

4. Early Research Initiative (1930s-1950s)

Beginning of Research

Research activities in the academic departments for the first seventy-five years of the history of the University were sporadic and almost always a result of individual Herculean effort. The research in agriculture was somewhat of an exception because of the special funding and mission of the College and the Agricultural Experiment Station.

The research committee of the University Senate initiated a Journal series of research papers in 1923 and over 800 papers were listed (Ref. 2, p.189) during the next twenty-five years. During this same time more than sixty books were authored by members of the faculty. The Wertheim Organic Chemistry text and the Harding and Mullins Analytic Geometry text and the Schneider and Ham Laboratory Experiments



W. W. Griegorieff became director of ORDARK in 1946 and was director of the Institute of Science and Technology from 1948 to 1953. He and his group proved once and for all that research funds could be obtained and that competent research professionals would come to work at Arkansas. No small accomplishment!

in Physics published by the Macmillan & Co. are examples in the sciences.

While teaching was the main recognized responsibility of the faculty in those days, there were always rumblings that more research activity was needed in physics. Dr. L. B. Ham did develop a research program in the 1930's and 1940's in acoustics and Dr. Wesley M. Roberds did some preliminary work in developing an x-ray diffraction facility in physics. Dr. Paul C. Sharrah was to continue with this x-ray work after WWII was over. The students in the middle 1940's often complained that if you were going to get a masters in Physics at Arkansas you had to do it in acoustics under Ham or in x-rays under Sharrah! The opportunities did start improving in the late 1940's.

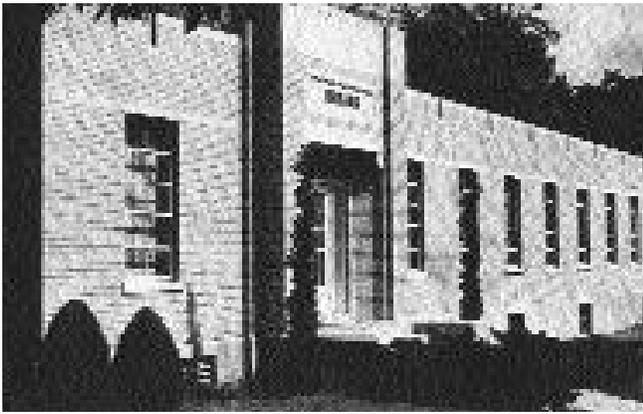
A somewhat broadly defined University committee known as the Bureau of Research was established in 1943.

A classified army research project was initiated in 1946 and Dr. Wladimir W. Griegorieff, recently of General Electric, was employed as director. This project called ORDARK (Ordnance Arkansas) was the first of several projects for government and industry which would be initiated primarily through the efforts of Dr. Griegorieff.

In 1947 a University of Arkansas Research Foundation was established by President Lewis Webster Jones and much change was about to take place within the University.

Research Inches Ahead

The research opportunities in physics and chemistry improved significantly when the ORDARK project was initiated in 1946 and when the ARNO (Arkansas Naval Ordnance) got under way in 1948 under the direction of Dr. Z. V. Harvalik. Dr. Harvalik was very active in the Physics Department and helped to get chapter status for the honorary research organization Sigma Xi installed. A major Atomic Energy Commission research grant was obtained by Dr. Raymond Edwards in chemistry and this was to materially assist chemistry and physics for sev-



ORDARK Building constructed on the south side of the campus near the Greek Theater, ca 1946, later used by the Department of Geology.

eral years. Several joint appointments with this grant and physics were in effect well into the 1960's. Dr. H. M. Schwartz had the longest running joint appointment with physics and this grant.

Further significant progress in research in physics took place when Dr. Berol Robinson joined the physics department and the AEC project in 1952, and when Dr. R. H. Hughes received his first research grant from the Air Force in 1956.

Dr. Virgil W. Adkisson was made dean of the graduate school in 1949. President Jones encouraged a careful study of the graduate school offerings and the advanced undergraduate school offerings. The announcement came that the first Ph.D. programs would be in operation by 1950 or 1951.

The doctoral program in physics was to get under way in 1959! These and other early research efforts are discussed in more detail in Chapter 8.

Research Instruments

The University of Arkansas Research Foundation decided sometime in the late 1940's that the University should spend some money to buy certain special research instruments. These instruments were a Littrow Spectrograph with quartz optics, a Philips X-ray Diffraction machine with accessories and a Philips Electron Microscope with electron diffraction capabilities. The reason for the choice was not clear but all three instruments did have an impact on subsequent research activities.

The committee held "hearings" to determine where these instruments would be housed and manned. The first two instruments were assigned to the Department of Physics and the third was assigned to the Department of Botany and Bacteriology. The Department of Botany and Bacteriology moved into Old Main in 1952 and developed excellent space for the electron microscope.

The Littrow spectrograph and the Philips x-ray diffraction facility were initially used as service instruments for two or three years by projects in operation in the Institute of Science and Technology (IST). An hourly charge was paid by the grant for this service. Jean Camus and James Pearson and a third person were employed in succession to operate the Littrow Spectrograph. Graduate students Bill Good (later at L.S.U., New Orleans) and B. S. Garrett (later at Dayton Air Force facility) operated the x-ray machine under the direction of Dr. Paul C. Sharrah. (See page 28.)

The electron microscope was much used by Dr. Lowell Bailey and others. Paul C. Sharrah used it and the Philips x-ray machine for a small but important summer project for ORDARK. Another electron microscope was purchased later for work in agriculture and chemistry, geology and agriculture were to establish x-ray diffraction facilities for their specific needs.

The Philips x-ray diffraction machine logged in the largest total hours of service. It also had a special room prepared for it in Old Main in 1951 and in the Dickson Street physical science building in 1952. It was housed there until about 1975.

Institute of Science and Technology Established

President Lewis Webster Jones appointed Dr. W. W. Griegorieff to be the Director of the newly established Institute of Science and Technology (IST) in 1948.

The following is quoted from the December, 1948 letter from Dr. Ham to the physics alumni.

"Dr. Jones stated that he was convinced that Arkansas is on the threshold of a great industrial and agricultural development which will bring a more stable economy to our State, improve our standard of living and enhance our cultural and intellectual development and that the Institute



Physical science advisory group of the IST, ca 1950. From left to right, D.S. Burgess, chemist, Raymond Edwards, chemist, E.S. Amis, chemist and chairman of the IST physical science advisory committee, and Z.V. Harvalik, physicist. H.M. Schwartz was absent when picture was made. Edwards was to become chairman of chemistry later.

ences and agriculture and engineering for the next few years. Later its sphere of influence was broadened to include the humanities and social sciences etc. The IST was finally being phased out (Ref. 3-pp.340-342) in 1953 and Griegorieff resigned to accept a position at the Oak Ridge Institute of Nuclear Studies in Tennessee.

Impact of IST

Under Dr. Griegorieff's dynamic leadership the research funding of grants obtained through the Institute of Science and

was being launched at a propitious time.

"The President listed the needs of the University recently as follows: Fine Arts, Athletic Department, Law, Chemical Engineering and Physics. So you see, while we are not first, our need is felt and we hope that the time will be not so far off when we will also have new and adequate quarters." Dr. L. B. Ham, December 1948.

The Institute of Science and Technology was to be the center of research in the physical sci-

Technology (IST) grew to over \$500,000 by 1952. This was a sizable amount for those days! At its peak in 1951 the full-time professional and service staff numbered approximately 36 people. This did not include the joint appointments with the existing academic departments. It supported at least 23 graduate assistants also. Dr. Albert Sauer and Dr. H. M. Schwartz in physics were on half-time research appointments on an AEC grant directed by Dr. Raymond Edwards and,



Photometer being operated by Mr. Pearson for sample testing for one of the IST projects. ca 1953



Willard Bennett and Herman Schwartz talk "physics" for a few minutes after the conclusion of the weekly colloquium in the small lecture room at the south end of the main floor in Old Main, ca 1950.

later, Dr. Arthur Fry in chemistry. Dr. Z. V. Harvalik was on a joint appointment with physics and the ARNO (Arkansas Naval Ordnance) project in the IST. Dr. Maurice Testerman was essentially full time on his RF mass spectrometer project in the IST. He was used part time by physics for a semester or two to develop a much needed course in electronics.

Dr. Willard C. Bennett, the discoverer of the plasma pinch effect, also was on a joint appointment. He and Dr. Testerman worked together on the RF mass spectrometer and other projects. Ray Raible worked part time in physics also.

The newly appointed assistant professors Dr. R. H. Hughes and Brent Stearns served as interim directors of ARNO for one year. Jack Dodd was one of the graduate research assistants on this project. He received his M.S. for thesis work leading novices Hughes and Stearns through this period. He went on to receive his Ph.D. in physics working on the excitation of helium by a proton beam.

Dr. Paul Sharrah worked one summer for ORDARK and did succeed in settling one small problem relating to the powdered magnesium used by the army. Dr. Aubrey E. Harvey was the project leader on this grant and was able to write a good progress report for that summer!

Some of these grants materially assisted the science and other departments and were absorbed by them when the IST was dissolved. Many, however, were classified and related to practical weapons problems. These were deemed not to be the best thing for the academic needs of the graduate school. Sharrah was on many of the "hatchet" committees that dissolved these contracts! Colonel M. E. Barker, Head of Chemical Engineering, was chairman of several of these committees. "It was a dirty job, but someone had to do it.!" It was not the best of times!

IST Aftermath

The Institute of Science and Technology made a positive long-lasting impact on the University and especially the science departments. It showed that research funding could be obtained. It showed the feasibility of joint appointments for teaching and research. It

showed the University that well-qualified scientific research people would come to Arkansas. Never again would research take a back seat. It may not be overstating things to say that it laid a solid foundation upon which a strong graduate program could be built. This was started under the leadership of V. W. Adkisson when he became Dean of the Graduate School in 1949.

After the IST was dissolved, Provost L. H. Rohrbaugh served as research coordinator for a short time. Then in 1955 a more meaningful arrangement was developed with Graduate Dean Virgil W. Adkisson serving as Research Coordinator and Dr. Aubrey E. Harvey served directly with him as Assistant Research Coordinator (Ref. 3, pp. 342-344). The work of research coordination went through several changes in structure but as of 1995 Dr. Collis R. Geren holds the newly created title of Associate Vice Chancellor for Research and Dean of the Graduate School with Dr. John K. Stokes serving directly under him as Director of Research and Sponsored Programs. This structure and the extended title for the Graduate Dean have strengthened and defined the dual nature of this position.

Some details will be provided about Dr. Aubrey E. Harvey because most people feel that it was he who really established the office of research coordinator and established its high level of performance and service, with the backing and encouragement of the Graduate Dean Virgil W. Adkisson. At a very practical level he would literally sit there with the proposal writer and, using a sharpened lead pencil, improve on the accuracy and the clarity of the document in question. He understood and helped to develop the formula for calculating overhead costs relating to research grants. He worked as an investigator himself and directed research activities in a professional manner. How do I know? The author of this book worked for him one summer! What do we know about his background?

The following summary that was provided by the present Director of Research and Sponsored Programs, Dr. John K. Stokes in an e-mail message dated July 26, 1995.

"Dr. Aubrey E. Harvey received his Ph.D. in chemistry (analytical) from the University of Virginia in 1946. After serving one year at the

Virginia Military Institute and two years at the University of Louisville, Dr. Harvey accepted an appointment at the University of Arkansas in 1949 as Associate Professor of Chemistry. He was appointed full professor in 1957.

"The Graduate School Dean Virgil W. Adkisson appointed Dr. Harvey to the newly created Assistant research Coordinator position in 1955. Dean Adkisson retained the title Research Coordinator until his retirement in 1969. The position of Assistant Research Coordinator was created in response to the University's growing involvement in federally funded research and graduate education programs. Like all universities, there was an evolving need at the UA to centralize research proposal processing and grant/contract administration, the latter because of a growing body of federal regulations.

"Dean Adkisson promoted Dr. Harvey to Associate Research Coordinator in 1965. On February 1, 1965, Dr. Harvey was appointed the first director of the Arkansas Water Resources Research Center on a 50 percent basis. He directed the AWRRC until 1971. In 1971, Dean Robert E. McDermott, successor to Dean Adkisson, named Dr. Harvey Coordinator of University research and gave him the additional title of Associate Dean of the Graduate School.

"In 1971 Dr. Harvey also was named Director of UA's United States Armed Forces Europe (USAFE) Graduate Programs. Dr. Harvey negotiated a contract with the United States Air Force for the UA to offer two graduate programs (M.S. in Management and M.S. in International Relations) at 15 U.S. military bases located in England, Spain, Germany, Greece, Italy and Turkey. Later Dr.



Assistant research coordinator A.E. Harvey and research coordinator and graduate school dean V.W. Adkisson, along with Sharrah, have just returned to Fayetteville via Scheduled Skyways after a meeting with the GIT board and Governor Winthrop Rockefeller in Little Rock. The group had to wait 30 or 40 minutes for the Governor! He flew on his private airplane for the meeting and flew out the same day. He said that he could do more good for Arkansas going places and promoting projects than he could by sitting at his desk in the Governor's Office in the Capitol Building in Little Rock.

Harvey created similar programs closer to home at the Little Rock AFB, Blytheville AFB and the Naval Air Station in Memphis. Dr. Harvey was the leader in setting up programs logistically at all 15 sites and arranging accommodations and travel for faculty to rotate every 16 weeks. This effort continued until the programs terminated in the mid-seventies.

"Dr. James R. Couper, Professor of Chemical Engineering was appointed as Assistant Research Co-ordinator on a 25% basis in the summer of 1965 and moved into a 50% appointment in the fall of 1965 to assist Dr. Harvey. Dr. Couper returned to full-time teaching and research in June 1969. Dr. Robert E. Babcock, Professor of Chemical Engineering, replaced Dr. Couper in July 1969. Dr. Babcock was appointed Assistant Research Coordinator on a 100% basis. Dr. Babcock assumed the additional duty of director of the AWRRC on a 50% basis in 1971 and became full-time director of the AWRRC in 1973 when it became a separate department.

"Prior to formally joining the Graduate School, John K. Stokes worked very closely with Dr. Harvey as a Research Accountant from September 1967 to October, 1973. Dr. Stokes joined the Graduate School on a 50% basis working for Dr. Harvey in October 1973. After receiving his Ed.D. from the UA in higher educational

administration in January, 1975.

"Dr. Stokes received a 100% appointment as Assistant Research Coordinator. In the mid-seventies Dr. Harvey hired retired Air Force lieutenant colonel, L. M. Kirby as assistant to the Research Coordinator. Mr. Kirby retired in December, 1975. Jane L. Treat, Ed.D., was



Raymond H. Hughes (1954 to 1990), Fellow of American Physical Society, 1968.

hired as Assistant to the Research Coordinator July 1, 1976.

"In FY 1975-76 the UA created a Provost position and appointed Dr. Charles A. Leone. Concurrently the UA created the Office of Research Coordination as a separate department reporting directly to the Provost. Dr. Harvey died in April, 1977. Dr. Leone selected Don S. Ousterhout, Sc.D., from Old Dominion University to replace Dr. Harvey in September 1977. Dr. Ousterhout changed the name of the department to the Office of Research and Sponsored Programs. Dr. Ousterhout promoted Dr. Jane Treat to Assistant Director, effective July 1, 1981. Dr. Ousterhout retired June 30, 1991.

"Dr. Stokes was named Acting Director, effective July 1, 1991, by Dr. Donald O. Pederson, Vice Chancellor for Academic Affairs. Dr. Pederson named Dr. Collis R. Geren Dean of the Graduate School and Associate Vice Chancellor for Research December 1, 1991. Dr. Geren named Dr. Stokes Director of Research and

Sponsored Programs, effective January 1, 1992. Dr. Stokes continues as Director today. (July, 1995)"

First Research Grants in Physics

But, as mentioned above, it was 1956 when Dr. R. H. Hughes received the first research grant in the physics department only, except for a small Research Corporation Grant obtained in 1949 by Sharrah and Schwartz for some exploratory work on cosmic ray generated neutrons. The Littrow Spectrograph was a key instrument used by R. H. Hughes in the isotope shift research initiated in 1956 and funded by the Air Force Office of Scientific Research.

Dr. Berol Robinson developed an excellent research program on gamma ray spectroscopy through the AEC grant to chemistry.

Then in 1956 Dr. Robert F. Kruh of the Department of Chemistry and Dr. Paul C. Sharrah used the Philips X-ray Diffraction machine in a joint research program developed to study the structure of liquids. This project was funded by the Atomic Energy Commission. Glen T. Clayton was to use this same instrumentation on a grant funded by the National Science Foundation for the study of selected liquefied noble gases.

Further information about the research programs in physics and the development of the doctoral program is given in Chapter 8. The development of the Ph.D. program in physics in 1959 was indeed a real "quantum leap"!