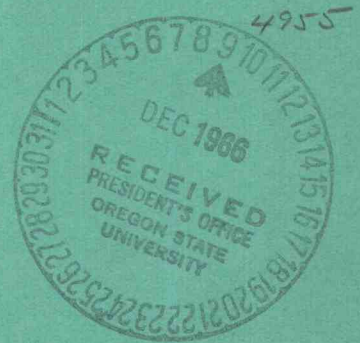


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History of the Department of Zoology Oregon State University

by

Ernst J. Dornfeld



1966

HISTORY OF THE DEPARTMENT OF ZOOLOGY,
OREGON STATE UNIVERSITY

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HISTORY OF THE DEPARTMENT OF ZOOLOGY,
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Corvallis College offered the first college-level curriculum about 1865 when the Rev. W.A. Finley became its president. Before this time, beginning with the incorporation of the college in 1858, the program of studies was that of a preparatory academy. The faculty of the collegiate division consisted of the Rev. W.A. Finley, A.M., President and Professor of Languages, and the Rev. Joseph Emery, Professor of Mathematics. The 1867-68 annual catalog of the college shows that first-term freshmen included in their course of study the subject of Physiology, taught by Prof. Emery.

In 1868 Corvallis College became the Agricultural College of the State, and Prof. Emery introduced for first-term sophomores a course in the General Principles of Zoology, using Agassiz' textbook. The Physiology and Zoology courses were part of the required "general curriculum"; in 1870 a course in Entomology was added for the "agricultural curriculum". In this year the college acquired a 35-acre farm, which is now part of the present campus. Classroom instruction, however, took place in a building near 5th and Madison Streets, which served this purpose until 1889.

Under the new presidency of B.L. Arnold, A.M., in 1872, biological instruction was organized under the "School of Physics", and the 1872-73

catalog describes the area as follows:

"Here come to be considered the general principles of life on its physical side. Vegetable and Mineral Physiology, Botany, Zoology.

Text Books - Huxley, Carpenter, Gray or Wood, Agassiz.

The more important principles will be demonstrated by microscope. We hope to have a Spectroscope this year, when spectroscopic analysis will be taught."

Apparently the spectroscope did not materialize as expected, for the "we hope to have ..." statement appears in successive catalogs until 1876. Moreover, the courses in zoology, as well as those in mineralogy and geology, remained in the versatile hands of Prof. Emery until 1882.

In 1883 Edgar Grim, A.B., was appointed Professor of Chemistry and Agriculture, and succeeded Emery in charge of the courses in zoology and entomology. Shortly, however, the latter were transferred to the tutelage of W.N. Hull, A.M., Professor of Physiology and Drawing (sic!). (A similar oddity was the title of W.W. Bristow, A.B., Professor of Book-Keeping and Bee Culture.)

The character of Prof. Hull's courses can be gleaned from the following catalog description (1888-89):

"Physiology: The best method of studying the human body is undoubtedly by clinique, but since this is not possible except in medical schools, the next in excellence is by drawing and coloring. Every student draws the vital parts of the body upon the blackboard, generally natural size, and recites from his own drawings. The value of this display power and this sight knowledge cannot be overestimated."

"Zoology: Here, again, when the animal forms cannot be secured, the graphic art is invaluable. Every student becomes a taxidermist, and therefore possesses the power of preserving many valuable specimens. Insect and animal life in their relation to vegetable or plant life, particularly where they benefit or destroy, should be generally studied."

The year 1889 saw the removal of instruction from the original college building at 5th and Madison Streets to the new and first building on the present campus, the historic structure that is now Benton Hall.

"The college building is new and commodious, and is unsurpassed for beauty of situation." At the same time, a Department of Zoology and Entomology was organized, and placed in charge of Prof. F.L. Washburn, A.B. (Harvard), who was also made first Entomologist of the Agricultural Experiment Station. The department quarters consisted of a single room which served as classroom, laboratory, and museum, and was situated on the third floor; another room was added a little later. Prof. Washburn taught three courses: General Zoology, Physiology, and Economic Entomology; in 1893 he added, as electives, Comparative Anatomy and Economic Ornithology. Prof. Hull's approach was materially modified:

"In General Zoology the student learns, by comparing the structure of animals, the principles of classification, familiarizes himself or herself with the life histories of many, paying special attention to those animals of economic importance. By drawing specimens in the laboratory and writing original descriptions of the same, the student is trained to independent observation and thought. Textbook: Crton's Comparative Zoology."

"In Physiology each student dissects in the laboratory a typical mammal in order to get a general idea of mammalian anatomy, and to better understand references in textbooks. Drawings of these dissections are required. Laboratory work further consists of demonstrations illustrating circulation of the blood, composition of the blood, mechanism and chemistry of respiration, optical phenomena, reflex action, etc., and the study of tissues with a microscope. Textbook: Martin's Human Body."

Washburn served as Professor of Zoology and Entomology until 1895, when he became Professor of Biology at the University of Oregon and subsequently (1902) State Entomologist of Minnesota. He was succeeded in the fall of 1895 by Arthur Burton Cordley, B.S. (Mich. State), who in 1908 also became the first Dean of the School of Agriculture. Under Cordley's headship, which extended to 1914, the course offerings of the department were in time expanded to include instruction in Histology, Embryology, Systematic Zoology, Parasitology, Evolution, and Advanced

Entomology; also several courses in applied zoology and applied entomology. Cordley saw to the enlargement of the department staff, adding a succession of assistants and instructors. Included in the latter were Fred M. McElfresh (1899-1901), William T. Shaw (1901-07), John C. Bridwell (1907-10), Fred L. Griffin (1908-10), Alice L. Edwards (1910-16), and George F. Sykes (1910-21). Shaw prepared a large collection of mounted birds which is now in the Horner Museum. Since Prof. Cordley was primarily an entomologist, this interest dominated the work of the department. Thus, Harley Frost Wilson, who later became head of the entomology department at Wisconsin, was appointed assistant professor in 1911. Other entomologists are recorded in the History of the Entomology Department.

In 1902 the Department of Zoology and Entomology was moved from its cramped two-room quarters in the Administration Building (Benton Hall) to the newly completed Agriculture Hall (now Education Hall), which was built at a cost of \$42,000. The department was installed on the third floor, where it occupied seven rooms (office, entomology research laboratory, student laboratory, general laboratory, lecture room, storeroom, and photographic darkroom); the fourth floor housed the museum.

When the School of Agriculture was established in 1908, with Prof. Cordley as its first Dean, the Department of Zoology and Entomology became a part of this unit.

A third move took place in 1910, when the present Agriculture Hall (center unit) was completed. Again, the third floor seemed an appropriate location, and nine rooms were made available (two offices, research laboratory for entomology, physiology laboratory, general

zoology laboratory, two lecture rooms, vault, and photographic dark-room). The museum remained in its previous quarters on the fourth floor of what was now renamed Science Hall (present Education Hall).

In 1914 a separate Department of Entomology was established, and George F. Sykes, M.A. (Brown) was made Professor and Head of the Department of Zoology and Physiology. During his administration there were the following appointments to the faculty: Irving H. Blake (1913-16), Asa Chandler (1914-19), Elizabeth R. Cole (1915-16), Charlotte N. Hurd (1916-19), Howard M. Wight (1916-27), Aravilla Taylor (1920-21), and Nathan Fasten (1920-44). Dr. Chandler, in later years, became the eminent parasitologist at the Rice Institute. A number of new courses were added, among them Game Propagation (Sykes), Animal Parasites (Chandler), Protozoology (Chandler), Aquaculture (Sykes), Taxidermy and Zoological Collecting (Wight), Genetics (Sykes; Fasten), and Animal Ecology (Wight).

Nathan Fasten, Ph.D. (Wis.), who had been Instructor and Assistant Professor of Zoology at the University of Washington from 1914 to 1920, replaced Prof. Sykes as Head of the Department of Zoology and Physiology in 1921. The following year the department became part of the newly organized School of Basic Arts & Sciences which endured until the foundation of the School of Science in 1932. The name of the department was shortened in 1927 to Department of Zoology. While an undergraduate major curriculum was not authorized before 1932, graduate study was possible and the first M.S. degree in Zoology was awarded in 1923 to Walter P. Covell.

Faculty appointments between 1921 and 1932 included James E. Lynch

(1921-22), Florence S. Hague (1921-26), Wilber D. Courtney (1922-30), John L. Osborn (1923-47), Bess R. Green (1926-29), Kenneth L. Gordon (1927-present), Kimber C. Kuster (1926-27), Edith L. Benedict (1929-38), and William B. Owen (1930-31). James Lynch later became Professor of Fisheries at Washington, Florence Hague became Chairman of Biology at Sweet Briar College, and William Owen became Professor of Zoology at Wyoming.

This was a difficult decade, and one not conducive to departmental growth. The School of Basic Arts & Sciences was "service" oriented and not authorized to offer major departmental curricula. This situation and the economic depression of the early 1930's blocked any significant progress, offered no prospect for the improvement of facilities, and prevented the development of a stable staff.

At this crucial period, higher education in Oregon was completely reorganized and placed under a single State Board of Higher Education. A system of allocations was devised under which Oregon State College was designated as the center for basic and applied sciences. The School of Science resulted (1932) and major curricula were authorized for its several departments. While this important step laid the "legal" foundation for expansion, the slow recovery from the economic depression prevented rapid progress. The implementation of the allocational policy included transfer of faculty between the University at Eugene and the State College at Corvallis. In this manner the Department of Zoology acquired Professor Arthur Russell Moore and Professor Rosalind Wulzen. Both Moore (1932-33) and Wulzen (1933-47) had been students at the University of California of the distinguished physiologist, Jacques Loeb.

The first bachelor's degree in zoology was awarded in 1932 to Wendell Lee Ball. In 1935 Alfred Taylor received the first Ph.D. and was appointed Instructor (1935-40). Other staff additions during the incumbency of Nathan Fasten included Ernst J. Dornfeld (1938-present), Grant A. Swan (1939-43), Delmar I. Allman (1939-65), and Clifford Grobstein (1940-43).

Under the leadership of the new Dean of the School of Science, F.A. Gilfillan (1938), and of President A.L. Strand who took office in 1942, strong encouragement was given to the improvement of scientific instruction and staff engagement in research. These policies were welcomed by "the young men in a hurry" who responded by developing courses of rigorous quality, recruiting graduate students, and engaging in productive investigations. Facilities and teaching loads left much to be desired, but the blessings of NSF and NIH were still in the future. Research in Zoology during these years included the discovery and exploration of a nutritional anti-stiffness factor (Wulzen); the behavior and learning responses of ground squirrels (Gordon); the developmental cytology of the ovary (Dornfeld); endocrine aspects of fin regeneration in fishes (Grobstein).

But the years of World War II (1942-45) slowed the progress that had been achieved. Class enrollments dwindled as young men were called into military service. In the fall of 1944 the students served by the Zoology Department numbered 292, the previous high, in 1941, being 627. There were but two undergraduate majors. Staff members volunteered for additional instructional duties in the Army Specialized Training Program. Gordon taught geography, Dornfeld and Grobstein taught physics. In 1943 Grobstein left to accept a commission with the air force.

With cessation of hostilities in 1945 a new era began. Prof. Kenneth L. Gordon was appointed Chairman of the Department of Zoology, replacing Nathan Fasten who resigned from the faculty. The return of veterans swelled the enrollment, which reached 814 in the fall of 1946. Addition of staff and space was imperative. In this year Ivan Pratt, Ph.D. (Wis.) and Howard H. Hillemann, Ph.D. (Wis.) were appointed assistant professors. A specialist in parasitology, Dr. Pratt was to develop this area and invertebrate zoology. Dr. Hillemann, as embryologist, was selected to succeed Prof. Osborn, whose retirement was imminent. The faculty, now consisting of Drs. Gordon, Allman, Dornfeld, Hillemann, Osborn, Pratt, and Wulzen, immediately addressed their collective efforts to developing sound policies of departmental operation, curricular standards, and graduate study. These served as a foundation for orderly growth in the years ahead.

The great increase of students brought state funds for the purchase of much needed laboratory equipment, particularly full sets of good microscopes for the laboratories of embryology, parasitology, and cell biology. Space shortages on the campus were met by the erection of "temporary" quonset huts, Butler huts, and an assortment of surplus army barracks. In this way the department acquired, in 1948, an aluminized Butler hut to house the museum collections and laboratories for vertebrate natural history and ecology. Its temporary status proved rather enduring.

Two years later, space needed to be found for the work in physiology which had expanded beyond any ability to share rooms with invertebrate zoology and parasitology. At this moment the President's residence was

about to be vacated and demolished - an old frame house that had served its purpose and stood in the way of planned site improvements. This was now generously loaned to Zoology, and quite appropriately, too, quipped the President, since the rats were already there. The physiologists found the mansion roomy and adaptable. The cellar was good for bulk storage and experimental animals; living-room and dining-room became class laboratories; bathtubs made excellent frog, fish, and crayfish tanks; bedrooms were fine for ergometer and basal metabolism studies, as well as for offices.

Further faculty appointments were made in 1948, 1949, and 1950. Dr. Wulzen having retired, Hugo M. Krueger, Ph.D. (Mich.), who previously held positions at Michigan and St. Louis University, and had just spent two years at Beirut, was made Professor of Physiology in 1948. The same year, Robert M. Storm, who completed his Ph.D. as a student of Prof. Gordon, was appointed Instructor, relieving Gordon of courses in ornithology, mammalogy, and herpetology. In 1949 Carl L. Anderson, Dr. P.H. (Mich.), Professor of Hygiene & Health Education in the Division of Physical Education, was added to the Zoology staff on a part-time basis to teach a course in human biology. Max W. deLaubenfels, Ph.D. (Stanford), long a widely known authority on the systematics of sponges, was brought from the University of Hawaii to become Professor of Zoology in 1950. Prof. deLaubenfels took charge of the freshman course in general zoology.

The postwar influx of students included growing emphasis on graduate work. In the spring of 1951 twenty-nine graduate majors were enrolled. Over a three-year period 29 Master's degrees were conferred, and two

Ph.D.'s. All of these swelled the research output of the department in all fields of the faculty's activities and helped to build its reputation.

After serving eight years as chairman, Dr. Gordon, in the fall of 1952, relinquished this office and was succeeded by Prof. Ernst J. Dornfeld. The department was now in a period of rapid growth.

Because of the part-time affiliation of Dr. Krueger with the Department of Animal Husbandry, beginning in 1951, and the need for expanding the work in physiology, Austin W. Pritchard, Ph.D. (Hawaii) was added to the faculty in 1953. Dr. Pritchard took charge of the introductory course in physiology and developed advanced instruction in general and comparative physiology. Prof. Krueger's specialty became mammalian physiology.

Alfred Owczarzak, Ph.D. (Wis.) arrived in 1955 to work with Prof. Dornfeld as research associate. His appointment to the instructional staff three years later permitted expansion of the work in cellular biology. Dr. Owczarzak took over the courses in histology, micro-technique, and experimental embryology, and initiated formal instruction in histochemistry and tissue culture.

An important step in 1955 was the addition of a geneticist. A beginning course in this subject had been regularly taught since 1914 (Sykes, Fasten, Dornfeld, Storm), and parallel courses had sprung up in a number of other departments. In order to consolidate these, as recommended by the interdepartmental genetics committee, and strengthen the field by adding graduate instruction, the appointment of James D. Mohler, Ph.D. (Calif.) was made. Facilities for Dr. Mohler's work were duly installed in the President's mansion, where his flies joined the

menagerie of the physiologists . His course in theoretical genetics became a basic contribution to the graduate programs in genetics.

In 1957 the first unit of Cordley Hall was completed, the new building for the biological sciences. While it was originally hoped that this unit would house the departments of Botany and Zoology, space did not permit, and the building was assigned to Botany, Horticulture, and Entomology. As the Department of Botany & Plant Pathology had previously occupied the second floor in the south wing of Agriculture Hall, this space was now available for Zoology. Since there was also pressure to demolish the President's old residence, physiology and genetics moved back to these quarters. The contiguity with other zoological laboratories had advantages, but the facilities offered by Agriculture Hall were painfully obsolete and no net gain of space was achieved.

The death of Prof. deLaubenfels in February of 1958, following a brief illness, necessitated his replacement in the fall. Frederick L. Hisaw, Jr., Ph.D. (Harvard) was appointed to take charge of the large freshman course and to develop graduate work in endocrinology. The following year Cyrus Mayshark, H.S.D. (Indiana) inherited the course in human biology from Prof. Carl Anderson, whose increased responsibilities in the Division of Physical Education required his withdrawal from the Zoology staff.

The School of Science had some years previously acquired an electron microscope, but its effective use suffered for lack of a qualified person to take full-time charge and to train potential investigators in its operation. In 1960 James D. Newstead, who was pursuing doctoral research under Prof. Dornfeld and had special training in the electron

microscopy laboratory of Dr. H. Stanley Bennett in Seattle, was given this responsibility and appointed instructor.

The spring of 1962 brought from the university administration the long sought approval and directive to proceed with the planning of a new building for the department, the First Addition to Cordley Hall. Calculations and projections indicated that a four-story building of about 60,000 net square feet was required, to which was to be added another story to provide additional research space for Botany and Entomology. The preliminary plans for this building were prepared during the summer, together with grant proposals for federal aid to supplement the anticipated State funds. Drs. Dornfeld and Owczarzak carried the principal responsibility for this work, coordinating the requirements of the staff, and translating these into specifications and drawings. The architectural work was assigned to the Portland firm of Bear, McNeil, Schneider, Bloodworth & Hawes.

The fall of 1962 saw the addition to the faculty of Ronald H. Alvarado, Ph.D. (Wash. State) to whom fell the task of organizing a physiology course suitable to the needs of pharmacy students and other more advanced undergraduates, as well as sharing with Dr. Hisaw the lectures in general zoology. Student enrollment in the freshman course had climbed from 255 to 547 in two years. On the graduate level Dr. Alvarado directed work on membrane permeability and ion transfer mechanisms.

The same year the department set up an instructorship with the responsibility of supervising and coordinating the freshman laboratories, which now ran into 29 sections. Given to an experienced graduate

assistant in the last year of his doctoral work, this appointment was awarded to David E. Kerley, and in the following years to Glenn A. Anderson, John C. Belton, Thomas D. Darrow, and Eugene G. Fuller. A similar position, for coordination of the physiology laboratory sections, was instituted in 1966, and first held by George S. Alspach.

During his sabbatical year of research at the University of Syracuse, Dr. Mohler's duties were temporarily assumed by Lester J. Newman, Ph.D. (Washington Univ., St. Louis), who subsequently joined the Biology faculty of Portland State College.

James Newstead had resigned as electron microscopist in 1963 in order to pursue postdoctoral study. His successor, appointed in 1964 as Assistant Professor of Zoology, was Patricia J. Harris, Ph.D. (Calif.), whose work on the ultrastructure of the mitotic apparatus, in the Berkeley laboratory of Prof. Daniel Mazia, had gained international attention. Within a year Dr. Harris was successful in obtaining grant funds for a second electron microscope and support for a research program on the structural analysis of cell division.

In 1965 Cyrus Mayshark, who had been in charge of the course in human biology, accepted a position at the University of Tennessee as Head of the Department of Hygiene and Health Education. He was replaced in the Zoology Department by John K. Ellis, Ph.D. (Mich.). Also, Prof. Allman, who for many years taught human anatomy and applied physiology, reached retirement age and was succeeded by LaVon C. Johnson, M.A. (Utah).

Of foremost concern to the department was, of course, the new building, the preliminary plans of which were drawn in the summer of

1962. In the spring of 1963 the State Legislature gave approval for its construction, and the National Science Foundation provided a matching grant of \$425,000 which was subsequently increased to \$446,000. Unhappily, however, a tax referendum in October cancelled the higher education building program, and the whole matter was put off for a biennium. Success finally came in the legislative session of 1965, and an additional grant of \$190,000 was received from the National Institutes of Health; the Higher Education Facilities Program (Title I) also contributed \$364,777. By the time of bid opening, December 7th, construction costs had risen so high that there was much apprehension. Surprisingly and to everyone's relief, the bids came below the architects' estimates. The ground-breaking ceremony took place January 17, 1966. Completion of the building is expected in the fall of 1967. The budgeted cost of the building is \$3,137,000 (State of Oregon \$2,136,223; federal grants \$1,000,777). Its gross square footage is 125,106; net footage 73,547.

Of importance to the department was the completion, in 1965, of the Marine Science Laboratory at Newport (south shore of Yaquina Bay). This facility of the university, operating on a twelve-month basis with Dr. Joel W. Hedgpeth as resident director, has 38,000 square feet of floor space and a dock to accommodate the 180-foot oceanographic vessel Yaquina. Here the Department of Zoology has begun a diversified research program in marine biology, assisted by a grant from the Public Health Service to Prof. Ivan Pratt. Staff members currently involved in this program, besides Pratt, include Drs. Harris, Hisaw, and Pritchard.

Jefferson J. Gonor, Ph.D. (Wash.), on the resident staff of the

Marine Science Laboratory, was appointed Assistant Professor of Oceanography and Zoology in 1965. Formal instruction in marine zoology was initiated by him in the spring of 1966, with a graduate course on the biology of molluscs. During the summer term Hedgpeth and Gonor offered Invertebrate Zoology.

Further additions to the Zoology faculty were made in 1966. Since Dr. Pratt's program in parasitology had grown to consume all of his time, Richard L. Miller, Ph.D. (Chicago) was appointed to take over the work in invertebrate zoology. Likewise, the load of Dr. Storm required relief, and John A. Wiens, Ph.D. (Wis.) was brought in to assume responsibility for ecology and ornithology. Both of these men also joined the lecture team in general zoology and made it possible for the department to grant "released time" to one staff member each term for research at the marine laboratory.

Prof. Mohler, who for eleven years capably managed the area of genetics, was offered a position at the University of Iowa in the fall of 1966 which he decided to accept. His place was filled by Paul A. Roberts, Ph.D. (Chicago) who since 1962 had been on the staff of the Oak Ridge National Laboratory where he was engaged in research on the cytogenetics and developmental genetics of Diptera.

Student enrollment in the department stood at 814 in 1946. A temporary decline followed the disappearance of the G.I. bill students, but by 1956 the loss had been regained. Five years later, in the fall of 1961, the children of the war veterans arrived and the enrollment surged sharply upward. This trend has continued unabated, 2187 students being in zoology classes in the fall of 1965. Also between 1961 and

1965 the number of undergraduate zoology majors climbed from 22 to 167, graduate majors from 31 to 61.

The number of higher degrees awarded in Zoology mounted rapidly after 1948. By 1966 a total of 113 Master's degrees had been conferred, and 57 Ph.D.'s.

Departmental research activity, closely enmeshed with the program of graduate instruction, has been decisively assisted and accelerated by numerous grants from federal, state, and private agencies, particularly the National Science Foundation and the Public Health Service. Through these grants the acquisition of research equipment has been substantial, and funds have been provided for the salaries of research assistants and associates. Further help for graduate students has come from an increasing number of teaching assistantships and from fellowships and traineeships (NSF, PHS, Rockefeller Foundation, NDEA, etc.).

While space does not permit a full account of past and present research programs in the department, it may be noted that during the twenty-year period from 1946 to 1965 the published results appeared in 271 articles, as opposed to about 40 during the preceding two decades. The following list summarizes the research interests of the current graduate faculty:

Ronald H. Alvarado

Ion transfer mechanisms and osmotic regulation.

Ernst J. Dornfeld

Physiology of cell division; nuclear cytology and cytochemistry.

Jefferson J. Gonor

Ecology and behavior of marine invertebrates.

Kenneth L. Gordon

Zoogeography and vertebrate natural history.

Patricia J. Harris

Ultrastructure and cytochemistry of cell division.

Howard H. Hillemann

Placental differentiation and function; vertebrate reproductive biology.

Frederick L. Hisaw, Jr.

Comparative endocrinology of reproduction.

Hugo M. Krueger

Toxicology; energy metabolism and growth.

Richard L. Miller

Gamete physiology and fertilization in marine invertebrates.

James D. Mohler

Polygene action; interchromosomal effects in *Drosophila*.

Alfred Owczarzak

Experimental tissue culture; comparative histology and histochemistry.

Ivan Pratt

Life cycles of helminth parasites; ecological parasitology.

Austin W. Pritchard

Osmoregulation, metabolism, and respiration in aquatic animals.

Paul A. Roberts

Cytogenetics and developmental genetics of Diptera.

Robert M. Storm

Herpetology; developmental ecology of amphibians.

John A. Wiens

Avian ecology and ethology.

This brief history of the Department of Zoology has been essentially a chronology. In compressing the span of almost eighty years into a few pages, much has had to be omitted. Various members of the staff have held offices in national and regional professional organizations and have served on scientific advisory and editorial committees. International meetings and sabbaticals have involved the faculty in foreign

travel. There have been awards for outstanding teaching and research. Important work has been performed by departmental committees. It has not been possible to detail the valuable contributions of the long list of graduate teaching and research assistants, or to comment on the careers of the graduates who are scattered throughout the country and in foreign lands. Many of the latter have made distinguished records. Nor would the department have been built without the loyal services of competent secretaries.

The centennial of the University will coincide with the first year of the department in Cordley Hall. To paraphrase the remark of 1889 concerning Zoology's first home, "the building is new and commodious, and is unsurpassed for excellence of its facilities". It will make an auspicious starting point for the next history of the department.

DEPARTMENT OF ZOOLOGY

FACULTY

1889 - 1967

Allman, Delmar I.

B.S. (Mich. State Normal) 1928; M.S. (Mich.) 1931, Dr. P.H. 1936
Assoc. Prof. 1939, Prof. 1949-65, Emeritus 1965-

Alspach, George S.

B.A. (Antioch) 1963
Instr. 1966-

Alvarado, Ronald H.

B.A. (Calif.) 1956; M.S. (Wash. State) 1959, Ph.D. 1962
Asst. Prof. 1962, Assoc. Prof. 1966-

Anderson, Carl L.

B.S. (Mich.) 1928, M.S. 1932, Dr. P.H. 1934
Prof. 1949-59

Anderson, Glenn A.

B.S. (Wash. State) 1953, M.A. 1958
Instr. 1963-64

Belton, John C.

B.S. (Lewis & Clark) 1957; M.S. (Ore. State) 1962
Instr. 1964-65

Benedict, Edith L.

B.S. (Northwestern) 1928, M.A. 1929
Instr. 1929-38

Blake, Irving H.

B.A. (Bates) 1911; M.A. (Brown) 1912
Instr. 1913-16

Bridwell, John C.

B.S. (Baker) 1901
Instr. 1907-10

Chandler, Asa C.

B.A. (Cornell) 1911; M.S. (Calif.) 1912, Ph.D. 1914
Instr. 1914-17, Asst. Prof. 1917-19

Cole, Elizabeth R.

B.A. (Brown)
Instr. 1915-16

Cordley, Arthur B.

B.S. (Mich. State) 1888; M.S. (Cornell) 1900
Prof. and Head of Department 1895-1914

Courtney, Wilbur D.

B.S. (Wash. State) 1922; M.S. (Wash.) 1929
Instr. 1922-29, Asst. Prof. 1929-30

Darrow, Thomas D.

B.A. (Neb. State) 1960; M.A. (So. Dak.) 1961
Instr. 1965-66

deLaubenfels, Max W.

B.A. (Oberlin) 1916; M.A. (Stanford) 1926, Ph.D. 1929
Prof. 1950-58

Dornfeld, Ernst J.

B.S. (Marquette) 1933; M.A. (Wis.) 1935, Ph.D. 1937
Instr. 1938-42, Asst. Prof. 1942-45, Assoc. Prof. 1945-50,
Prof. 1950-, Chairman of Dept. 1952-

Edwards, Alice L.

B.S. (Ore. State) 1906
Instr. 1910-16

Ellis, John K.

B.Ed. (So. Ill.) 1943, B.S. 1944; M.P.H. (Mich.) 1948, Ph.D. 1963
Assoc. Prof. 1965-

Fasten, Nathan

B.S. (C.C.N.Y.) 1910; Ph.D. (Wis.) 1914
Assoc. Prof. 1920-21, Prof. and Head of Dept. 1921-44

Fuller, Eugene G.

B.S. (Nev.) 1960, M.S. 1962
Instr. 1966-

Gonor, Jefferson J.

B.S. (Southwestern La.) 1953; Ph.D. (Wash.) 1964
Asst. Prof. 1965-

Gordon, Kenneth L.

B.A. (Colo. College) 1923; M.A. (Mo.) 1925; Ph.D. (Cornell) 1936
Instr. 1927-29, Asst. Prof. 1929-40, Assoc. Prof. 1940-45,
Prof. 1945-, Chmn. of Dept. 1945-52

Green, Bess R.

B.A. (Ill.) 1907, M.A. 1910
Asst. Prof. 1926-29

Griffin, Fred L.

B.S. (Ore. State) 1908
Instr. 1908-10

Grobstein, Clifford

B.S. (C.C.N.Y.) 1936; M.A. (Calif., L.A.) 1938, Ph.D. 1940
Instr. 1940-43

Hague, Florence S.

B.A. (Kansas) 1911, M.A. 1914; Ph.D. (Ill.) 1921
Instr. 1921-24, Asst. Prof. 1924-26

Harris, Patricia J.

B.A. (Calif.) 1954; M.S. (Yale) 1958; Ph.D. (Calif.) 1962
Asst. Prof. 1964-

Hillemann, Howard H.

B.S. (Marquette) 1933; M.A. (Wis.) 1939, Ph.D. 1942
Asst. Prof. 1946-52, Assoc. Prof. 1952-56, Prof. 1956-

Hisaw, Frederick L., Jr.

B.S. (Mo.) 1950, M.S. 1952; Ph.D. (Harvard) 1955
Asst. Prof. 1958-61, Assoc. Prof. 1961-

Hurd, Charlotte N.

B.S. M.S.
Instr. 1916-19

Johnson, LaVon C.

B.A. (Brigham Young) 1957; M.A. (Utah) 1959
Asst. Prof. 1965-

Kerley, David E.

B.S. (Ore. State) 1958, M.S. 1962
Instr. 1962-63

Krueger, Hugo M.

B.A. (Denver) 1924, M.A. 1926; Ph.D. (Mich.) 1930
Prof. 1948-

Kuster, Kimber C.

B.S. (Mich.) 1925, M.S. 1926
Instr. 1926-27

Lynch, James E.

B.A. (Neb.) 1917, M.A. 1921
Instr. 1921-22

Mayshark, Cyrus

B.A. (Williams) 1949; M.Ed. (Boston) 1952; M.S. (Harvard) 1952;
H.S.D. (Indiana) 1954
Asst. Prof. 1959-62, Assoc. Prof. 1962-65

McElfresh, Fred M.

B.S.
Instr. 1899-1901

- Miller, Richard L.
B.S. (Chicago) 1962, Ph.D. 1965
Asst. Prof. 1966-
- Mohler, James D.
B.A. (Mo.) 1949, M.A. 1950; Ph.D. (Calif.) 1955
Asst. Prof. 1955-60, Assoc. Prof. 1960-66
- Moore, Arthur R.
B.A. (Neb.) 1904; Ph.D. (Calif.) 1911
Prof. 1932-33
- Newman, Lester J.
B.A. (Wash., St. Louis) 1955; M.A. (Mich.) 1960; Ph.D. (Wash.,
St. Louis) 1963
Asst. Prof. 1963-64
- Newstead, James D.
B.A. (Brit. Columbia) 1954, M.A. 1956; Ph.D. (Ore. State) 1962
Instr. 1960-62, Asst. Prof. 1962-63
- Osborn, John L.
Ph.C. (Mich.) 1915; B.A. (Kansas) 1922; M.A. (Neb.) 1923; Ph.D.
(Wash.) 1939
Instr. 1923-34, Asst. Prof. 1934-46, Assoc. Prof. 1946-47,
Emeritus 1947-
- Owczarzak, Alfred
B.S. (Cornell) 1944; Ph.D. (Wis.) 1953
Instr. 1955-57, Asst. Prof. 1957-61, Assoc. Prof. 1961-
- Owen, William B.
B.A. (Kentucky) 1927; M.A. (Minn.) 1929
Instr. 1930-31
- Pratt, Ivan
B.A. (Emporia) 1932; M.S. (Kans. State) 1935; Ph.D. (Wis.) 1938
Asst. Prof. 1946-47, Assoc. Prof. 1947-52, Prof. 1952-
- Pritchard, Austin W.
B.A. (Stanford) 1948, M.A. 1949; Ph.D. (Hawaii) 1953
Instr. 1953-55, Asst. Prof. 1955-59, Assoc. Prof. 1959-64,
Prof. 1964-
- Roberts, Paul A.
B.S. (Ill.) 1953, M.D. 1957; M.Ed. (Chicago T.C.) 1962; Ph.D.
(Chicago) 1962
Assoc. Prof. 1966-
- Shaw, William T.
B.Ag. (Minn.) 1898, B.S. 1899; M.S. (Mich. State) 1900
Instr. 1901-07

Storm, Robert M.

B.Ed. (N. Ill.) 1939; M.S. (Ore. State) 1941, Ph.D. 1948
Instr. 1948-50, Asst. Prof. 1950-55, Assoc. Prof. 1955-62,
Prof. 1962-

Swan, Grant A.

B.S. (Ore. State) 1922
Asst. Prof. 1939-43

Sykes, George F.

Ph.B. (Brown) 1909, M.A. 1910
Instr. 1910-13, Asst. Prof. 1913-14, Prof. and Head of Dept. 1914-21

Taylor, Alfred

B.A. (Ore.) 1932; M.A. (Ore. State) 1934, Ph.D. 1935
Instr. 1935-40

Taylor, Aravilla M.

B.S. (Chicago) 1915, M.S. 1916, Ph.D. 1919
Asst. Prof. 1920-21

Washburn, Frederick L.

B.A. (Harvard) 1882
Prof. and Head of Dept. 1889-95

Wiens, John A.

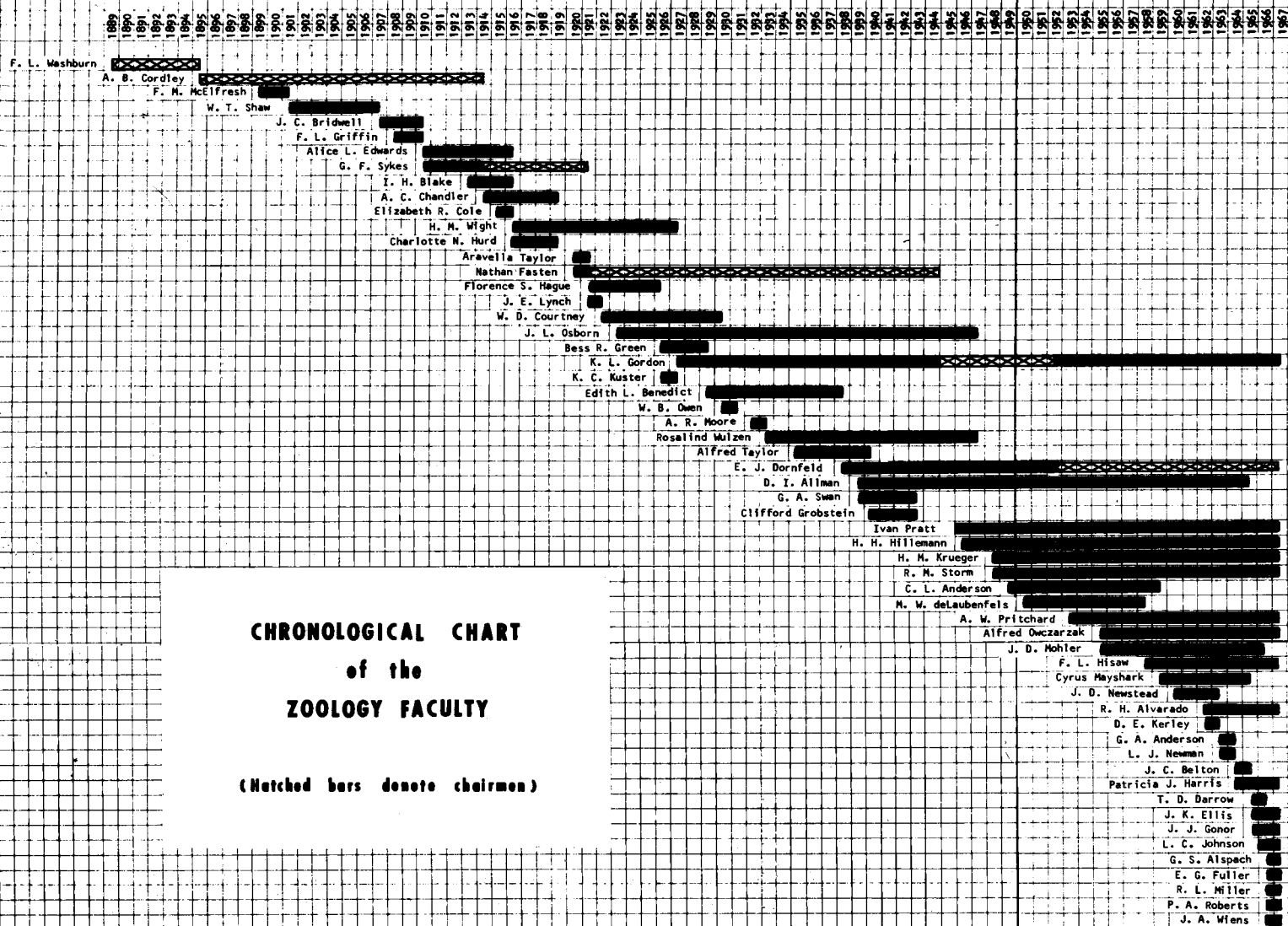
B.S. (Okla.) 1961; M.S. (Wis.) 1963, Ph.D. 1966
Asst. Prof. 1966-

Wight, Howard M.

B.S. (Bates) 1915; M.S. (Ore. State) 1916
Instr. 1916-20, Asst. Prof. 1920-27

Wulzen, Rosalind

B.S. (Calif.) 1904, M.S. 1910, Ph.D. 1914; Sc.D. (Ore.) 1943
Asst. Prof. 1933-41, Assoc. Prof. 1941-46, Prof. 1946-47,
Emeritus 1947-

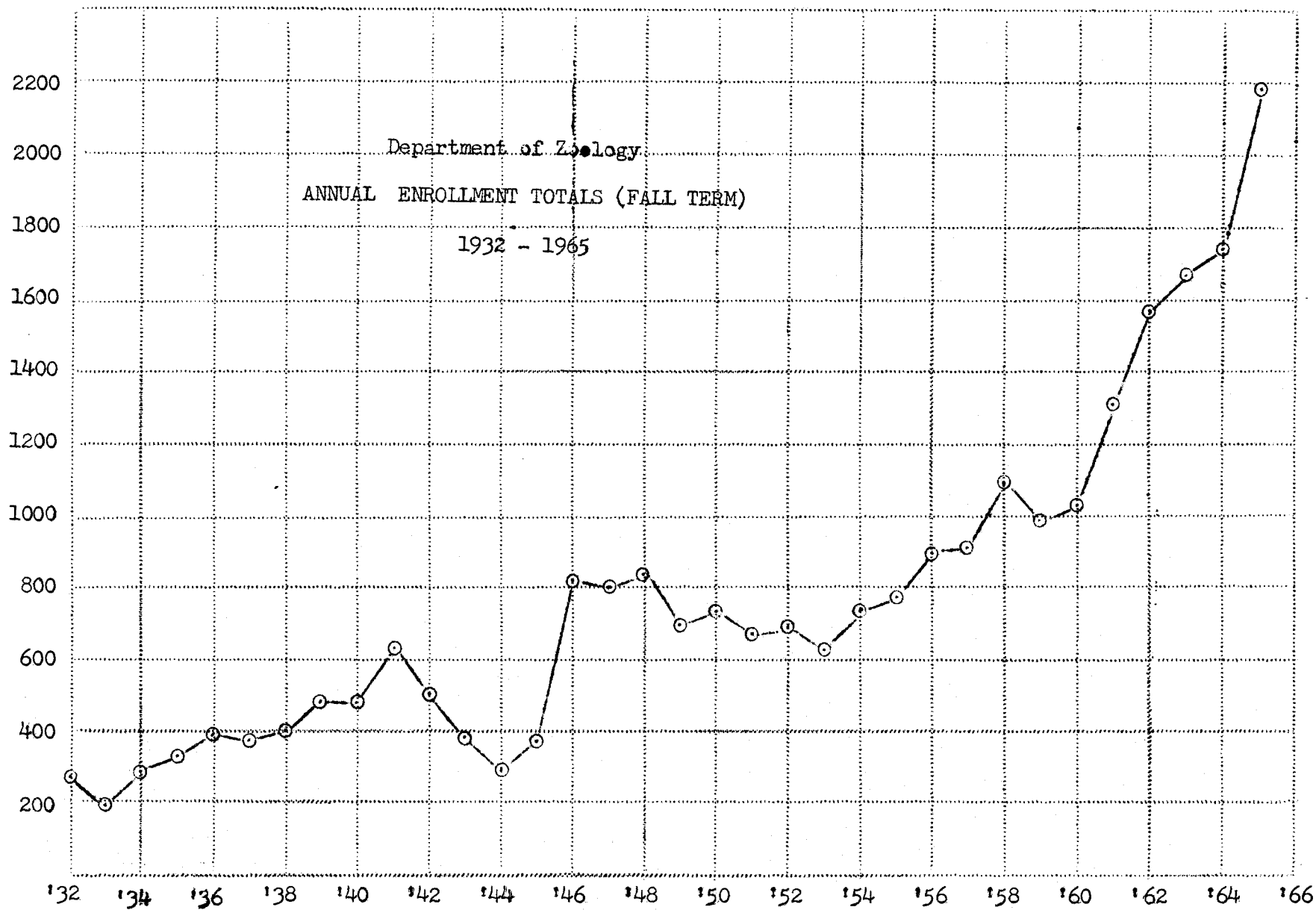


ADVANCED DEGREES CONFERRED IN ZOOLOGY

<u>Year</u>	<u>M.A.</u>	<u>M.S.</u>	<u>Ph.D.</u>
1923		Walter P. Cove11	
1926		Nettie L. Murray	
1934	Alfred Taylor		
1935			Alfred Taylor
1938		Raymond W. Coopey	
1939	William Graf	Maurice S. Tarshis	
1941		Daniel W. Slater Robert M. Storm	
1942		Sr. Gemma Piennett	
1943		Gilbert M. Shearer	William Graf
1944		Robert L. Livezey	
1945	Hildegard Lamfrom		
1947		Virginia L. Weimar	
1948		Bertha D. Cutress Walter S. Vincent	Robert M. Storm
1949	Philip C. Dumas Donald J. Reish Robert M. Yancey	Myrtle D. Beatty Charles E. Cutress Robert W. Merriam Ernest W. Retzlaff Rudolph E. Rieschel Aryan I. Roest Robert C. von Borstel Kenneth M. Walker	Fred G. Evenden
1950	James H. Berrian Harold V. Gallaher	Herbert G. Adams Claude G. Alexander Robert D. Bratz Richard A. Pimentel Richard M. Ritland Robert R. Sowell Roland D. Walters	

<u>Year</u>	<u>M.A.</u>	<u>M.S.</u>	<u>Ph.D.</u>
1951	Donald G. Dunlap Earl Gregoire	Frank W. Adams Delpha D. Dunlap Marvin F. Hill John A. McGowan Donald M. Purdy Donald W. Twohy William C. Van Arsdel	Elwin E. Bennington
1952	William C. Burns Darrell L. Davis	Denzel E. Ferguson John C. Giesler Lloyd R. Yonce	Robert D. Bratz Albert C. Hawbecker Donald V. Hemphill Richard A. Pimentel
1953	Lydia Beyerlein	Wesley J. Birge Richard H. Eddy	Philip C. Dumas
1954	Vernon E. Thatcher	Lewis E. Aldrich David R. McIntyre Robert S. Tether	Richard E. Freiburg Donald L. Lehmann James E. McCauley Aryan I. Roest
1955	Franklin W. Sturges F. Donald Tibbetts Simone T.-H. Truong	Robert A. Knight	Wesley J. Birge Vernon E. Duiker Marvin F. Hill Andrew C. Olson Kenneth M. Walker
1956	Morris E. Weaver		Nathan W. Cohen Charles G. Hansen Donald G. Humphrey
1957		Hilda L. Ching Galen E. Clothier Stanley N. Wilkes	Denzel E. Ferguson Franklin W. Sturges
1958	Hugh P. Stanley	Jack Foster	F. Donald Tibbetts
1959		John W. Goertz Oliver W. Johnson Robert E. Moore Kenneth R. Porter	William C. Van Arsdel Morris E. Weaver
1960	Glenn R. Stewart	Robert L. Puyear Gertrude L. Swedberg Norman F. Weatherly	Lewis E. Aldrich Asa C. Thoresen Elisha S. Tikasingh

<u>Year</u>	<u>M.A.</u>	<u>M.S.</u>	<u>Ph.D.</u>
1961		Eugene D. Bawdon Alan G. Heath Norman C. Leeling James E. Monroe Ronald J. White Ellis J. Wyatt	Albert G. Canaris Galen E. Clothier Clifford V. Davis Hugh P. Stanley John H. Wirtz
1962		William M. Beck John C. Belton Grace A. Hamilton David E. Kerley Lewis M. Turner	James M. Ford James D. Newstead Harold Watling
1963	Elver H. Voth	George F. Crandell Howard C. Morse John C. Neeley	Audrey L. Brazwell Charles G. Danforth
1964	Gordon W. Martin	Jean E. Kneeland Sheridan V. Merritt Clarence A. Porter Gilbert A. Rinard Ronald L. Ritschard Steven R. Thompson Rosalind W.-P. Yuen	Glenn A. Anderson Joan D. Beltz John D. DeMartini Alan G. Heath Glenn R. Stewart
1965	Larry T. Spencer	Francis P. Belcik John A. Dorsch Frank J. Longo Ralph R. Moldenhauer Melvin L. Schamberger Loren E. Van Tassel	Frank W. Adams Hugh C. Black Oliver W. Johnson Thomas G. Meade Robert L. Puyear
1966	Elaine C.-L. Chan James W. York	Glen W. Clothier Robert R. Hollenbeck Tod S. Johnson Christopher O. Maser James M. Shumake James G. Wernz Herman E. Wyandt	John C. Belton Carl A. Forss Cornelis Laban Gordon W. Martin Clarence A. Porter Ronald L. Ritschard Stanley N. Wilkes



Department of Zoology

ANNUAL ENROLLMENT OF MAJOR STUDENTS (FALL TERM)

	<u>Undergraduate</u>	<u>Graduate</u>
1932	10	18
1933	10	6
1934	12	2
1935	14	1
1936	17	2
1937	14	1
1938	11	3
1939	20	5
1940	11	5
1941	10	?
1942	2	4
1943	0	1
1944	2	0
1945	1	4
1946	14	7
1947	23	15
1948	32	26
1949	12	22
1950	13	25
1951	13	28
1952	8	19
1953	8	16
1954	5	18
1955	5	15
1956	7	19
1957	14	16
1958	19	28
1959	20	27
1960	22	31
1961	44	35
1962	69	44
1963	97	44
1964	113	61
1965	167	61

PUBLICATIONS FROM THE DEPARTMENT OF ZOOLOGY

Note: This is not a complete list, but a selection of titles to illustrate the range of research activity in the department.

1918. Chandler, Asa C. Animal Parasites and Human Disease. Wiley, N.Y. 570 pp. (This was the first American textbook on parasitology.)
1926. Fasten, Nathan. Spermatogenesis of the black-clawed crab, Lophopanopeus bellus (Stimpson) Rathbun. Biol. Bull. 50: 277-293.
1928. Gordon, Kenneth L. An albino kingbird. Auk 45: 101.
1931. Fasten, Nathan. The Yaquina oyster beds of Oregon. Am. Nat. 65: 434-468.
1932. Gordon, Kenneth L. Branchinecta coloradensis in Colorado. Science 75: 287-288.
1935. Taylor, Alfred. Skeletal changes associated with increasing body size. J. Morphol. 57: 253-274.
1936. Fasten, Nathan. Principles of Genetics and Eugenics. Ginn & Co., Boston. 407 pp.
1936. Gordon, Kenneth L. Territorial behavior and social dominance among Sciuridae. J. Mammal. 17: 171-172.
1936. Taylor, Alfred. Athyroidism in the salamander Triturus torosus, Rathke. J. Exp. Zool. 73: 153-181.
1936. Wulzen, Rosalind & Alice M. Bahrs. A common factor in planarian and mammalian nutrition. Physiol. Zool. 9: 508-529.
1937. Taylor, Alfred. The effect of athyroidism on the rate of cell division. J. Exp. Zool. 75: 239-244.
1938. Gordon, Kenneth L. Observations on the behavior of Callospermophilus and Eutamias. J. Mammal. 19: 78-84.
1939. Dornfeld, Ernst J. The ultracentrifuge in cellular biology. Marquette Med. Rev. 3: 51-55.
1939. Gordon, Kenneth L. The Amphibia and Reptilia of Oregon. Ore. State Monog., Stud. Zool. No. 1 82 pp.
1939. Graf, William, Stanley G. Jewett & Kenneth L. Gordon. Records of amphibians and reptiles from Oregon. Copeia (1939): 101-104.

1939. Slater, Daniel W. & Ernst J. Dornfeld. A triple stain for amphibian embryos. *Stain Technol.* 14: 103-104.
1939. Taylor, Alfred. The effect of athyroidism and hyperthyroidism on the oxygen consumption of the adult salamander. *J. Exp. Zool.* 81: 135-146.
1940. Gordon, Kenneth L. Lark bunting in Oregon. *Auk* 57: 119.
1941. Fasten, Nathan. Introduction to General Zoology. Ginn & Co., Boston. 742 pp.
1941. Huestis, R.R. & Kenneth L. Gordon. Geographical distribution of Oregon land vertebrates. In *Physical and Economic Geography of Oregon*, pp. 110-117.
1942. Dornfeld, Ernst J., Daniel W. Slater & Henry Scheffé. A method for accurate determination of volume and cell numbers in small organs. *Anat. Rec.* 82:255-259.
1943. Gordon, Kenneth L. The natural history and behavior of the western chipmunk and the mantled ground squirrel. *Ore. State Monog., Stud. Zool.* No. 5. 104 pp.
1943. Wulzen, Rosalind & Willem J. van Wagtendonk. A dietary factor essential for guinea pigs. *Arch. Biochem.* 1: 373-377.
1944. Wulzen, Rosalind, Willem J. van Wagtendonk & Victor Schocken. A dietary factor essential for guinea pigs. ii. A comparative study of the creatine excretion of animals on a diet deficient in this factor and in vitamin E. *Arch. Biochem.* 3: 305-310.
1945. Slater, Daniel W. & Ernst J. Dornfeld. Quantitative aspects of growth and oocyte production in the early prepubertal rat ovary. *Am. J. Anat.* 76: 253-275.
1947. Storm, Robert M. Eggs and young of Aneides ferreus. *Herpetologica* 4: 60-62.
1948. Vincent, Walter S. & Ernst J. Dornfeld. Localization and role of nucleic acids in the developing rat ovary. *Am. J. Anat.* 83: 437-470.
1949. Pratt, Ivan & Charles Cutress. Olssoniella chivosca n. sp. (Trematoda: Dicrocoeliidae) from the western evening grosbeak. *J. Paras.* 35: 361-363.
1949. Retzlaff, Ernest W. The histology of the adrenal gland in the alligator lizard, Gerrhonotus multicarinatus. *Anat. Rec.* 105: 19-34.

1949. Storm, Robert M. & Richard A. Pimentel. Herpetological notes from Malheur County, Oregon. Great Basin Nat. 9: 60-63.
1950. Adams, Frank W. & Howard H. Hillemann. Morphogenesis of the vitelline and allantoic placentae of the golden hamster (Cricetus auratus). Anat. Rec. 108: 363-383.
1950. Beatty, Myrtle Dee & Howard H. Hillemann. Ossification in the golden hamster from day 12 through day 7 postpartum. J. Mammal. 31: 121-134.
1950. Berrian, James H. & Ernst J. Dornfeld. Cellular proliferation in the germinal epithelium of immature rat ovaries: an in vitro method for the study of mitotic rate. J. Exp. Zool. 115: 493-512.
1950. Dumas, Philip C. Habitat distribution of breeding birds in southeastern Washington. Condor 52: 232-237.
1950. Purdy, Donald M. & Howard H. Hillemann. Prenatal growth in the golden hamster (Cricetus auratus). Anat. Rec. 106: 591-597.
1950. Reish, Donald J. Preliminary note on the life cycle of the acanthocephalan, Polymorphus kenti Van Cleave, 1947. J. Paras. 36: 496.
1951. Alexander, Claude G. A new species of Proteocephalus (Cestoda) from Oregon trout. J. Paras. 37: 160-164.
1951. Beyerlein, Lydia, Howard H. Hillemann & William C. Van Arsdel III. Ossification and calcification from postnatal day 8 to the adult condition in the golden hamster (Cricetus auratus). Anat. Rec. 110: 49-65.
1951. deLaubenfels, Max W. Sponges of the Island of Hawaii. Pacific Science 5: 256-271.
1951. Dornfeld, Ernst J. & James H. Berrian. Stimulation of mitoses in the germinal epithelium of rat ovaries by intracapsular injections. Anat. Rec. 109: 129-137.
1951. Dunlap, Donald G. & Robert M. Storm. The Cascade frog in Oregon. Copeia (1951): 81.
1951. Van Arsdel, William C. III & Howard H. Hillemann. The ossification of the middle and internal ear of the golden hamster (Cricetus auratus). Anat. Rec. 109: 673-689.
1952. Ferguson, Denzel E. The distribution of amphibians and reptiles of Wallowa County, Oregon. Herpetologica 8: 65-68.

1952. Storm, Robert M. Interspecific mating behavior in Rana aurora and Rana catesbeiana. *Herpetologica* 8: 108.
1953. Birge, Wesley J. & Howard H. Hillemann. Metencephalic development and differentiation following experimental lesions in the early chick embryo. *J. Exp. Zool.* 124: 545-569.
1953. Burns, William C. & Ivan Pratt. The life cycle of Metagonimoides oregonensis Price (Trematoda: Heterophyidae). *J. Paras.* 39: 60-69.
1953. deLaubenfels, Max W. Sponges from the Gulf of Mexico. *Bull. Mar. Sci. Gulf & Carib.* 2: 511-557.
1953. Hawbecker, Albert C. Environment of the Nelson antelope ground squirrel. *J. Mammal.* 34: 324-334.
1953. Hillemann, Howard H. & C.H. Lee. The substitution of organic chelating agents in the decalcification of bone and tooth structures. *Stain Technol.* 28: 285-287.
1953. Pratt, Ivan & Lewis E. Aldrich, Jr. Megalocotyle trituba n. sp. (Trematoda: Monogenea). *J. Paras.* 39: 535-537.
1953. Roest, Aryan I., Robert M. Storm & Philip C. Dumas. Cuvier's beaked whale (Ziphius cavirostris) from Oregon. *J. Mammal.* 34: 251-252.
1954. deLaubenfels, Max W. Sponges of the West Central Pacific. *Ore. State Monog., Stud. Zool.* No. 7. 306 pp.
1954. Ferguson, Denzel E. An annotated list of the amphibians and reptiles of Union County, Oregon. *Herpetologica* 10: 149-152.
1954. McGowan, John A. & Ivan Pratt. The reproductive system and early embryology of the nudibranch Archidoris montereyensis (Cooper). *Bull. Mus. Comp. Zool.* 111: 261-276.
1954. Storm, Robert M. & Richard A. Pimentel. A method for studying amphibian breeding populations. *Herpetologica* 10: 161-166.
1954. Thatcher, Vernon E. Some helminths parasitic in Clemmys marmorata. *J. Paras.* 40: 481-482.
1955. deLaubenfels, Max W. The sponges of Onotoa. *Pacific Science* 9: 137-340.
1955. Dunlap, Donald G. Inter- and intraspecific variation in Oregon frogs of the genus Rana. *Am. Midl. Nat.* 54: 314-331.

1955. Hillemann, Howard H. The organization, histology and circulatory pattern of the near-term placenta of the Guinea baboon, Protophylops cynocephalus, Desmarest. Ore. State Monog., Stud. Zool. No. 8. 47 pp.
1955. Knight, Robert A. & Ivan Pratt. The life histories of Allasogonoporus vespertilionis Macy and Acanthatrium oregonense Macy (Trematoda: Lecithodendriidae). J. Paras. 41: 1-8.
1955. Krueger, Hugo M. The Wulzen calcium dystrophy syndrome in guinea pigs. Am. J. Phys. Med. 34: 185-209.
1955. Krueger, Hugo M. Narcotics and analgesics. In The Alkaloids, 5, chpt. 38: 1-77.
1955. Storm, Robert M. Northern and southern range limits of Dunn's salamander, Plethodon dunni. Copeia (1955): 64-65.
1955. Truong, Simone T.-H. & Ernst J. Dornfeld. Desoxyribose nucleic acid content in the nuclei of salamander somatic tissues. Biol. Bull. 108: 242-251.
1956. Dornfeld, Ernst J. The Allis Lake Laboratory, 1886-1893. i. The reminiscences of Edward Phelps Allis. ii. Annotations to the Allis reminiscences and further historical notes. Marquette Med. Rev. 21: 113-142.
1956. Dumas, Philip C. The ecological relations of sympatry in Plethodon dunni and Plethodon vehiculum. Ecology 37: 484-495.
1956. Ferguson, Denzel E. The distribution of Rana sylvatica cantabrigensis Baird in western Canada and Alaska. Herpetologica 12: 132-133.
1956. Graf, William. Territorialism in deer. J. Mammal. 37: 246-248.
1957. Horton, Howard F. & Austin Pritchard. Effect of Rauwolfia alkaloids on the oxygen consumption rate of hatchery-reared rainbow trout. Prog. Fish-Culturist (July, 1957): 131-133.
1957. Roest, Aryan I. Notes on the American sparrow hawk. Auk 74: 1-19.
1958. Dornfeld, Ernst J. & Alfred Owczarzak. Surface responses in cultured fibroblasts elicited by ethylenediaminetetraacetic acid. J. Biophys. Biochem. Cytol. 4: 243-250.
1958. Hawbecker, Albert C. Survival and home range in the Nelson antelope ground squirrel. J. Mammal. 38: 207-215.
1958. Hillemann, Howard H., Alta I. Gaynor & Hugh P. Stanley. The genital systems of Nutria (Myocastor coypus). Anat. Rec. 130: 515-531.

1958. Pimentel, Richard A. On the validity of Taricha granulosa Skilton. *Herpetologica* 14: 165-168.
1958. Pritchard, Austin W., Elisabeth Florey & Arthur W. Martin. Relationship between metabolic rate and body size in an elasmobranch (Squalus suckleyi) and in a teleost (Ophiodon elongatus). *J. Mar. Res.* 17: 403-411.
1959. Birge, Wesley J. An analysis of differentiation and regulation in the mesencephalon of the chick embryo. *Am. J. Anat.* 104: 431-463.
1959. Dunlap, Donald G. Notes on the amphibians and reptiles of Deschutes County, Oregon. *Herpetologica* 15: 173-177.
1959. Hisaw, Frederick L. Jr. & Frederick L. Hisaw. Corpora lutea of elasmobranch fishes. *Anat. Rec.* 135: 269-278.
1959. Katz, Max, Austin Pritchard & Charles E. Warren. Ability of some salmonids and a centrarchid to swim in water of reduced oxygen content. *Trans. Am. Fish. Soc.* 88: 88-95.
1959. Pimentel, Richard A. Seasonal variation in the morphology of the rough-skinned newt, Taricha torosa granulosa, with discussion of the systematics of the granulosa group. *Herpetologica* 15: 8-13.
1959. Tibbitts, F. Donald & Howard H. Hillemann. The development and histology of the chinchilla placentae. *J. Morphol.* 105: 317-366.
1959. Weaver, Morris E. The effect of sodium malonate on mitotic rate in the germinal epithelium of rat ovaries grown in vitro. *Anat. Rec.* 135: 303-312.
1960. Bennington, E.E. & Ivan Pratt. The life history of the salmon-poisoning fluke, Nanophyetus salmincola (Chapin). *J. Paras.* 46: 91-100.
1960. Botticelli, Charles R., Frederick L. Hisaw Jr. & Herbert H. Wotiz. Estradiol-17b and progesterone in ovaries of starfish (Pisaster ochraceus). *Proc. Soc. Exp. Biol. Med.* 103: 875-877.
1960. Dornfeld, Ernst J. Cell movements. In McGraw-Hill Encyclopedia of Science and Technology, 2: 594-595.
1960. Hillemann, Howard H. The Vertebrate Organism. Handbook of Comparative Vertebrate Embryology and Anatomy. O.S.C. Coop. Assoc., Corvallis. 431 pp.
1960. McCauley, James E. & Ivan Pratt. Aporchis continuus n. sp. (Trematoda: Echinostomatidae). *J. Paras.* 46: 642-644.

1960. Pimentel, Richard A. Inter- and intrahabitat movements of the rough-skinned newt, Taricha torosa granulosa. Am. Midl. Nat. 63: 470-496.
1960. Pritchard, Austin W. & Aubrey Gorbman. Thyroid hormone treatment and oxygen consumption in embryos of the spiny dogfish. Biol. Bull. 119: 109-119.
1960. Stanley, Hugh P. & Howard H. Hillemann. Histology of the reproductive organs of nutria, Myocastor coypus (Molina). J. Morphol. 106: 277-300.
1960. Storm, Robert M. Notes on the breeding biology of the red-legged frog, Rana a. aurora. Herpetologica 16: 251-259.
1961. Ferguson, Denzel E. The geographic variation of Ambystoma macrodactylum Baird, with the description of two new subspecies. Am. Midl. Nat. 65: 311-338.
1961. Hillemann, Howard H. & Alta I. Gaynor. The definitive architecture of the placentae of nutria, Myocastor coypus (Molina). Am. J. Anat. 109: 299-318.
1961. Hisaw, Frederick L. & Frederick L. Hisaw Jr. Action of estrogen and progesterone on the reproductive tract of lower primates. In W.C. Young (ed.), Sex and Internal Secretion, 3rd ed., pp. 556-589. Williams & Wilkins, Baltimore.
1961. McCauley, James E. & Ivan Pratt. A new genus Deropegus with a redescription of D. aspina (Ingles, 1936) nov. comb. Trans. Am. Micr. Soc. 80: 373-377.
1961. Pratt, Ivan & James E. McCauley. Trematodes of the Pacific Northwest. An Annotated Catalog. Ore. State Monog., Stud. Zool. No. 11. 113 pp.
1961. Porter, Kenneth R. Experimental crosses between Rana aurora Baird and Girard and Rana cascadae Slater. Herpetologica 17: 156-165.
1961. Tikasingh, Elisha S. & Ivan Pratt. The classification of endoparasitic gastropods. System. Zool. 10: 65-69.
1962. Canaris, Albert G. A new genus and species of mite (Laelaptidae) from Orchestoidea californiana (Gammaridea). J. Paras. 48: 467-469.
1962. Heath, Alan G. & Austin W. Pritchard. Changes in the metabolic rate and blood lactic acid of bluegill sunfish, Lepomis macrochirus, Raf. following severe muscular activity. Physiol. Zool. 35: 323-329.

1962. Monroe, James E. Chromosomes of rattlesnakes. *Herpetologica* 17: 217-220.
1962. Tikasingh, Elisha S. The microanatomy and histology of the parasitic gastropod, Comenteroxenos parasitchopoli Tikasingh. *Trans. Am. Micr. Soc.* 81: 320-327.
1963. Danforth, Charles G. First record of a Hawaiian shore bopyrid (Isopoda: Bopyridae). *J. Paras.* 49: 847-850.
1963. Hisaw, Frederick L. Jr. & Frederick L. Hisaw. Precipitation of menstruation in castrated monkeys with progesterone in the presence of estrogen. *Proc. Soc. Exp. Biol. Med.* 114: 486-488.
1963. Pritchard, Austin W., M.J. Huston & A.W. Martin. Effects of in vitro anoxia on metabolism of octopus heart tissue. *Proc. Soc. Exp. Biol. Med.* 112: 27-29.
1963. Stanley, Hugh P. Urogenital morphology in the chimaeroid fish Hydrolagus colliei (Lay and Bennett). *J. Morphol.* 112: 99-128.
1963. Wyatt, Ellis J. & Ivan Pratt. Myxobolus insidiosus sp. n. from the musculature of Oncorhynchus tshawytscha (Walbaum). *J. Paras.* 49: 951-955.
1964. Bawson, Alden B. & Frederick L. Hisaw Jr. The occurrence of neurosecretory cells in the neural ganglia of tunicates. *J. Morphol.* 114: 411-423.
1964. DeMartini, John D. & Ivan Pratt. The life cycle of Telolecithus pugetensis Lloyd and Guberlet, 1932 (Trematoda: Monorchidae). *J. Paras.* 50: 101-105.
1964. Hisaw, Frederick L. Jr. & Frederick L. Hisaw. Effect of relaxin on the uterus of monkeys (Macaca mulatta) with observations on the cervix and symphysis pubis. *Am. J. Obst. Gynec.* 89: 141-155.
1964. Merritt, Sheridan V. & Ivan Pratt. The life history of Neoechinorhynchus rutili and its development in the intermediate host (Acanthocephala: Neoechinorhynchidae). *J. Paras.* 50: 394-400.
1964. Mohler, James D. & Gertrude S. Swedberg. Wing vein development in crossveinless-like strains of Drosophila melanogaster. *Genetics* 50: 1403-1419.
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PLATE 1

Top: FREDERICK L. WASHBURN (1860-1927), Head of Department
1889-1895. Photo courtesy of Entomology Department.

Middle left: ARTHUR B. CORDLEY (1864-1936), Head of Department
1895-1914. Photo courtesy of University Archives.

Middle right: GEORGE F. SYKES (1878-), Head of Department
1914-1921. Photo from The Orange, vol. 8 (1915).

Bottom: NATHAN FASTEN (1887-1953), Head of Department 1921-1944.
Photo by E. J. Dornfeld (1940).

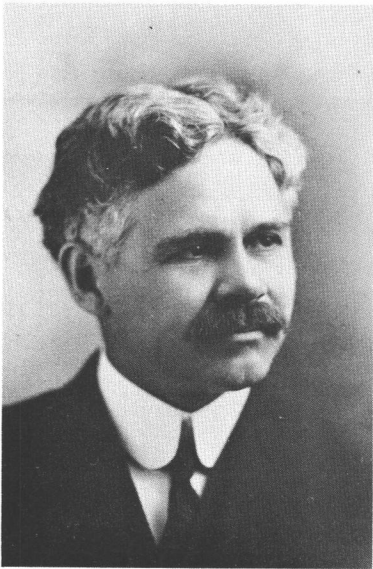


PLATE 2

Top: ZOOLOGY STAFF, May 1947.

Upper row left to right: Samuel F. Toevs (grad. asst.), Robert M. Storm (grad. asst.), Walter S. Vincent (grad. asst.), Virginia Weimar (grad. Asst.), Amelia Jaramillo (secretary), Samuel W. Leshner (grad. asst.).

Lower row left to right: Ernst J. Dornfeld, Howard H. Hillemann, John L. Osborn, Ivan Pratt, Kenneth L. Gordon, Rosalind Wulzen, Delmar I. Allman.

Bottom: ZOOLOGY FACULTY, June 1955.

Standing left to right: Kenneth L. Gordon, Howard H. Hillemann, Ernst J. Dornfeld, Austin W. Pritchard, Robert M. Storm.

Seated left to right: Delmar I. Allman, Hugo M. Krueger, Rosalind Wulzen, Carl L. Anderson, Max W. de Laubenfels.

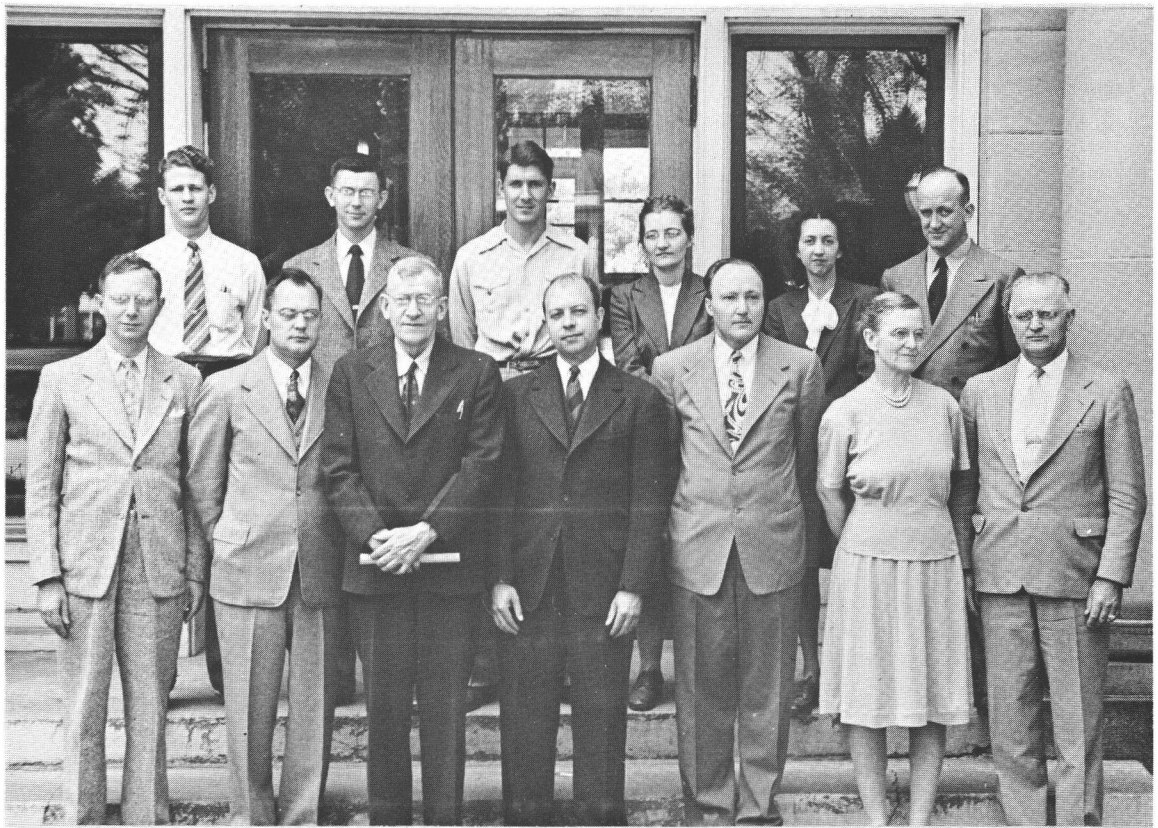


PLATE 3

E-5

ZOOLOGY FACULTY, June 1966

Standing left to right: John K. Ellis, LaVon C. Johnson, James D. Mohler, Alfred Owczarzak,
Ronald H. Alvarado, Austin W. Pritchard, Frederick L. Hisaw, Thomas D. Darrow, Patricia J. Harris.

Seated left to right: Robert M. Storm, Hugo M. Krueger, Howard H. Hillemann, Kenneth L.
Gordon, Ernst J. Dornfeld, Ivan Pratt.



PLATE 4

Top: COLLEGE HALL (now Benton Hall), the first building on the present campus, completed 1888. Zoology occupied one, later two, rooms on the third floor, 1889-1902. Photo courtesy of University Archives.

Bottom: LABORATORY & MUSEUM of the Department of Zoology & Entomology in College Hall, 1893. Photo courtesy of University Archives.

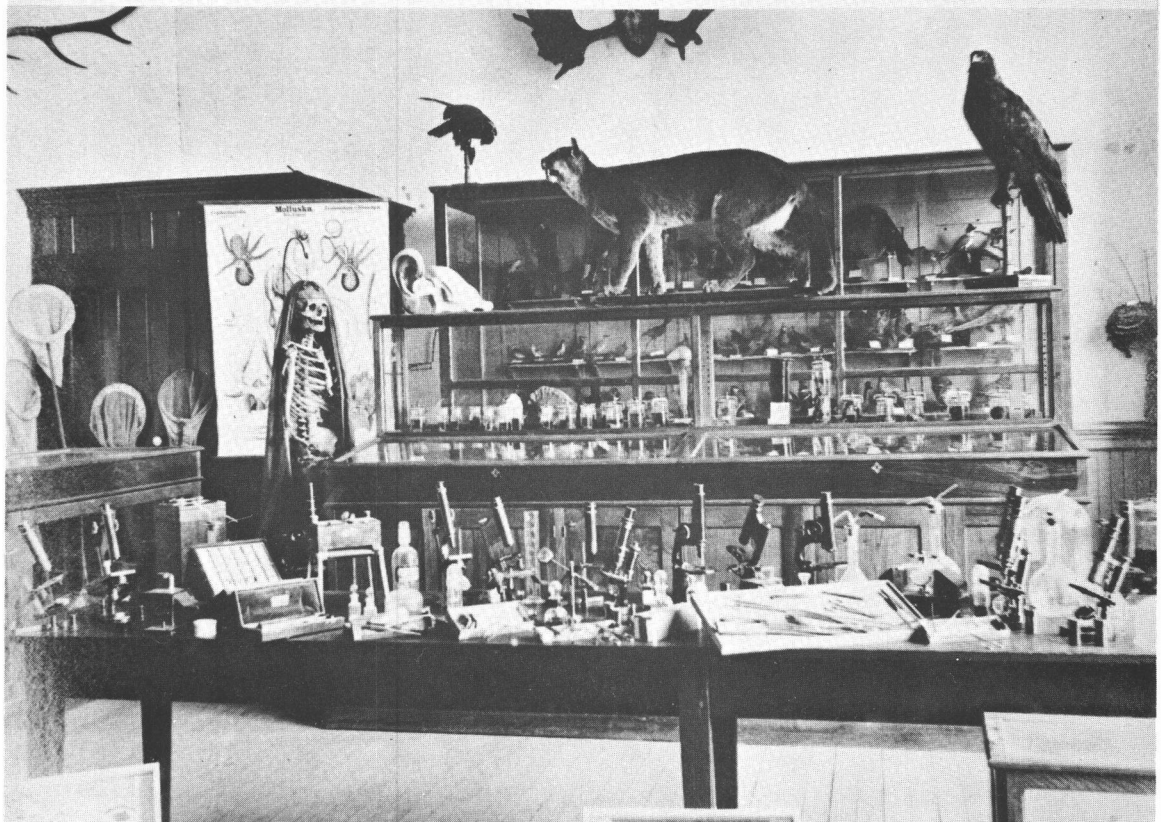
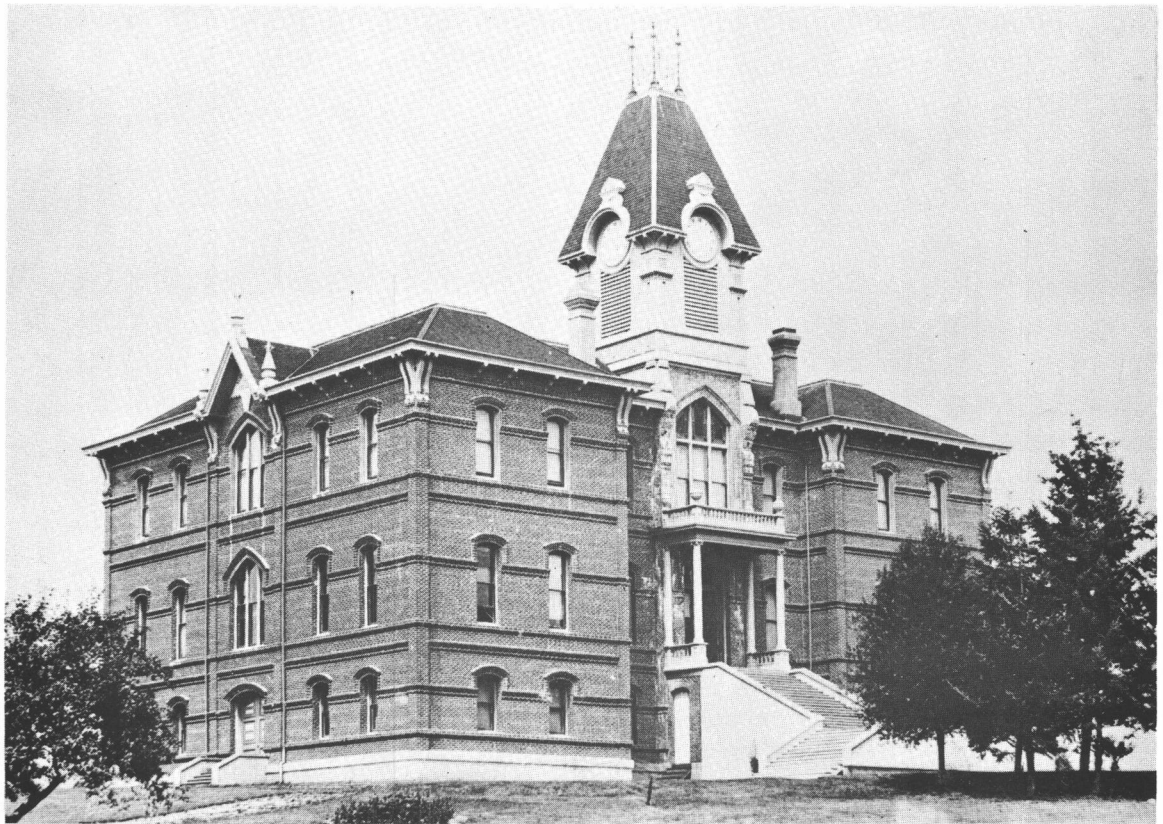
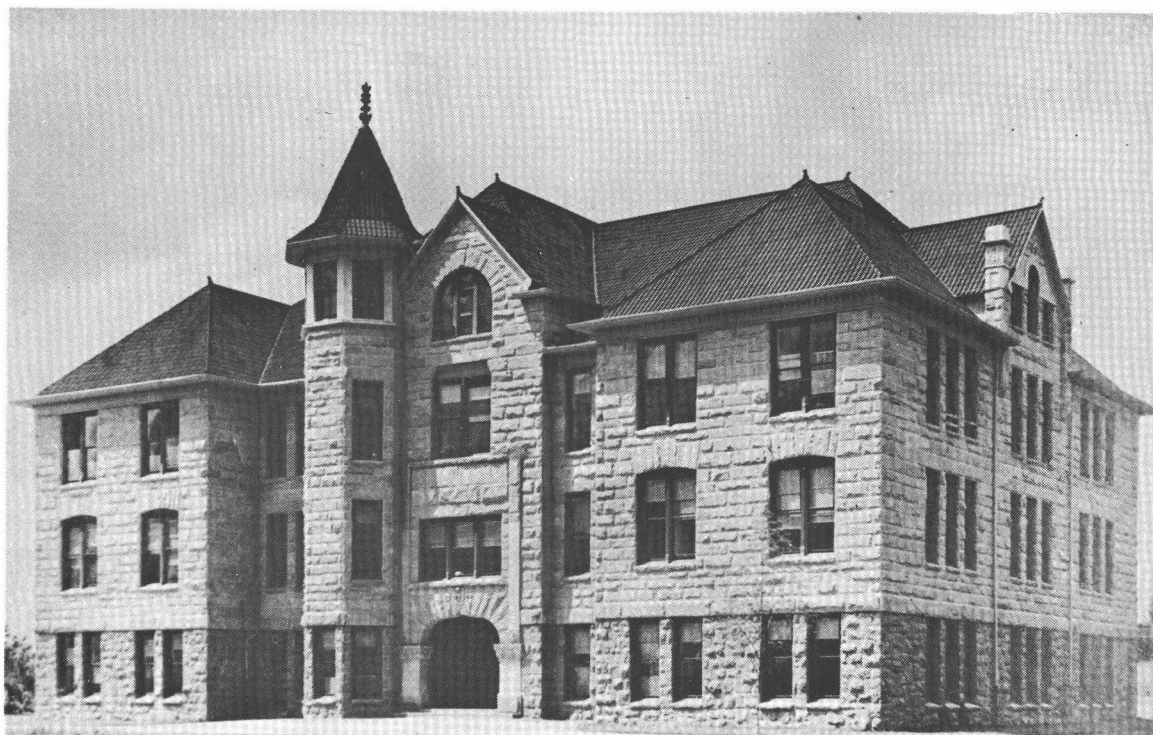


PLATE 5

Top: AGRICULTURE HALL (later Science Hall, now Education Hall), completed 1902. The Department of Zoology & Entomology occupied seven rooms on the third floor, 1902-1910. The fourth floor housed the museum. Photo courtesy of University Archives.

Bottom: ZOOLOGY LABORATORY in Agriculture Hall (now Education Hall), 1908. Photo from The Orange, vol. 2 (1909).



Dissecting Cats in Vertebrate Anatomy

PLATE 6

Top: AGRICULTURE HALL. Center unit completed 1909; wings added 1911 and 1913. Home of the Zoology Department from 1910 to 1967. The Department first occupied nine rooms on the third floor of the center section; later additions included all of the second and third floors in the south wing. Photo courtesy of University Archives.

Bottom: NATURAL HISTORY BUILDING ("Butler Hut"), erected 1948 as temporary housing for the laboratories and offices of ecology and vertebrate natural history, including the natural history museum. Photo by Alfred Owczarzak, 1963.

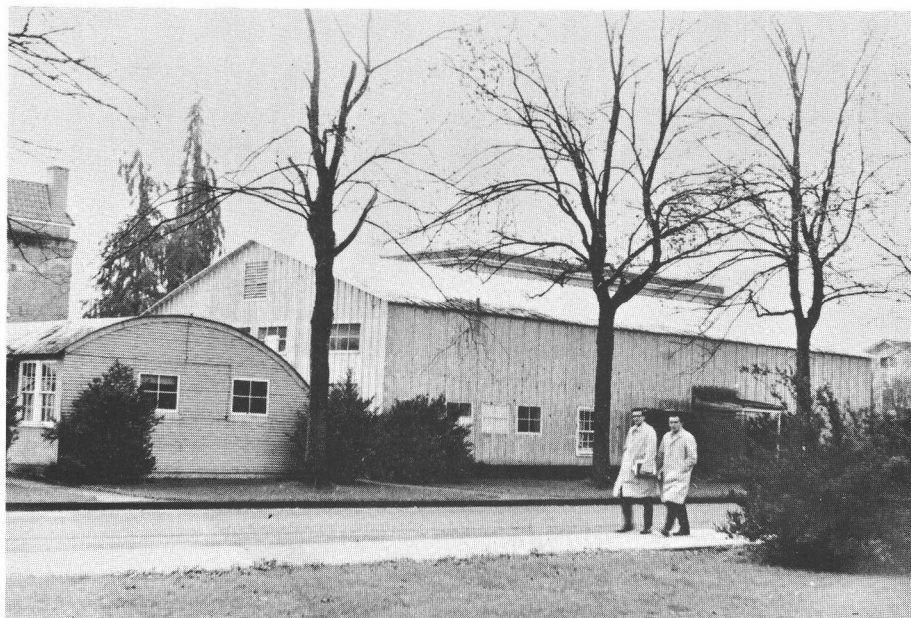
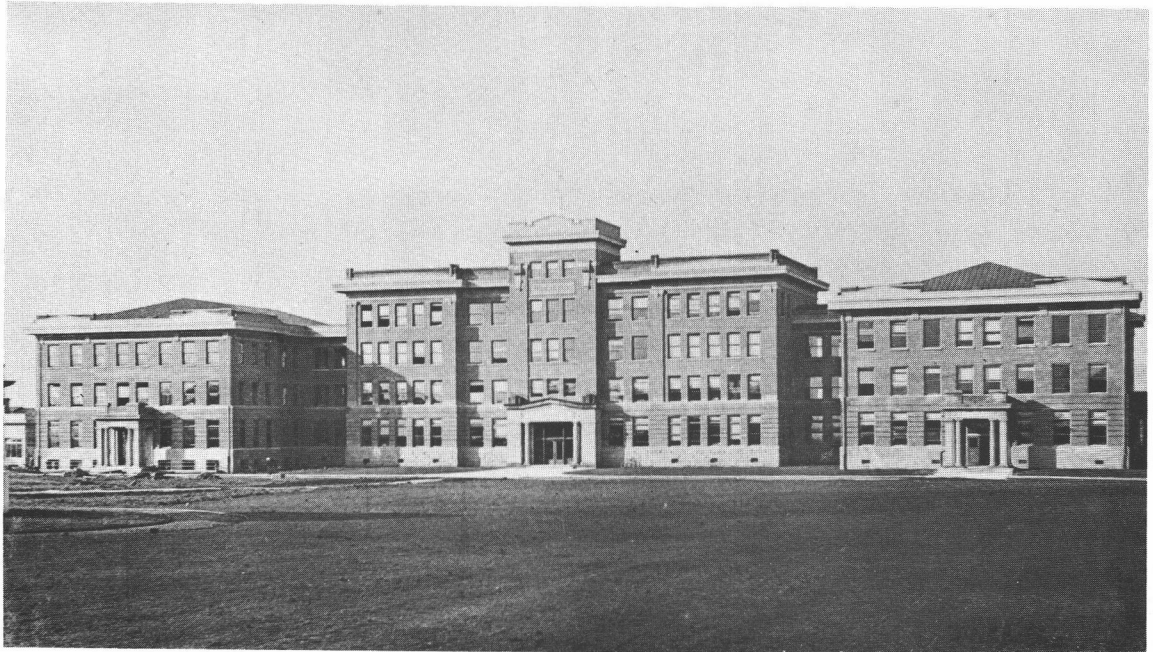


PLATE 7

E-13

CORDLEY HALL

Architect's Drawing of the Cordley Hall complex. The U-shaped, four-story section on the left (west end) was completed in 1957 and houses the Departments of Botany & Plant Pathology, Entomology, and Horticulture. The U-shaped center section of five stories is the First Addition, begun in January of 1966. It will house the Department of Zoology on floors I, II, III, and V. Floor IV will provide additional research space for the Departments of Botany & Plant Pathology and Entomology. The First Addition will be completed in the fall of 1967. The square-shaped section on the right (east end) represents future expansion. Drawing by the architectural firm of Bear, McNeil, Schneider, Bloodworth & Hawes (Portland).

