Three-quarters of a Century of Biology at Purdue University: 1874-1947

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Purdue opened in 1874 with Abraham C. Shortridge as president. The staff member who represented biology was John Hussey, Professor of Botany and Horticulture, later Professor of Natural History. An ambitious curriculum for students selecting the Natural-History option included general chemistry, geology, descriptive botany, and trigonometry in the first year; physiological, systematic, and structural botany, entomology, chemistry, economic and cryptogamic botany, and zoology the second year; astronomy, plant distribution, zoology, botanical microtechnique, economic geology, and paleontology in the third year; and zoology, paneontology, fossil botany, minerology, experiments in plant fertilization, herbarium work, and the relation of entomology and botany in the fourth year.

In the Purdue University Register (1) for the year 1874-75 we read: "The instruction in Botany will embrace all the principal branches of this science. After three terms of descriptive and systematic Botany, the student will be expected to do laboratory work, making use of the miscroscope in Cryptogamic Botany and the study of the physiology of plants; proceeding to experiments in fertilization and to special topics. Herbarium work will be required throughout the entire course."

The following year (1875-76) the "Annual Circular" (2) tells us: "Structural and Physiological Botany, same as in the general course, with the addition of the more recondite facts and principles, including the character and relations of parts of seeds, morphology, facts and methods of fertilization, origin of tissues, relations of plants to animals, species, etc."

Two years after a slow start for the University a new president, Emerson E. White, took office. A general reorganization of the curriculum now took place. Six Schools of Science and Technology are listed in the "Annual Circular" for 1876. The School of Natural History taught by Professor Hussey offered instruction in the Divisions of Botany, Zoology, and Geology.

Professor Hussey resigned in 1880. A student tribute to him reads as follows (3): "I remember Professor Hussey with both affection and gratitude. My association with him as a student awakened an interest in the world about me which has increased with the years and has made life the richer for it." Professor Hussey was followed by Charles R. Barnes who in the "Annual Register" for 1880-81 (4) is listed as Instructor in Botany, Zoology, and Geology. Instruction in fundamental biology and in botany (classification, anatomy, and physiology) was offered to freshmen: in zoology viz. histology, embryology, and classification to sophomores; and in physiology and anatomy to seniors. Special work aside from regular course work was offered in botany. Two herbaria of over 3,500 plants and a zoological museum were stated to be available for use by students.

In the "Annual Register" for 1882-83 we learn that students in the "School of Biology" elected either botany or zoology in the middle of the second year. Six courses and a thesis are listed for botany majors and four courses and a thesis for the zoology majors. In 1883 President White resigned over the fraternity issue and a new president, J. H. Smart, took office.

A second man, Henry L. Osborn, was appointed in 1884 as Instructor in Zoology thus aiding Professor Barnes in carrying on the instruction in "Natural History." The following year Professor Barnes was "out on leave" and the work in botany was carried on by an assistant, Elizabeth Shoemaker. A one-term (12 weeks) botany course was offered to freshmen and 16 weeks of botany offered to sophomores. Twenty weeks of zoology was offered to sophomores and 16 weeks of zoology to seniors. Additional work in both botany and zoology could be elected by juniors and seniors.

Professor Barnes left Purdue University in 1887 and was succeeded by Joseph C. Arthur who came as Professor of Botany, but shortly became Professor of Vegetable Physiology and Pathology. A second newcomer the same year was Stanley Coulter, Professor of Zoology, later Professor of Biology. Professor Coulter taught botany and zoology to freshmen and sophomores, and zoology to juniors and seniors. Professor Arthur taught vegetable histology and physiology to upper classmen. Graduate work for the M.S. degree was offered by both professors.

Thus "The Purdue Register" for 1888-90 (4) under the heading of post graduate courses in biology states: "One or more topics will be assigned as subjects for original investigation, in which it will be necessary to determine the structure, development of life history of some plant or animal, or trace the explanation of some phenomenon of growth, together with the history of the subject as treated by other investigators. A knowledge of French and German will be specially serviceable in this course."

"The general study of some department of biology will be required in addition to the above."

About this time Professor Coulter became secretary of the faculty. In 1890 D. T. McDougal joined the department as graduate assistant and later became assistant instructor. Eventually McDougal was awarded the Ph.D., the department's first and Purdue's second (5) for the thesis "Curvature of Roots" published in 1897 (6).

A general biology course taught by Professor Coulter was introduced in 1894. Shortly after, a course in bacteriology and one in fungi and fungus diseases were initiated by Professor Arthur.

The catalogue description for the course in bacteriology is as follows (7): "Bacteriology-Twelve weeks. The general morphology and classification of the bacteria, their development and most important biological relations are studied. The laboratory work includes the general methods of research, and also such special forms of investigation, i.e., the biological analysis of water, etc., as members of the class may desire. Professor Arthur."

Instructor Katherine Golden and Severance Burrage helped in these and in other courses within the department. Later other courses

were added including Fermentation (Golden), Plant Ecology (Arthur) and Biology of Water Supplies (Burrage).

Catalogue descriptions for the additional bacteriology courses read as follows (7): "Biology 6: Fermentation. Twenty-three weeks, eight hours per week. Preliminary study of yeasts, molds and bacteria leading to the morphological and physiological study of organisms found in bread, beer, cider, molding fruits, milk, prepared foods on the market, etc. The work is of a practical nature, and is designed to give a student a working knowledge of the problems affecting foods. Jorgensen's Micro-Organisms of Fermentation is used in connection with other standard works, as text. Instructor Golden."

Also we find (7): "Biology 11: Bacteriology: Thirty-seven weeks, eight hours per week. A general course, utilizing the modern methods of culture for the study of bacteria, and bearing particularly upon the bacteriological examination of water, sewage, ice, air, soil, milk, butter, etc., and the application of such results in the solution of modern sanitary problems. The members of the class make reports once a week on current articles bearing on this subject that appear in scientific periodicals. Instructor Burrage."

Still other courses were organized including Pharmaceutical Botany, Microscopic Technique, Commercial Timbers (at the behest of Civil Engineering), and Animal Physiology.

President Smart died in 1900 and was succeeded by Professor W. E. Stone, Head of Chemistry. In 1902 the previous three-term system was replaced by the present two-semester system.

Within the period of 1904-13 numerous new courses were added including Preventative Medicine, Industrial Biology, Comparative Morphology of Vertebrates, Mammalian Anatomy and Experimental Physiology. In addition, a whole new area (forestry) was developed within the department involving courses in forest botany, silviculture, mensuration, management, history, utilization, etc. Most of these courses were taught by Professor Coulter. During this period Dr. H. E. Enders and O. P. Terry (MD) were added to the departmental faculty. In 1909 Professor Coulter became Dean of Science and Dr. Enders took charge of the general biology course in addition to other courses which he taught. Dr. Terry served as university physician and in addition instituted courses in Human Pathology, Physiology and Hygiene, and Pharmacology. In the latter part of this period men joining the departmental staff included G. N. Hoffer (who taught plant physiology), C. M. Hilliard (microbiology) and P. A. Tetrault (bacteriology).

Early in the decade of 1914-23 C. A. Behrens (bacteriology), B. Prentice (forestry), C. M. James (physiology), and E. J. Kohl joined the staff. Professor Arthur left the Department to devote full time to his duties as botanist in the Experiment Station. The Purdue Catalogue for 1916-17 (8) lists a biology staff of 15 with Professor Coulter in charge. Professor Coulter was also in charge of Forestry, which was now listed separately. Thirty courses were offered in Biology, some of which were year-long courses. New courses added in this period included Sero-Reactions and Vaccine Therapy, Soil Bacteriology, His-

tology of Medicine Plants, and Parasitology. I. L. Baldwin, who later became a Department Head and Vice President of the University of Wisconsin. L. F. Heimlich, and C. L. Porter also joined the staff during this decade. In 1921 President Stone was killed in a mountain climbing accident and Journal and Courier publisher and University trustee Henry Marshall served as acting president along with Professor Coulter who handled academic affairs until 1922 when E. C. Elliott became president. At about this time Dean Coulter also became Dean of Men and Chairman of the Faculty. He relinquished active teaching duties, but continued as Head of the Department. Dean Coulter's qualities are summarized by Hepburn and Sears (3) as having: "an extraordinary personal prestige, an unequalled popularity among the alumni, and a consecration to the past, the present, and the future of Purdue."

The University Catalogue published in 1924 (8) for the first time segregates courses into those primarily for undergraduates (17 courses within the Department), for both undergraduates and graduate students (11 courses), and those primarily for graduate students (5 courses). During the decade of 1924-33 several seminars and problem courses were included in the new courses introduced. Dean Coulter retired in 1926 and was succeeded as department head by Professor Enders. New persons added to the faculty during this period included R. E. Girton (plant physiology), W. A. Hiestand (animal physiology), R. Greenwood (zoology), and F. Willis (bacteriology). Mr. Willis later joined the Purdue Health Service and subsequently served for some time as mayor of West Lafayette.

Following the death of the then Dean of Science (Dean Moore), Professor Enders became Acting Dean of Science in 1931. His appointment was made "permanent" in 1932.

During the final period under our consideration (1934-47) new members added to the biology staff included C. H. Alvey (parasitology), W. E. Martin (physiology), R. Cable (parasitology), W. H. Headlee (zoology), S. E. Hartsell (bacteriology), Elizabeth Mackay (botany), A. A. Lindsey (ecology), R. E. Wean (plant pathology and physiology), and W. R. Mullison (biology and plant physiology). Also during this period a new "Experimental curriculum for Women" was set up which included a Survey Course in Biology (Mullison). Additional new courses were added including seminars in animal physiology and plant physiology as well as some new courses in problems, techniques, and applied biology designated as "service courses." The period contained the World War II years when both the student body and the staff were considerably reduced in numbers. In fact some senior staff members were asked to serve part time as laboratory assistants in some of the larger introductory courses.

In 1946 Dean Enders went on terminal leave. Professor Tetrault was appointed as acting Head of the Department. New staff members coming at or shortly before this time were T. S. Hall (curriculum for women), C. Goodnight (animal ecology), and H. Koffler (bacteriology). Professor Hall later became a Dean at Washington University (St. Louis) and Professor Koffler the Head of Purdue's Department of Biological Sciences, following John S. Karling in that post. At this time there

were 22 courses listed as for undergraduates, 35 undergraduate-graduate courses, and 21 courses primarily for graduate students. Many of these courses were full year courses.

In conclusion attention is called to the very considerable growth of the Biology Department at Purdue under but four Heads from a one-man activity (Professor Hussey) to a numerous departmental faculty. Over the years the number and character of the subjects taught obviously changed to correspond with the growth of and demands made upon the department. Many new courses were added and older ones modified to meet the requirements of a steadily growing university. The current fourth quarter of Purdue's first century is finding tremendous growth and promise in the Department of Biological Sciences as well, of course, as in the entire University.

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