

**SUMMARY REPORT OF GRANTS FUNDED
BY THE FACULTY RESEARCH COMMITTEE**

July 1, 1981 – June 30, 1982

**Compiled by the 1982-1983
Faculty Research Committee**

**Morehead State University
Morehead, Kentucky
April 1983**

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REPORT OF GRANT FUNDED
BY THE FACULTY RESEARCH COMMITTEE

Name of grant recipient: William Wai-Sun Chen

Department: Mathematical Sciences School: Sciences and Mathematics

Title of research: Simulation on Probability Points for Testing of Lognormal or Weibull Distribution with a Small Sample

Date of final report: March 1983 Date grant was funded: April 1982
(Mo./Yr.) (Mo./Yr.)

Amount for which grant was funded: \$123

Use the space below for a single-spaced abstract of approximately 100 words. This should be a narrative summary of the final report of your grant.

Objectives of the Research:

The objective of the research was to test and classify data between lognormal and weibull distribution. This may widely be used in any life span distribution such as engine or light bulb, or cancer data.

Research Summary:

Two extensive computer simulated tables of percentage points of the asymptotic test statistics for testing lognormal or weibull population proposed by Peireira (1978) are discussed. Special attention is given to small sample cases. Some of the most common used 16 symmetrical probability points are reported. These points are 0.001, 0.005, 0.01, 0.025, 0.05, 0.10, 0.15, 0.85, 0.90, 0.975, 0.98, 0.995 and 0.999. These empirical simulated results can be used to test hypotheses for these two particular populations and are adequate when using a normal approximation.

Final use of project results, e.g., Where was it published? At what professional meeting was it presented? How was it disseminated to the academic or regional community?

It has been published in *Journal of Statistical Computation and Simulation.*, 1982, Volume 15, pages 201-210.

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REPORT OF GRANT FUNDED
BY THE FACULTY RESEARCH COMMITTEE

Name of grant recipient: James E. Gotsick

Department: Psychology School: Education

Title of research: Dopaminergic Influences on Stereotyped Motor Responses and Spontaneous Activity

Date of final report: March 1983 Date grant was funded: December 1981
(Mo./Yr.) (Mo./Yr.)

Amount for which grant was funded: \$4,190

Use the space below for a single-spaced abstract of approximately 100 words. This should be a narrative summary of the final report of your grant.

Objectives of the Research:

Apomorphine, a dopaminergic agonist, produces a variety of behavioral changes. The major objective of the research was to analyze the relationship between these changes in order to determine if different brain mechanisms are involved, and to determine if treatment with the drug results in permanent or long-term changes in brain function.

Research Summary:

Experiment 1 showed that the stereotyped motor responses produced by apomorphine occur independently from the increased spontaneous activity levels associated with the drug. It was found that sensitization over repeated treatments occurred with a measure of activity but not with stereotype. In Experiment 2, preliminary evidence was found indicating that the sensitization effects of apomorphine are the result of a complex interaction between the compound and the environment (possible in terms of classical conditioning) as opposed to a change in brain function.

Final use of project results, e.g., Where was it published? At what professional meeting was it presented? How was it disseminated to the academic or regional community?

Data from both experiments have been analyzed. The results of the first experiment will be submitted for presentation at next year's meeting of the Southeastern Psychological Association. Further experimentation is now being conducted to provide support for the main findings from Experiment 2. If the new results corroborate the previous findings (conditioning as opposed to ultrastructural change as the basis for apomorphine sensitization) both experiments will be combined in a paper to be submitted to *Pharmacology, Biochemistry, and Behavior*.

REPORT OF GRANT FUNDED
BY THE FACULTY RESEARCH COMMITTEE

Name of grant recipient: John J. Hanrahan

Department: History School: Social Sciences

Title of research: Decline of a Presidency: Woodrow Wilson and the Inflation Crisis of 1919-1920

Date of final report: September 1982 Date grant was funded: December 1981
(Mo./Yr.) (Mo./Yr.)

Amount for which grant was funded: \$733

Use the space below for a single-spaced abstract of approximately 100 words. This should be a narrative summary of the final report of your grant.

Objectives of the Research:

The objectives of the research was the study of the reasons why the Democratic party met defeat in the 1920 presidential election after holding power for the previous eight years of Woodrow Wilson's two terms. Historians have given a variety of causes for the defeat, among them a public fed up with President Wilson's star-reaching idealism, moral overstrain, and constant appeals for self-sacrifice. While these factors are important, another factor was the failure of the Administration to respond successfully to the rise in prices that by June 1920 had doubled those of the prewar period. The voters took it out on the Democrats, believing that a vote for the Democratic ticket would be a vote for the continuation of the unpopular policies of Wilson.

Research Summary:

A major cause for the defeat of the Democratic ticket in the 1920 election was President Woodrow Wilson's failure to deal effectively with inflation, a factor that has not been given sufficient weight in existing works on the immediate past. During America's war years, 1917-1918, the cost of living rose 63 percent. After the Armistice, the price upturn continued virtually without interruption until prewar prices had doubled by June 1920. Inflation was the major domestic issue in 1919-1920. Farmers and workers whose votes had returned Wilson to the White House in 1916 grew increasingly resentful of the government's failed efforts to check the price rise. Bitterness toward Wilson became intense. Convinced that Wilson and the Democrats had not protected them, voters abandoned them at the polls in 1920, bringing Republicans to power.

Research for this paper is based principally on sources in the Library of Congress and the National Archives in Washington, and the Franklin D. Roosevelt Library, Hyde Park, New York.

Final use of project results, e.g., Where was it published? At what professional meeting was it presented? How was it disseminated to the academic or regional community?

Paper will be read at the Duquesne University History Forum, Pittsburgh, Pennsylvania, on October 23, 1982. Paper will be submitted to *The Historian* after the above meeting.

REPORT OF GRANT FUNDED
BY THE FACULTY RESEARCH COMMITTEE

Name of grant recipient: Victor B. Howard

Department: History School: Social Sciences

Title of research: Religious Sources of Radical Republicanism, 1862-1870

Date of final report: November 1982 Date grant was funded: October 1981
(Mo./Yr.) (Mo./Yr.)

Amount for which grant was funded: \$1,185

Use the space below for a single-spaced abstract of approximately 100 words. This should be a narrative summary of the final report of your grant.

Objectives of the Research:

To show that the sources of Radical Republicanism originated at the local level and not in the halls of Congress among statesmen with a long commitment to a radical change in American society.

To show that Radical Republicanism largely originated as a religious movement to solve a problem — Slavery which contradicted moral dogma, but which was deeply entrenched in society and law.

Research Summary:

The evangelical religious groups believed that the Civil War had come as an act of retribution for the nation's tolerance of slavery and that slavery was the cause of the war which would not end until the cause was removed. Thus, the roots of radicalism existed in the common doctrine of evangelical Christianity but the doctrine was not pressed to become the guiding principle policy.

The first signs of religious radicalism came after Lincoln forced John Fremont to modify his emancipation proclamation. The order caused an uproar among Christians and seriously damaged the President's standing with Christian bodies. The evangelists soon took the lead in urging emancipation. After the Emancipation Proclamation was issued the Union began to have military successes, and the religious community united in the belief that a providential deliverance of the slaves was taking place. Lincoln ultimately accepted the idea, in common with the northern Christians that he was guided by the Divine hands in all of his acts.

In 1865, almost without exception the Churches urged universal suffrage for the freedom. At the same time, the conflict between Johnson and Congress found the churches on the side of the law-makers. Evangelists became the most significant force working for Congressional Reconstruction. Many of the churchmen took the lead in demanding that Johnson be impeached and that the Confederate leaders be punished.

Final use of project results, e.g., Where was it published? At what professional meeting was it presented? How was it disseminated to the academic or regional community?

The study resulted in an article, "The Influence of Religion on the Radical Movement, 1862-1879" in the *American Philosophical Yearbook*, 1982. Research has been completed for a book-length study on religion and the Radical Republicanism Movement that will be published as soon as revision is completed on a monograph entitled, "Conscience and Slavery: Domestic Missions in the Calvinistic Churches, 1830-1860". It will be submitted to a publisher early in 1983 and work will begin on the organization of the study on Religion and the Radical Republican Movement.

REPORT OF GRANT FUNDED
BY THE FACULTY RESEARCH COMMITTEE

Name of grant recipient: Broadus B. Jackson

Department: History School: Social Sciences

Title of research: Mirror of America: Black Schools and their Relationship to Religion and Politics in Civil War and Reconstructive Mississippi

Date of final report: November 1982 Date grant was funded: October 1981
(Mo./Yr.) (Mo./Yr.)

Amount for which grant was funded: \$400

Use the space below for a single-spaced abstract of approximately 100 words. This should be a narrative summary of the final report of your grant.

Objectives of the Research:

The completion of a research project (*Mirror of America: Black Schools, Religion and Politics in Civil War and Reconstructive Mississippi*) represented a need in southern history, because a study of this type has not been done in the preceding state nor in any other commonwealths in the region. Consequently, scholars, politicians and archivists have encouraged the author's efforts. The primary objective has been to study the lives of John B. Eaton, Henry R. Pease, Thomas W. Cardozo and Oliver Otis Howard who utilized religion and politics to establish black schools during and after the Civil War in Mississippi -- plus throughout the south.

Research Summary:

A description of the manuscript has been divided into the following broad sections, which are: The establishment of army and religious schools in Mississippi and adjoining occupied areas; the organization and program of the Bureau of Refugees, Freedmen and Abandoned Lands; the background and development of Mississippi's public school system; and the interactions of the state's leading black politicians (two United States senators, one congressman, one lieutenant governor, four Mississippian secretaries of state, one state superintendent of education and several of the many county and city officials) with their white counterparts as an endeavor to establish political conditions -- a prerequisite to successful, free school programs.

The problem has been the complete lack of general knowledge about the subject -- not to mention a detailed study. The writer's hypothesis foreshadowed the necessity of researching and organizing the subject in order to close a gap in southern history or to enhance the study of education in America.

Final use of project results, e.g., Where was it published? At what professional meeting was it presented? How was it disseminated to the academic or regional community?

The manuscript is currently under consideration by a publisher.

REPORT OF GRANT FUNDED
BY THE FACULTY RESEARCH COMMITTEE

Name of grant recipient: David T. Magrane

Department: Biological and Environmental Sciences School: Sciences and Mathematics

Title of research: Characterization of Steroid Receptor Binding by the Synthetic Steroid, Danazol, to Mammary
Cells in Various Physiological States

Date of final report: September 1982 Date grant was funded: December 1981
(Mo./Yr.) (Mo./Yr.)

Amount for which grant was funded: \$1,716

Use the space below for a single-spaced abstract of approximately 100 words. This should be a narrative summary of the final report of your grant.

Objectives of the Research:

Specific Objectives: 1) To determine the competitive binding relationships *in vitro* of danazol to steroid receptors in target cells in rats in various states of estrous cycle, ovariectomized rats, and estrogen primed rats; 2) to determine the effects of *in vivo* injections of danazol on the steroid binding of target cells to estrogen, androgen, progesterone, and glucocorticoid receptors; 3) to induce mammary breast cancer in rats and repeat the specific objectives one and two.

Research Summary:

In vitro studies of the binding of danazol to steroid receptors in mammary, uterine, adrenal, pituitary, and hypothalamic tissues showed that danazol bound and translocated androgen receptors most efficiently followed by progesterone, estrogen, and corticosteroid receptors.

In vivo injections of danazol for both long term, low dose (4 mg/kg/14 days) and short term, high dose (8 mg/kg/3 days) resulted in a non-significant decrease of all receptors in target cells when compared to controls. Antigonadotropic and/or androgenic effects of danazol were seen in relation to organ weights. The use of carcinomic tissue was not attempted in this research.

Final use of project results, e.g., Where was it published? At what professional meeting was it presented? How was it disseminated to the academic or regional community?

This research has been submitted and accepted for presentation at the following meetings:

Binding of Danazol to Cytosol Protein Receptors in Endocrine Tissues of the Rat; D. T. Magrane, D. Spencer, and G. Russell; American Physiological Society Meetings, San Diego, California, October 1982.

Characterization of Danazol Binding to Specific Cytosol Receptors *In Vitro*; G. Russell, and D. Magrane; Kentucky Academy of Science, Russell, Kentucky, November 1982.

In Vivo Study of the Effects of Danazol on Cytoplasmic Receptors in the Female Rat; D. Spencer and D. Magrane; Kentucky Academy of Science, Russell, Kentucky, November 1982.

REPORT OF GRANT FUNDED
BY THE FACULTY RESEARCH COMMITTEE

Name of grant recipient: Bruce A. Mattingly

Department: Psychology School: Education

Title of research: Neurochemical Involvement in the Behavioral Effects of Brain Damage

Date of final report: October 1982 Date grant was funded: October 1981
(Mo./Yr.) (Mo./Yr.)

Amount for which grant was funded: \$2,710

Use the space below for a single-spaced abstract of approximately 100 words. This should be a narrative summary of the final report of your grant.

Objectives of the Research:

Following damage to the septal nuclei of the limbic forebrain, the levels of several neurotransmitters including serotonin and acetylcholine are reduced. Several investigators have suggested that the behavioral changes observed following septal lesions are the result of the reduced levels of brain serotonin. Research in our lab, however, has revealed several behavioral effects of septal lesions which cannot be explained by reduced brain serotonin. The general objective of the present research, therefore, was to study the involvement of other neurochemical systems (acetylcholine and dopamine) in the behavioral effects of septal lesions.

Research Summary:

In two experiments, the behavioral effects of drugs acting on either cholinergic or dopaminergic receptor mechanisms were determined. In Experiment I, different groups of rats were injected with either saline, scopolamine (.2, 1.0, or 5.0 mg/kg) or 5.0 mg/kg methylscopolamine and tested on a lever-press shock escape tank. The results indicated that the central cholinergic antagonist, scopolamine, disrupted shock escape learning in a dose-related fashion. The peripheral cholinergic antagonist methylscopolamine, however, did not affect shock escape performance. In addition, many of the behavioral changes of the scopolamine groups during the task were very similar to those observed following septal lesions. In Experiment II, different groups of rats were injected with the dopaminergic agonist apomorphine (.5, 1.0, or 2.0 mg/kg) or saline and tested on the same behavioral task. Apomorphine produced an initial disruption of shock escape learning but by the end of testing the apomorphine groups were performing comparable to controls. The results of these two experiments provide suggestive evidence for the involvement of acetylcholine, but not dopamine, in the behavioral effects of septal lesions.

Final use of project results, e.g., Where was it published? At what professional meeting was it presented? How was it disseminated to the academic or regional community?

A paper based on this research will be presented at the annual meeting of the Southeastern Psychological Association in March 1983. In addition, one manuscript will be submitted for publication in the international journal *Pharmacology, Biochemistry, and Behavior*.

REPORT OF GRANT FUNDED
BY THE FACULTY RESEARCH COMMITTEE

Name of grant recipient: Ronald Mersky

Department: Leadership and Foundations School: Education

Title of research: Teacher Stress in Eastern Kentucky

Date of final report: November 1982 Date grant was funded: December 1981
(Mo./Yr.) (Mo./Yr.)

Amount for which grant was funded: \$608

Use the space below for a single-spaced abstract of approximately 100 words. This should be a narrative summary of the final report of your grant.

Objectives of the Research:

This project sought to determine the types of events thought to be related to stress associated with teaching in a rural setting (eastern Kentucky).

Research Summary:

Teachers (n=289) were administered a fifty-one item Teaching Events Stress Inventory to collect information on teacher stress in eastern Kentucky. The teachers were randomly selected on the basis of geographic location, school size, and grade level. Thirty-six of the items replicated a study of Chicago teachers conducted in 1977. The results strongly suggest that there is congruence between what Chicago and eastern Kentucky teachers perceive to be the type of events related to stress associated with teaching. The two main groups of events which apparently cause teacher stress in eastern Kentucky are associated with discipline and administrative behavior.

Final use of project results, e.g., Where was it published? At what professional meeting was it presented? How was it disseminated to the academic or regional community?

A paper was submitted in October 1982 to the National Council of States on Inservice Education for possible inclusion in their next national conference.

A summary of the research results is in the process of being completed. The results will be mailed to each school system in eastern Kentucky.

A paper will be submitted to the *Journal for Educational Managers* for public consideration.

REPORT OF GRANT FUNDED
BY THE FACULTY RESEARCH COMMITTEE

Name of grant recipient: Meade Stanley Roberts

Department: Industrial Education and Technology School: Applied Sciences and Technology

Title of research: Design, Construction, and Operation of an Industrial Type Robot

Date of final report: September 1982 Date grant was funded: October 1981
(Mo./Yr.) (Mo./Yr.)

Amount for which grant was funded: \$2,888

Use the space below for a single-spaced abstract of approximately 100 words. This should be a narrative summary of the final report of your grant.

Objectives of the Research:

Determine if a facsimile of an industrial robot can be designed and constructed in an instructional setting using available "off the shelf" technological devices.

Research Summary:

A robot like device was constructed using three stepping motors to manipulate a mechanical "arm" and "hand". This Research Robot is complete with a microswitch teach box, it operates in both the teach and execute mode and is controlled by a Heath/Zenith microcomputer. Industrial Technology students, in a special class IET 399 Industrial Robotics, aided in the design and construction. The robot, useful for teaching purposes, cannot be considered an industrial robot, it has slow speed, lacks yaw and roll capacity, and has low weight capacity. Its maximum motor speed is 247 steps per second; this compared with several hundred to several thousand steps per second typical of industrial robots. The building of an industrial robot required highly advanced knowledge and skills in programming, mechanical design, digital electronics, and computer architecture. Its design and construction requires a team approach.

Improved robots are now being constructed using concepts developed in this research, specifically a Welding Robot and an Assembler Robot. Industry has expressed an interest in commercially producing the Assembler Robot.

Final use of project results, e.g., Where was it published? At what professional meeting was it presented? How was it disseminated to the academic or regional community?

The Research Robot will be used as a teaching aid and it will be operated and displayed at schools and conventions.

The Research Robot was demonstrated at the Industrial Robotics Conference held at Morehead State University June 14, 15, 16, 1982. Research results will be submitted to *Robotics Age* and *School Shop* for publication consideration.

REPORT OF GRANT FUNDED
BY THE FACULTY RESEARCH COMMITTEE

Name of grant recipient: Adrienne E. Slaymaker

Department: Accounting and Economics School: Business and Economics

Title of research: Federal Income Taxation of the Two Income Family

Date of final report: July 1982 Date grant was funded: December 1981
(Mo./Yr.) (Mo./Yr.)

Amount for which grant was funded: \$1,105

Use the space below for a single-spaced abstract of approximately 100 words. This should be a narrative summary of the final report of your grant.

Objectives of the Research:

To explore the issues surrounding the taxation of low and middle-income families; specifically families in which there are two wage earners. The sociological, philosophical and judicial history of family taxation was sought and the economic impact of marriage was evaluated.

Research Summary:

The research grant enabled me to: 1) complete the library research for the project; 2) write the computer program specifications; 3) have the program professionally prepared; 4) complete the computer simulation; and 5) write a preliminary draft of the papers.

Final use of project results, e.g., Where was it published? At what professional meeting was it presented? How was it disseminated to the academic or regional community?

The research grant did not provide for manuscript preparation and due to difficulties in obtaining a research assistant, the manuscripts have not been prepared.