylor University	General
Sucknell University	General
Howard University	Biology
Kansas State Teachers College	General
Louisiana State University	General
Marshall College	General
Michigan State University	General
Montana State College	Chemistry
Morgan State College	General
Murray State College	General
Ohio Wesleyan University	General
Oklahoma State University	General
Rensselaer Polytechnic Institute	General
Rutgers University	Biology
Tuskegee Institute	Chemistry
University of Alabama	General
University of Alaska	General
University of Arizona	General
University of Arkansas	General
University of California	General
University of California	Chemistry
University of Maryland	General
University of Minnesota	General
University of Mississippi	General
University of New Hampshire	Chemistry
University of North Carolina	General
University of Wisconsin	Chemistry
Utah State University	Chemistry
Virginia Polytechnic Institute	General
Western Michigan College	General



LEVEL OF SCHOOL REPRESENTED  
 JUNIOR HIGH    SENIOR HIGH    COLLEGE

Allegheny College			
Baylor University		57	1
Bucknell University			
Howard University		38	
Kansas State Teachers College			
Louisiana State University		54	
Marshall College	5	37	
Michigan State University	14	40	2
Montana State College		37	27
Morgan State College	13	46	
Murray State College	5	61	1
Ohio Wesleyan University	5	49	
Oklahoma State University			
Rensselaer Polytechnic Institute	6	45	
Rutgers University			
Tuskegee Institute	1	24	

LEVEL OF SCHOOL REPRESENTED  
 JUNIOR HIGH    SENIOR HIGH    COLLEGE

University of Alabama		
University of Alaska		
University of Arizona	5	7
University of Arkansas	17	99
University of California	54	151
University of California		
University of Maryland		
University of Minnesota		
University of Mississippi		84
University of New Hampshire		45
University of North Carolina		
University of Wisconsin		
Utah State University	1	23
Virginia Polytechnic Institute	8	51
Western Michigan College	4	26

## PRESENT POSITION AND TEACHING LOAD

Allegheny College	Especially favorable to those shifted from non-science field to science within the last year or two
Baylor University	Placement in a particular course (in the Institute) was determined by the courses regularly taught by applicant
Bucknell University	Should be currently teaching a science
Howard University	Teaching experience in Biology in a secondary school during 1956-1957
Kansas State Teachers College	Preferably at least half of the participant's teaching load should be in science
Louisiana State University	High school teacher of science or mathematics
Marshall College	A few teachers with a Master's degree but who were teaching out of their field, were also selected
Michigan State University	
Montana State College	Active in the teaching of chemistry
Morgan State College	Teacher of general science and the special sciences, minimum of half schedule in science and mathematics
Murray State College	Proportion of time devoted to actual science teaching
Ohio Wesleyan University	Primarily a teacher of physics, chemistry, and/or general science
Oklahoma State University	
Rensselaer Polytechnic Institute	
Rutgers University	Science teachers, teaching or prepared and likely to teach. Science supervisors will be considered
Tuskegee Institute	

## PRESENT POSITION AND TEACHING LOAD

University of Alabama	Applicants should be teaching courses for which they are apparently not well prepared
University of Alaska	Selected in strongest field rather than in field currently teaching
University of Arizona	
University of Arkansas	80% taught each and all sciences; 20% taught either one subject or in one field
University of California	
University of California	
University of Maryland	
University of Minnesota	Limited enrollment to those who were teaching full time
University of Mississippi	The applicant's full-time schedule must be in one or more fields of the Institute principals, superintendents or coaches were not considered
University of New Hampshire	Each teacher must be an active teacher of chemistry
University of North Carolina	Bulk of time in science or mathematics to other fields; those in biology, chemistry or physics favored over general science
University of Wisconsin	Applicants with the most chemistry classes per day favored
Utah State University	Only teachers who were primarily teachers of science were considered
Virginia Polytechnic Institute	
Western Michigan College	A teacher of science in the secondary schools (grades 9-12)

## PREREQUISITES AND/OR PREVIOUS COURSES

Allegheny College	Those without ample training in relation to teaching and choice of study
Baylor University	Attempted to select those with uniform academic achievement in several fields
Bucknell University	Favored those with a limited amount of science in college
Howard University	
Kansas State Teachers College	Reasonably well qualified in one field
Louisiana State University	Met minimums for at least one course in three or four areas
Marshall College	
Michigan State University	
Montana State College	
Morgan State College	Considered those with academic and professional preparation
Murray State College	Adequacy of preparation for the Institute courses
Ohio Wesleyan University	Preference given to poorer academic training
Oklahoma State University	Hours of work in various fields of science
Rensselaer Polytechnic Institute	Background of chemistry, physics, and integral calculus
Rutgers University	Work in biology at graduate level, inadequate field work
Tuskegee Institute	

## PREREQUISITES AND/OR PREVIOUS COURSES

University of Alabama	Should have <u>some</u> background, in terms either of college preparation or of experience for the work of Institute
University of Alaska	Sufficient training to enable them to take advance work in area. Selected in field in which he appeared strongest
University of Arizona	Particular attention was given to number of units in science and mathematics, especially in first choice field
University of Arkansas	
University of California	Noted number of collegiate units in science and mathematics. Some background in mathematics considered desirable
University of California	Selected those with unusually good background in chemistry and biology. Those with graduate bio-chemistry courses rejected
University of Maryland	
University of Minnesota	Favored those with one year or more in each science taught, but no graduate courses and no undergraduate major in the science
University of Mississippi	Undergraduate work should qualify him for graduate work in at least one field in the specially designed courses of Institute
University of New Hampshire	
University of North Carolina	For mathematics, only those with calculus. Prefer one year with several other courses. No subject M.S. but M.S. in Education all
University of Wisconsin	One year of chemistry required and favored those with one year over those with more
Utah State University	Selection on basis of previous training
Virginia Polytechnic Institute	
Western Michigan College	Undergraduate background indicating certain deficiencies in the science subject matter. Working toward but not completed M.S.

## ACADEMIC RECORD

Allegheny College	Undergraduate and graduate record from transcript considered
Baylor University	Considered general scholastic record
Bucknell University	
Howard University	
Kansas State Teachers College	
Louisiana State University	
Marshall College	Previous record should be adequate
Michigan State University	
Montana State College	
Morgan State College	Undergraduate and graduate point-hour ratio of C or better
Murray State College	Considered previous scholarship record
Ohio Wesleyan University	
Oklahoma State University	Considered over-all grade point average
Rensselaer Polytechnic Institute	Science grades were weighed carefully
Rutgers University	Grades in biology were weighed carefully
Tuskegee Institute	

## ACADEMIC RECORD

University of Alabama	General scholastic record
University of Alaska	
University of Arizona	Noted those with grade average too low
University of Arkansas	Two were admitted as "special students" because of poor grade records. They made outstanding records in the program
University of California	Transcripts were not required from applicants or participants
University of California	
University of Maryland	Selected best applicants as evidenced by their academic records
University of Minnesota	
University of Mississippi	Average ability and success
University of New Hampshire	
University of North Carolina	The grades on transcripts were principal evidence. From particular institutions, the grades were not reliable measure of ability
University of Wisconsin	The best students as evident from the undergraduate transcript were favored over those not so good
Utah State University	
Virginia Polytechnic Institute	
Western Michigan College	An undergraduate point-hour ratio of C plus or better



## TEACHING EXPERIENCE

Allegheny College	Minimum of three years
Baylor University	0-30 years
Bucknell University	Must have several years experience
Howard University	
Kansas State Teachers College	At least one year of experience, preferably more
Louisiana State University	
Marshall College	
Michigan State University	
Montana State College	
Morgan State College	Must have one or more years of experience (average of 7.08)
Murray State College	Quality and type of previous teach- ing service and possible future type of service
Ohio Wesleyan University	Several years, preferably five
Oklahoma State University	Considered experience
Rensselaer Polytechnic Institute	
Rutgers University	
Tuskegee Institute	

## TEACHING EXPERIENCE

University of Alabama	
University of Alaska	
University of Arizona	Experience---more than three years
University of Arkansas	Three experienced teachers without B.S. degree were accepted
University of California	Those who had less than five years were not accepted
University of California	Those who had less than five years were not accepted
University of Maryland	
University of Minnesota	Several years teaching experience (average 12 years)
University of Mississippi	Must have taught for at least five years
University of New Hampshire	
University of North Carolina	Selected, generally, only if they had three or more years, but few exceptions made for very worthy applicants
University of Wisconsin	Those with five or more years were favored over those who were just starting teaching career
Utah State University	Selection was on the basis of...teaching experience
Virginia Polytechnic Institute	To have reasonable assurance that teachers would remain in teaching, a minimum length of teaching service of five years required
Western Michigan College	Favored those teachers with five years or less

## LETTERS OF RECOMMENDATION

Allegheny College	Useless in determining satisfactory applicants, but did certify teacher was employed in specific school
Baylor University	
Bucknell University	Should have recommendation of high school principal
Howard University	
Kansas State Teachers College	Applicants who have mimeographed recommendations submitted will receive little consideration
Louisiana State University	Serve little useful purpose except to indicate other's opinions concerning a teacher's "career" attitude toward his job
Marshall College	
Michigan State University	
Montana State College	
Morgan State College	
Murray State College	One of the factors involved in selection is the recommendation by principal or supervisors
Ohio Wesleyan University	In case of doubt or disagreement by selectors, the letters of recommendation were carefully read
Oklahoma State University	A rating was made on each of the three letters of recommendation
Rensselaer Polytechnic Institute	Should come from those who can speak with some first-hand knowledge of your professional competence
Rutgers University	Letters of recommendation received critical attention
Tuskegee Institute	

## LETTERS OF RECOMMENDATION

University of Alabama	
University of Alaska	Recommendation letters were uniformly favorable and generally proved to be of little use in the selection of participants
University of Arizona	Noted pertinent quotations from the letters of recommendation
University of Arkansas	In general, recommendations were of little help in selection as all applicants were recommended highly
University of California	Usually one letter gave information relative to the person's activities, his needs and the desires of the school
University of California	
University of Maryland	
University of Minnesota	
University of Mississippi	
University of New Hampshire	
University of North Carolina	Letters were of little value as they were found to be uniformly commentary and uncritical, though only source of information as to teaching ability
University of Wisconsin	Final selection was made after careful examination of letters of recommendations
Utah State University	Letters of recommendation were to be from people aware of applicant's ability
Virginia Polytechnic Institute	Letters from principals and supervisors were extremely useful in the selection of the participants

## GEOGRAPHICAL DISTRIBUTION

Allegheny College	Applicants from western Penna. and New York and from eastern Ohio were examined carefully as area is primarily served by college
Baylor University	
Bucknell University	In general from middle Atlantic region
Howard University	Two persons per state, excepting for Maryland and the District of Columbia (15 persons). In two local counties, two from each county
Kansas State Teachers College	Most (40-45) should be from Kansas. Usually not selected from states with similar program. Near cities, may take over-age applicant
Louisiana State University	
Marshall College	
Michigan State University	
Montana State College	
Morgan State College	Most from Delaware, Maryland, District of Columbia, Virginia, W. Virginia, North Carolina, South Carolina, Georgia, Florida
Murray State College	
Ohio Wesleyan University	In general, preference given to teachers from Ohio if other criteria met
Oklahoma State University	Little consideration given to geographical distribution
Rensselaer Polytechnic Institute	
Rutgers University	
Tuskegee Institute	

## GEOGRAPHICAL DISTRIBUTION

University of Alabama	Uniform geographical distribution
University of Alaska	
University of Arizona	Geographical distribution was given very little consideration
University of Arkansas	
University of California	It was determined that 60% of the participants would come from California, 30% from the remaining western states and 10% from the rest of the United States, Territories of Hawaii and Alaska
University of California	
University of Maryland	
University of Minnesota	
University of Mississippi	
University of New Hampshire	No geographical limitation which led to wide distribution
University of North Carolina	
University of Wisconsin	Desirable to have wide geographical distribution with not more than 40% being teachers in Wisconsin
Utah State University	Selected persons to give wide-spread coverage and participation
Virginia Polytechnic Institute	At least one person selected from each state from which there was a qualified applicant, to benefit from variety of experiences. Then all qualified applicants from Virginia were selected
Western Michigan College	It was hoped that recipients could be restricted to Michigan so that follow-up and evaluation program could be carried over the years

## ADMITTANCE TO GRADUATE SCHOOL

Allegheny College	
Baylor University	Majority eliminated on basis of ineligibility for graduate work
Bucknell University	Possess bachelor's degree
Howard University	Possess bachelor's degree
Kansas State Teachers College	Possess bachelor's degree. Master's degree in education accepted, but those in administration will be scrutinized
Louisiana State University	Admitted to graduate school
Marshall College	Intention of working toward a M.A. degree
Michigan State University	
Montana State College	
Morgan State College	
Murray State College	Held a Bachelor's or Master's degree
Ohio Wesleyan University	
Oklahoma State University	Degree and the college conferring it considered
Rensselaer Polytechnic Institute	Bachelor's degree in science or mathematics or five one year courses in science. Admitted to Graduate School
Rutgers University	Eligibility for admission to Graduate School
Tuskegee Institute	

## ADMITTANCE TO GRADUATE SCHOOL

University of Alabama	Anyone who holds a bachelor's degree and who is eligible to be admitted to the university
University of Alaska	
University of Arizona	
University of Arkansas	Met general admission requirements and with few exceptions, those of Graduate school
University of California	
University of California	
University of Maryland	
University of Minnesota	B. S. degree
University of Mississippi	Must have a B.S. and qualify for admission to Graduate school
University of New Hampshire	
University of North Carolina	
University of Wisconsin	
Utah State University	
Virginia Polytechnic Institute	
Western Michigan College	Working toward, but not having completed the Master's degree



## ABILITY TO PROFIT FROM PROGRAM

Allegheny College

Baylor University

Bucknell University

Howard University

Kansas State Teachers College

Louisiana State University

Ability to profit from program is an important selection criterion

Marshall College

Michigan State University

The basis of judgment was in terms of the extent to which the individual might benefit from the program to be offered

Montana State College

The probable benefit of the Institute to the applicant and vice-versa were taken into account

Morgan State College

Evidence from his employer (superintendent, principal or supervisor) that he is capable of profiting from the Program

Murray State College

Stipend awards went to people with inadequate science training but who had sufficient native ability to profit from experience of Institution

Ohio Wesleyan University

Oklahoma State University

Rensselaer Polytechnic Institute

Rutgers University

Some applicants who had much field experience were denied in favor of others who had the preparation but lacked field experience

Tuskegee Institute

## ABILITY TO PROFIT FROM PROGRAM

University of Alabama	In the opinion of the committee are most likely to benefit by participation in the Institute
University of Alaska	
University of Arizona	
University of Arkansas	
University of California	
University of California	A few whose background included graduate study in biochemistry were rejected as being adequately indoctrinated already
University of Maryland	
University of Minnesota	Those having undergraduate majors plus some graduate work in science were advised to apply to Institutes offering advanced work
University of Mississippi	They should be expected to profit from the Institute
University of New Hampshire	
University of North Carolina	
University of Wisconsin	Thirty persons were so advanced in chemistry that it was felt that they would receive little or no benefit from Institute courses
Utah State University	Basic criteria were that committee should select those for whom the most good could be accomplished
Virginia Polytechnic Institute	
Western Michigan College	Evidence from his employers (superintendent, principal or supervisor) that he is capable of profiting from advanced study

## DESIRED COURSES-MAJOR INTERESTS

Allegheny College

Favored those who chose courses to correct deficiencies in subjects they taught. If willing to take 3rd or 4th choice, selected

Baylor University

Placement in a particular course was determined by the recommendations submitted by the applicant

Bucknell University

Howard University

Desire to explore all the modern perspectives of the principles and resources in biology

Kansas State Teachers College

Preference given to those aware of deficiencies in courses now teaching or expects to teach in future

Louisiana State University

Marshall College

Interest in the graduate program with intention of working towards an M.A. degree or teaching out of field

Michigan State University

Montana State College

Morgan State College

Any deviations from the main criteria will take into consideration special study interests

Murray State College

Ohio Wesleyan University

Oklahoma State University

Rensselaer Polytechnic Institute

Rutgers University

Tuskegee Institute

## DESIRED COURSES-MAJOR INTERESTS

University of Alabama	Selected students in second and third choice fields, balancing background against courses student was teaching
University of Alaska	Selected in strongest field rather than in field currently teaching or wished to study in
University of Arizona	Noted number of units of science and mathematics in first choice field. Applicants chose fields in which prepared or had to teach
University of Arkansas	
University of California	
University of California	
University of Maryland	Second screening was on the basis of field of interest and courses desired
University of Minnesota	
University of Mississippi	
University of New Hampshire	
University of North Carolina	
University of Wisconsin	
Utah State University	
Virginia Polytechnic Institute	
Western Michigan College	

## AGE OF APPLICANT

Allegheny College	Not near retirement
Baylor University	22-64 years*
Bucknell University	Not near retirement
Howard University	
Kansas State Teachers College	Preferred those under fifty, but would take those over if they would make a definite contribution to program or for geographic reasons (from Wichita, Kansas City, Topeka)
Louisiana State University	
Marshall College	Average 30 years*
Michigan State University	22-53 years*
Montana State College	At least ten more years in teaching
Morgan State College	Fifteen years before retirement (median age 33.43 years*)
Murray State College	
Ohio Wesleyan University	
Oklahoma State University	
Rensselaer Polytechnic Institute	
Rutgers University	
Tuskegee Institute	

\*denote actual figures from participants

## AGE OF APPLICANT

University of Alabama	
University of Alaska	
University of Arizona	Data such as age (too old) noted. Ages were 20 to 60 with median 35*
University of Arkansas	Average age was 38 years*
University of California	It was felt that those much in excess of fifty years of age should not be included in the Institute
University of California	Those over 50 years of age were rejected
University of Maryland	
University of Minnesota	At least five years of teaching left before attaining retirement age. Average age 41.7 years*
University of Mississippi	
University of New Hampshire	Rather wide age group (27-58) as the older teacher benefited from refresher work, the younger teacher learned from the older. 45 was set as the maximum age but 22 exceptions were made. Median age was 38 years*
University of North Carolina	
University of Wisconsin	Those from the middle and younger age groups favored. By point system: over 55--1 point; 50-55--2 points; up to 49--4 points
Utah State University	
Virginia Polytechnic Institute	Maximum 59 in view of sufficient expectation of teaching service before them. Average 39 years*
Western Michigan College	

\*denote actual figures from  
participants

## EVIDENCE OF COMPETENT TEACHING

Allegheny College	
Baylor University	Thoroughly considered general attitude
Bucknell University	
Howard University	Adaptability and proficiency in teaching. Length, variety of experience in teaching and scientific pursuits
Kansas State Teachers College	Expect to make science teaching a career
Louisiana State University	Demonstrated a "career" attitude toward his role as a teacher
Marshall College	
Michigan State University	
Montana State College	
Morgan State College	Primary criterion: professional competence and his capacity to develop as a teacher
Murray State College	
Ohio Wesleyan University	Prospect of continuing in the field of science teaching
Oklahoma State University	
Tensselaer Polytechnic Institute	Considered professional competence from letters of recommendation
Rutgers University	
Tuskegee Institute	

## EVIDENCE OF COMPETENT TEACHING

University of Alabama

University of Alaska

University of Arizona

University of Arkansas

University of California

University of California

University of Maryland

Selected the best applicants as evidenced by their teaching accomplishments. Selected competent people

University of Minnesota

University of Mississippi

Preference given to applicants with average ability and success

University of New Hampshire

University of North Carolina

Letters of recommendation were only source of information as to teaching ability

University of Wisconsin

Utah State University

Letters of recommendation were to be from people aware of the applicant's ability

Virginia Polytechnic Institute

Western Michigan College



## HOMOGENEOUS AND WORKABLE GROUPS

Allegheny College

Hoped to keep numbers in four fields about equal (15), this influenced our choice to some extent. Selectees accepted 3rd-4th choice

Baylor University

Attempted to select uniform academic achievement, recognized as impossible. Found that classes balanced fairly well in numbers

Bucknell University

Howard University

Kansas State Teachers College

Louisiana State University

Marshall College

Michigan State University

Montana State College

Morgan State College

Selections based on quota of ten each for biology, chemistry, physics, general science, and mathematics

Murray State College

Ohio Wesleyan University

Oklahoma State University

Rensselaer Polytechnic Institute

Rutgers University

Tuskegee Institute

## HOMOGENEOUS AND WORKABLE GROUPS

University of Alabama

Approximate balance should be maintained among the five subject fields of the Institute

University of Alaska

Attempt was made at beginning to try to keep the four groups of equal strength, but the applications did not warrant such. More people were picked in biology and mathematics. If they had been chosen solely on the basis of the quality of the applications, even more would have been in the biological field

University of Arizona

University of Arkansas

University of California

An equal number of junior and senior high school teachers were to be selected

University of California

University of Maryland

Second screening was made on basis of field of interest and courses desired and done in such a way as to assure a workable group in each course offered

University of Minnesota

University of Mississippi

University of New Hampshire

University of North Carolina

University of Wisconsin

Utah State University

Virginia Polytechnic Institute

Western Michigan College

## COMPLETION OF APPLICATIONS

Allegheny College	Of 234 returned applications, 213 were completed. 21 not completed, not considered
Baylor University	347 application blanks sent out, 110 were completed and returned
Bucknell University	
Howard University	Promptness, neatness and completeness of application requirements
Kansas State Teachers College	
Louisiana State University	
Marshall College	Applications were received from 234 teachers and 105 applications were completed
Michigan State University	500 inquiries were received and resulted in the receipt of 250 completed applications
Montana State College	
Morgan State College	
Murray State College	The letter of inquiry and application itself, its appearance and the care with which it was prepared. Some applications were not completed
Ohio Wesleyan University	Of 270 requests, 133 completed applications were received
Oklahoma State University	
Rensselaer Polytechnic Institute	Requests for applications were 326. 107 completed applications received
Rutgers University	We had 15 uncompleted applications by April 1, 1957
Tuskegee Institute	

## COMPLETION OF APPLICATIONS

University of Alabama	Effective completion of the application forms
University of Alaska	386 requests for applications and 99 completed applications returned
University of Arizona	300 requests for application blanks and 143 applications were returned and completed
University of Arkansas	340 applications were received
University of California	1100 requests for applications. Completed applications received were 415
University of California	200 inquiries with a total of 55 completed applications received
University of Maryland	570 inquiries were received from which 300 applications resulted
University of Minnesota	
University of Mississippi	
University of New Hampshire	215 inquiries and 88 completed forms
University of North Carolina	779 applications
University of Wisconsin	550 inquiries. The receipt of a completed application blank was acknowledged by a post card. As the April 1 deadline approached, teachers with incomplete applications were informed of the situation so they could, if desired, take steps to complete their application in time. Estimated that over 325 applications received
Utah State University	105 applications received
Virginia Polytechnic Institute	335 inquiries were answered. These resulted in 169 bonafide applications
Western Michigan College	351 requests were received and forms mailed out. 157 were returned. The number that were ultimately usable approximated 130. Applicants in many cases failed to supply transcripts or letters of recommendation, or completed the necessary requirements after the final date for the acceptance of applications

## APPLICANT'S NOTE IN APPLICATION

Allegheny College

Contained pertinent information that helped to evaluate the real need. In many instances this helped committee to make up its mind

Baylor University

Bucknell University

Howard University

Desire to explore the modern perspectives of the principles and resources in biology

Kansas State Teachers College

Louisiana State University

Marshall College

Michigan State University

Montana State College

Morgan State College

Murray State College

Ohio Wesleyan University

Summary of applicant's reasons for applying were considered

Oklahoma State University

Rensselaer Polytechnic Institute

Rutgers University

The applicant's reasons for applying were considered valuable

Tuskegee Institute

## APPLICANT'S NOTE IN APPLICATION

University of Alabama

University of Alaska

University of Arizona

Noted pertinent quotations from the student's own statement at the end of the application form

University of Arkansas

University of California

University of California

University of Maryland

University of Minnesota

University of Mississippi

University of New Hampshire

University of North Carolina

University of Wisconsin

Final selections made after careful examination of application statement

Utah State University

Virginia Polytechnic Institute

Western Michigan College

## PREVIOUS ATTENDANCE AT AN INSTITUTE

Allegheny College	
Baylor University	
Bucknell University	
Howard University	
Kansas State Teachers College	
Louisiana State University	
Marshall College	
Michigan State University	
Montana State College	Non attendance at any previous chemistry institute
Morgan State College	
Murray State College	Rejected application because of previous participation
Ohio Wesleyan University	Preference given to those who had never attended an institute
Oklahoma State University	
Rensselaer Polytechnic Institute	
Rutgers University	
Tuskegee Institute	

## PREVIOUS ATTENDANCE AT AN INSTITUTE

University of Alabama

Considered previous attendance at  
Institutes

University of Alaska

University of Arizona

University of Arkansas

University of California

University of California

University of Maryland

University of Minnesota

University of Mississippi

University of New Hampshire

University of North Carolina

University of Wisconsin

Utah State University

Virginia Polytechnic Institute

Western Michigan College



## EXTRACURRICULAR ACTIVITIES

Allegheny College

Baylor University

Ducknell University

Howard University

Indication of contribution to the advancement of science teaching during the last three years

Kansas State Teachers College

Louisiana State University

Marshall College

Michigan State University

Montana State College

Morgan State College

Any deviation from main criteria will consider leadership activities, abilities and plans for leadership work

Murray State College

Ohio Wesleyan University

Oklahoma State University

Rensselaer Polytechnic Institute

Rutgers University

Tuskegee Institute

## EXTRACURRICULAR ACTIVITIES

University of Alabama

University of Alaska

University of Arizona

University of Arkansas

University of California

University of California

Select those who had demonstrated unusual interest in science clubs, science fairs and other extracurricular activities

University of Maryland

University of Minnesota

University of Mississippi

Demonstrate interest in student through reading, professional organizations, science fairs and extracurricular work with students

University of New Hampshire

University of North Carolina

University of Wisconsin

Utah State University

Virginia Polytechnic Institute

Western Michigan College

## RECENCY OF TRAINING

Allegheny College	Favored those with academic training ten years ago
Baylor University	
Bucknell University	Number of years since having courses
Howard University	
Kansas State Teachers College	
Louisiana State University	
Marshall College	
Michigan State University	
Montana State College	Formal training completed at least five years ago
Morgan State College	
Murray State College	
Ohio Wesleyan University	
Oklahoma State University	
Rensselaer Polytechnic Institute	
Rutgers University	
Tuskegee Institute	

## REGENCY OF TRAINING

University of Alabama  
University of Alaska  
University of Arizona  
University of Arkansas  
University of California  
University of California  
University of Maryland  
University of Minnesota  
University of Mississippi  
University of New Hampshire  
University of North Carolina  
University of Wisconsin  
Utah State University  
Virginia Polytechnic Institute  
Western Michigan College

	SIZE OF SCHOOL	NUMBER APPLICANTS FROM SINGLE SCHOOL
Allegheny College		
Baylor University		
Bucknell University		
Howard University		
Kansas State Teachers College	Considered	
Louisiana State University		
Marshall College		
Michigan State University		
Montana State College		
Morgan State College		Selected not more than teachers from any one school
Murray State College		Could not accept dis- proportionate number from one school
Ohio Wesleyan University	Preference for those from the smaller schools	
Oklahoma State University	Little consider- ation size, type	
Rensselaer Polytechnic Institute		
Rutgers University		
Tuskegee Institute		

SIZE OF SCHOOL      NUMBER APPLICANTS  
FROM SINGLE SCHOOL

University of Alabama  
University of Alaska  
University of Arizona  
University of Arkansas  
University of California  
University of California  
University of Maryland  
University of Minnesota  
University of Mississippi  
University of New Hampshire  
University of North Carolina  
University of Wisconsin  
Utah State University  
Virginia Polytechnic Institute  
Western Michigan College

## MISCELLANEOUS CATEGORY

Allegheny College

Teacher's position in college

Baylor University

Bucknell University

Howard University

Kansas State Teachers College

If qualified applicants apply, probably two Catholic Sisters and two or three colored persons should be taken

Louisiana State University

Marshall College

Michigan State University

Montana State College

These criteria were not applied to registrants who paid their own expenses

Morgan State College

Selection of one from the larger predominantly Negro high schools in Maryland. Appreciable number of White applicants. Selection of one from a few Maryland schools where integrated science and mathematics departments are now used

Murray State College

Inability of applicant to attend the Institute for the full eight week period

Ohio Wesleyan University

Oklahoma State University

Rensselaer Polytechnic Institute

Rutgers University

Tuskegee Institute

## MISCELLANEOUS CATEGORY

University of Alabama	Effective completion of application forms. Financial need of applicant
University of Alaska	Chose competent people as very little possibility of making a competent high school science teacher out of a person in eight weeks in an area in which he had had no previous training
University of Arizona	
University of Arkansas	
University of California	
University of California	We tried to select persons of influence in their schools
University of Maryland	
University of Minnesota	
University of Mississippi	Almost all applicants were interviewed personally and given a rating on basis of interview
University of New Hampshire	Provisions for families with children were anticipated as summer was envisioned as a combined professional and recreational activity for family
University of North Carolina	Other things being equal, applicants with dependents were favored over those without
University of Wisconsin	
Utah State University	
Virginia Polytechnic Institute	
Western Michigan College	



INSTITUTION	REQUESTS	RETURNED	STIPEND OFFERED	DECLINED	ALTERNATES	PARTICIPANTS		TOTAL
						MINUS	STIPENDS	
Allegheny College	578	234	32	2	2			30
Baylor University	347	110	58			1		59
Bucknell University	800	318	59			4		63
Howard University	300	85	37			1		38
Kansas State Teachers College	530	260	60			4		65
Louisiana State University								54
Marshall College	234	105	38	6				42
Michigan State University	500	250	56	15	15			56
Montana State College	364							64
Morgan State College	885	288	66	7				59
Murray State College		160	67	16	16	1		67
Ohio Wesleyan University	270	133	56	4				54
Oklahoma State University		236						50
Rensselaer Polytechnic Institute		107	60	10		1		51
Rutgers University	172	105	29	1	1			29
Tuskegee Institute								25
University of Alabama			53	6	9	3		62
University of Alaska	386	99	50					50
University of Arizona	300	143	52	22	22			52
University of Arkansas	1,000	340	100			15		116
University of California	1,000	415	278	73				205
University of California	200	55	12			6		18
University of Maryland	570	300						56
University of Minnesota		235	86	10				76
University of Mississippi			49			35		84
University of New Hampshire	215	88	43	10	10	2		45
University of North Carolina	779		78	5	4	8		82
University of Wisconsin	550	325	51	3	3			51
Utah State University		105	30			4		34
Virginia Polytechnic Institute	335	169	56	11	11	4		60
Western Michigan College	351	157		1	1			30

PROPORTION OF MEN AND WOMEN TEACHERS  
 MEN           %                               WOMEN       %

Allegheny College				
Baylor University	48	83	10	17
Bucknell University	55		8	
Howard University	27	66	11	33
Kansas State Teachers College	54		11	
Louisiana State University	54		9	
Marshall College	33		9	
Michigan State University	46		10	
Montana State College	64		17	
Morgan State College	39	66	19	33
Murray State College	49		18	
Ohio Wesleyan University	52		2	
Oklahoma State University				
Rensselaer Polytechnic Institute	49		2	
Rutgers University	18		11	
Tuskegee Institute	20		5	

	PROPORTION OF MEN AND WOMEN TEACHERS	
	MEN	WOMEN
University of Alabama	36	26
University of Alaska	34	12
University of Arizona	45	7
University of Arkansas	34	32
University of California		
University of California	15	3
University of Maryland	43	13
University of Minnesota	65	9
University of Mississippi	33	28
University of New Hampshire	42	3
University of North Carolina		
University of Wisconsin	48	3
Utah State University		
Virginia Polytechnic Institute	37	22
Western Michigan College	26	4

## NUMERICAL CONSIDERATIONS OF CRITERION

Present Position and Teaching Load	22
Prerequisites and/or Previous Courses	22
Teaching Experience	18
Academic Record	17
Letters of Recommendation	17
Admittance to Graduate School	15
Geographical Distribution	15
Ability to Profit from Program	13
Age of Applicant	12
Evidence of Competent Teaching	11
Desired Courses-Major Interests	11
Homogeneous and Workable Groups	8
Completion of Applications	8
Applicant's Note in Application	7
Previous Attendance at an Institute	4
Extracurricular Activities	4
Recency of Training	3
Size of School	3
Number of Applicants from Single School	2
Miscellaneous Category	11

VITA

Candace Smith Howell

Candidate for the Degree of  
Master of Science

Report: SURVEY OF CRITERIA OF PARTICIPANT SELECTION IN THE  
SUMMER SCIENCE INSTITUTES

Major Field: Natural Science

Biographical:

Personal data: Born in Little Rock, Arkansas, February 21, 1916,  
the daughter of Otto Mitchell and Mary Carr Smith.

Education: Attended grade school in Stillwater, Oklahoma; graduated  
from the Stillwater High School in 1933; received the Bachelor  
of Science degree from the Oklahoma Agricultural and Mechanical  
College, with a major in Horticulture, in May, 1937; received  
the Bachelor of Science degree from the University of Illinois,  
with a major in Education, in June, 1941; completed the require-  
ments for the Master of Science degree in May, 1958.

Professional Experience: Instructor in Horticulture, Oklahoma  
Agricultural and Mechanical College, Summer, 1937. Nature,  
waterfront and unit counselor in Girl Scout camps during  
summers of 1935, 1936, 1941 and YMCA 1939. Substitute  
teacher Fall of 1939. Spring of 1930, employed as a client's  
clerk in an agricultural chemical company. February 1941 to  
May 1942, science teacher Quanah High School, Quanah, Texas.  
Head of the science department Webster Junior High School,  
Oklahoma City, Oklahoma, 1942 to 1943. Entered the American  
Red Cross Overseas Recreation Service spending two years in  
Africa and Egypt. Spring 1947 instructor in chemistry at  
Oklahoma Agricultural and Mechanical College. Physical  
Sciences Branch Librarian at the University of Tennessee  
from 1948 to 1950.

Participant in the National Science Foundation Summer Institute  
for Teachers in Science and Mathematics at Murray State College,  
Murray, Kentucky. Participant in the Academic Year Institute,  
Oklahoma State University.

Member: National Science Teachers Association, Oklahoma Academy of  
Science.