

150 YEAR
History of the Department of
Neuroscience and Pharmacology
Roy J. and Lucille A. Carver
College of Medicine
The University of Iowa

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2021

Acknowledgements

The author wishes to thank Dr. Gebhart, Dr. Kasson and Dr. Koland for reviewing the manuscript, Lisa Ringen for supplying information and Dr. Judith Woods for supplying the personal bibliography of Dr. Lauren Woods.

Foreword

The chapters of this history of the Department of Neuroscience and Pharmacology are organized around the heads of the department following an introduction and overview. In the 150 years since the founding of the medical school, only ten people have been permanent heads of the department. These are: Philo J. Farnsworth, Charles Sumner Chase, Oscar Plant, Erwin Gross, Lauren Woods, J. P. Long, P. Michael Conn, Gerald Gebhart, Curt Sigmund and Ted Abel. There have been several temporary heads. These are: E.G. Gross, G. Gebhart, A. Spector, and Donna Hammond. In addition, Harold Williamson served as acting head while John Long was on a sabbatical. In the appendix: list of major research accomplishments up to 1980, graduates of the department, CVs of Heads, and personal histories of E.G. Gross and L.A. Woods.

Iowa became a state in 1846 and the territorial capital in Iowa City became the state capital. One of the first items was to move the capital to a more central location in the state. Des Moines was selected. To reward Iowa City and to not waste the capitol building, a university was founded. While founded in 1847, classes did not begin until 1855 and the move to Old Capitol did not occur until 1857 when the government moved to Des Moines. Enrollment in the university was limited. In order to increase recognition it was decided that professional schools be added. Law was added in 1868 and this was done with little difficulty. When medicine was proposed several groups opposed. Foremost was the Keokuk College of Physicians and Surgeons. This school was formed in 1850, initially in Davenport. It tried to get state support, but failing this they moved to Keokuk when this community offered monetary support. This school while not supported by the state was recognized as the medical department of the University by the Board of Trustees (the governing body at that time) and it was allowed to issue diplomas to graduates indicating that they were graduates of the University. Homeopaths also opposed arguing that they did not have a department in the University. Local physicians also opposed the school because they wanted local physicians only to be appointed as faculty. The best argument for opening the school in Iowa City was based on the 1857 revision of the state constitution which stated the University remain in Iowa City without branches and that the University fund shall be applied to that institution and no other. Opponents were able to have a bill introduced in the state legislature banning the formation of the medical school. It passed in the senate, but was defeated in the house. Thus the medical school was allowed to form in Iowa City in 1870. Dr. Peck, a Davenport surgeon, was selected as dean and he enlisted several other physicians including Philo Judson Farnsworth of Clinton, Iowa, who gave the offering on drugs.

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Introduction and Overview

An offering on drugs was a part of the medical curriculum from the time the doors of the medical school opened at the University of Iowa. The first offering was called **materia medica**. This was primarily a course on agents available, their sources and preparation, and their medicinal use. It was during the tenure of the second head that the course on drugs began to evolve into an offering on pharmacology as well, i.e. to stress the mechanism by which drugs acted and the laboratory evaluation of their activity. This evolution was completed by the third head of the department. It is believed that Iowa was the fourth school in the country to create a department of pharmacology.

Since the opening of the medical school, in 1870, there have been only ten permanent heads of the Department of Pharmacology and a couple of interim appointments.

Heads of the Department

Philo Judson Farnsworth, M.D. - 1869 to 1892

Charles Sumner Chase, M.D. - 1892 to 1920

Oscar Henry Plant, M.D. - 1920 to 1939

Erwin George Gross, Ph.D., M.D. 1940 to 1960

Lauren Albert Woods, Ph.D., M.D. 1960 to 1970

John Paul Long, Ph.D. 1970 to 1983

P. Michael Conn, Ph.D. 1983 to 1994

Arthur Spector, M.D., 1994 to 1996 (interim appointment)

Gerald F. Gebhart, Ph.D. 1996 to 2006

Donna Hammond, Ph.D. 2006 to 2010 (interim appointment)

Curt Sigmund, Ph.D. 2010 to 2019

Erwin D. (Ted) Abel, 2019 to

The history of the department can be divided into an early era and a modern era. In the early era, physicians who were practicing in the state were appointed to head the department. These heads were Drs. Farnsworth and Chase. In the modern era, the heads of the department were trained in experimental techniques and research became a prominent part of the activities of the department. Heads of the department in the modern era are: Drs. Plant, Gross, Woods, Long, Conn, Gebhart, Hammond, Sigmund and Abel

NAMES AND TITLES

It should be noted that the name of the department, the name of the college and the name of the university today differ from those used at the time of the founding of the department. This is spelled out below.

Medicine was initially organized at Iowa as a department. In the University catalog under Department of Medicine, the areas of instruction were listed. Materia Medica was the initial title for the offering on drugs. At this time (1870) this university was known as "Iowa State University." (This University has had several name changes: State University of Iowa, 1847-1866; Iowa State University, 1867-1875; State University of Iowa, 1876-1964; The University of Iowa, 1965-present.

In 1900, as a result of administrative changes, the Department of Medicine became the College of Medicine, and the instruction on drugs was now organized as the "Department of Materia Medica and Therapeutics." In addition to Materia Medica and Therapeutics, offerings in the department also included Pharmacy, Medical Latin, and Hygiene and instructors from other units of the university who taught these subjects were listed under the departmental heading.

In 1915 the administrative officer of a department in the College of Medicine was first referred to as a "Head" (prior to this it was Professor of ---), and the name of the department was changed to "Department of Materia Medica and Pharmacology." This title remained in use until 1929 when it was shortened to "Department of Pharmacology." It should also be noted that during the tenure of Dr. Plant (1920-1939) all publications from the department were cited as being from the "Laboratory of Pharmacology."

With the arrival of Dr. Plant in 1920, courses offered by the department placed even greater emphasis on pharmacology and considerably less on Materia Medica.

With the arrival of Dr. Ted Abel, the name of the department was changed to Neuroscience and Pharmacology

The first graduate degree in Pharmacology was an M.S. This was awarded to Benjamin Herman Schlomovitz in 1916. The title of his thesis was "The Relation of the Sino-Auricular Junction to the Chronotropic Influence of the Inhibitory Cardiac Nerve (Turtle)". The first Ph.D. degree in Pharmacology was awarded in 1931 to Ira H. Pierce. His thesis was "A Method for the Quantitative Estimation of Morphine in Animal Tissues and Excretions."

Only two graduate degrees in pharmacology were awarded during the tenure of the first three department heads. It was not until Dr. Gross became head that graduate training by the department was stressed.

BUILDINGS THAT HAVE HOUSED PHARMACOLOGY

South Hall (1870 to 1882)

This building was on the Pentacrest, south of Old Capitol and was formerly a dormitory. Initially, the Department of Medicine (the name of the medical school at that time) was housed in two rooms, plus the basement, of this building. Later, the school occupied about half of this structure. In the 1870-71 Catalogue of the University, there is a statement, which says that the splendid and well-stocked cabinet of Materia Medica will be open for study and research at all hours when lectures are not in progress.

Medical building (1882 to 1901)

This structure was located on the Pentacrest near South Hall. It was of brick, 80 by 36 feet; three stories tall and cost \$30,000 to build. A fire destroyed it in 1901. The fire also destroyed the department's collection of drugs. A shack was added as a temporary replacement and was referred to as "Sheep's Shed".

Homeopathic Medical Building (1901 to 1904)

The department was housed here after the fire. The first classes in "Experimental Pharmacology," a laboratory offering, were held here. This building was located on the northwest corner of Iowa and Dubuque Streets.

General Medical Laboratories (1904 - 1927)

This is the older part of the present Biology building. The department occupied part of the first floor with physiology. This building was built for \$85,130. It was advertised as fireproof.

Medical Laboratories (1927 - 1972)

The department occupied the east side of the third floor. This building and the University Hospital were built with matching funds from the Rockefeller Foundation. The Medical Laboratories cost \$651,454.04 to build and \$190,878.04 to equip. Space at Oakdale Hospital was occupied by the Toxicology Center of the department from 1965 to 1972.

Bowen Science Building (1972 -)

This building was originally called "Basic Sciences Building". It was renamed in 1982 in honor of a former president of the University of Iowa, Howard R. Bowen, who was instrumental in obtaining funding for the building.

Initially, the department occupied four cores of the second level as well as an electron microscope suite on level one. Cost of the building was \$16,500,000.

The departmental quarters in the building were remodeled extensively from 1998 to 2003 and again 2011-2013.

OPPOSING DEPARTMENTS OF MATERIA MEDICA

During its existence, the University has had two schools of medicine and each had its own instruction on drugs. In 1869, the Department of Medicine (the initial title of the medical school) was organized and the instruction on drugs was covered by the appointment of P. J. Farnsworth to a chair of Materia Medica. In 1870, the first class was admitted. In 1876, the State legislature also authorized instruction in Homeopathy and funds for two chairs, Materia Medica and Practice, were appropriated. This was opposed by the Department of Medicine, but to no avail. Instruction in Homeopathy began in 1877. While both medical schools were in existence, instruction in subjects common to both curricula (e.g., anatomy, physiology, etc.) was carried out by faculty of the Department of Medicine (i.e. College of Medicine).

There was little love between the faculties of the two schools. In the 1892 "Hawkeye" (the yearbook of the university), the homeopathic students (homeops) referred to the faculty of the medical school as "the misled vultures of the Hippocratic school." Clinical instruction in homeopathy occurred in a small, separate building (the Homeopathic Medical Building). The Department of Homeopathic Medicine became the College of Homeopathic Medicine in 1900. It continued as such until 1909 when the two colleges were merged. This occurred as a result of the Flexner report. Both medical colleges failed. The University felt it could only afford to improve one of them and thus dropped the Homeopathic College. Homeopathic courses in Materia Medica

and in Therapeutics were then listed as elective courses in the College of Medicine. For a few years, the former Dean of the Homeopathic College was listed as the instructor, but thereafter no instructor's name was given. The Homeopathic listing continued, with a phrase indicating that the Code of Iowa required these offerings to be available. The homeopathic course offering on drugs was bandied about in the catalog and eventually ended up in the offerings of the Radiation Research Laboratory. The last listing was in the 1958 catalog of the University. At that time, it was dropped, ostensibly to conserve space in the catalog.

**PHILO JUDSON FARNSWORTH
FIRST HEAD OF THE DEPARTMENT
(1869-1892)**

When the medical school was proposed in 1869, Dr Farnsworth was one of the seven founders. He had the reputation of being most scholarly while his fatherly interest in students earned him the nickname of "Pappy."

Before classes began, a woman objected to medicine being limited only to males, as was the custom at that time in medical schools. She contacted the state attorney general. He ruled that since the University was constituted as a coeducational institution this meant that all parts of it had to be coeducational. It was decided that there would be one medical education and that all should share alike, good language should be used and respectful conduct observed. According, women were admitted with men in first class. In the first class of 37, 8 were women. While a majority of the faculty did not favor this, Dr. Farnsworth did support the inclusion of women in the class and indeed wrote a couple of articles in support. In an article he wrote a year after the opening of the school, he reported that the inclusion of women in the medical class was a success.

When the medical school was proposed in 1869, the state appropriated money to renovate South Hall for the Medical Department. This building was located south of Old Capitol. The renovation included an amphitheater and faculty rooms. However, no money was appropriated for operation or for salaries. In 1870, the faculty decided to open the school in spite of the lack of operation monies. During the first two years of operation, Dr. Farnsworth as well as other faculty received no stipend. For the third year, professors were paid \$900, plus being compensated a sum equal to actual expenses of the first two years.

Classes in medicine began on October 11, 1870, and ran for twenty weeks until the first Wednesday in March. The entire program in medicine could be completed in three years. The curriculum consisted of a two-year course organized into two terms around a Christmas break. Students attended the same series of lectures for two years. To graduate, students had to complete one year of practical training under a preceptor and the two year course of lectures. Students also had to submit a thesis on a medical subject in their own handwriting and were examined on this and the lectures presented. Admission did not require a high school diploma. This was not required until 1879. The first year curriculum did, however, include a two week course to ensure basic skills. At this time the University consisted of three departments: collegiate, law and medicine. There were nine members in the medical faculty (seven physicians, the professor of chemistry and a professor of law). The entire University faculty, including medicine, consisted of only twenty members.

In 1875, Dr. Farnsworth was also appointed as Professor of Diseases of Children. Thus, when Dr. Robert (Butch) Roberts of the department of pharmacology was appointed in 1973 to the department of pediatrics, he became the second person to hold these joint appointments.

Dr. Farnsworth never lived in Iowa City. He commuted in from Clinton, Iowa, for his classes. While serving as secretary of the medical faculty, prospective students wishing information on medical studies were directed to write to him in Clinton, Iowa.

References he recommended for materia medica were: Biddle, U.S. Dispensatory; Stille, Headland and Persira; and a synopsis of materia medica which Dr. Farnsworth wrote. Dr. Farnsworth also taught courses on drugs for pharmacy and dental students, a practice that the department continued for many years.



Philo Judson Farnsworth
First Head of the Department
(1869-1892)

PROGRAMME OF LECTURES

IN THE MEDICAL DEPARTMENT,

IOWA STATE UNIVERSITY—SESSION 1870-71.

Time.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A. M.,	Boucher.	Boucher.	Shrader.	Boucher.	Boucher.	
10 A. M.,	Farnsworth.	Farnsworth.	Farnsworth.	Farnsworth.	Farnsworth.	Farnsworth.
11 A. M.,	Robertson.	Peck.	Middleton.	Robertson.	Peck.	Smith.
1 P. M.,	Medical Clinic.	Hinrichs.	Eye and Ear Clinic.	Hinrichs.	Surgical Clinic.	
2 P. M.,	Shrader.	Shrader.	Hazen.	Shrader.	Hinrichs.	
3 P. M.,	Middleton.	Peck.	Middleton.	Robertson.	Hinrichs.	

Prof. Dillon will lecture immediately after January 1st, 1871.

PROGRAMME OF LECTURES

MEDICAL DEPARTMENT IOWA STATE UNIVERSITY.

Session of 1872-4.

Hours.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
9 A. M.	Hinrichs.	Hinrichs.	Hinrichs.	Hinrichs.	Hinrichs.	Shrader.
10 A. M.	Shrader.	Clapp.	Hazen.	Shrader.	Clapp.	Farnsworth.
11 A. M.	Robertson.	Peck.	Middleton.	Robertson.	Peck.	Clinic Diseases of Women & Child.
1:30 P. M.	Medical Clinic.		Eye and Ear Clinic.		Surgical Clinic.	
2 P. M.		Farnsworth.		Clapp.		
2:30 P. M.	Clapp.		Farnsworth.			
3 P. M.		Peck.		Robertson.	Farnsworth.	
3:30 P. M.	Middleton.		Middleton.			

Further announcement will be made of the date of Lectures on Medical Jurisprudence, Insanity and Dentistry. All Clinical Lectures will be held in Murrey Hospital.

EARLY LECTURE SCHEDULES

Dr. Farnsworth published an "Abstract of a Course of Lectures on Materia Medica and Therapeutics" in 1882, which he used in his course at the State University of Iowa. In the preface, he states that the latest works on the subject have been consulted. The book begins with a number of definitions and then various drugs are listed under classes of drugs. It is interesting to note that under sedative neurotics, a group of agents said to have no apparent period of stimulation or excitement, but to produce narcotism primarily, that tobacco is specifically mentioned as a member of this class of agents. In an article published in 1862, he had concluded that the problems of one of his patients were related to the sedative effects of tobacco. Other compounds listed in his text as sedatives are tea, coffee and erythroxyton. It is obvious that these agents had yet to be evaluated by pharmacologic studies. He published a revised version in 1889 which was entitled "Synopsis of a Course of Lectures on Materia Medica and Therapeutics". In this text, the same statements were made about these drugs.

The appointment of Dr. Farnsworth was terminated rather abruptly in 1892 after a meeting with the administrative board of the University. The issue of compensation was being discussed and apparently Dr. Farnsworth became too vocal in the discussion for improvements in this area. His appointment was changed to Professor Emeritus and his long tenure with the University ended.

Even after his retirement, Dr. Farnsworth maintained an association with the medical school. He contributed a short article "Waiting the resurrection morn:, a reminiscence" to the Middletonian in 1901.

There was a short article about him in a 1901 issue of the Middletonian, in which he was described as the oldest emeritus professor of the University. On his work at the medical college he is quoted as saying "The principal reward was the pleasure of the work, and the grateful recognition of our old students scattered all over the state, and the still growing prosperity of the Iowa Medical College."

On March 4, 1903, Dr. Farnsworth was invited to lay the corner stone of the new anatomy building, however, he was not present, and Professor J. W. Harriman substituted.

Dr. Farnsworth was also very interested in geology and had a large collection of specimens. He was a member of a geological society and wrote on the relationship of land and sanitation and was a member of geological survey units in Iowa. He also served as the Assistant State Geologist, 1884-1885.

Dr Farnsworth died on February 14, 1909, following a fall at his home. When news of his death reached the University of Iowa, the flag on Old Capitol was flown at half-mast. He was the last survivor of the pioneer founders of the medical school.

References:

Do we progress, W.D. Middleton, The Middletonian vol 1, p. 1, March 15, 1901.

Article on Dr. P.J. Farnsworth, The Middletonian, vol 2, p 40, Dec. 18, 1901.

Waiting the resurrection morn, reminiscence, P.J. Farnsworth, The Middletonian, vol. 1, p33, March 15, 1901.

Obituary, Iowa City Daily Press, Feb. 15, 1909.

CV of Philo J. Farnsworth

Dr. Chase assumed head in the fall of 1892.

The Charles Sumner Chase Years

**CHARLES SUMNER CHASE
SECOND HEAD OF THE DEPARTMENT
(1892-1920)**

When the Board of Regents accepted Dr. Farnsworth's "resignation" on May 1, 1892, Dr. Charles Sumner Chase of Waterloo was appointed to replace him. This occurred at the same meeting. Thus, it is apparent that the fraction that wanted to see Dr. Farnsworth removed had already made preparations for this replacement well in advance of the meeting.

Dr. Chase was a practicing physician in Waterloo when he was appointed to the chair of Materia Medica. For many years after Dr. Chase's appointment, he commuted three times a week to Iowa City, to give his lectures. He moved to Iowa City in 1908, thus giving up his practice in Waterloo. This may have been in anticipation of the impending visit of Abraham Flexner who was at that time evaluating the 155 colleges of medicine in this country. Flexner did evaluate the college in 1909 and was very critical of the non-resident part-time faculty. Later, as a result of the Flexner report, the University ruled that faculty members in the College of Medicine must reside in Iowa City.

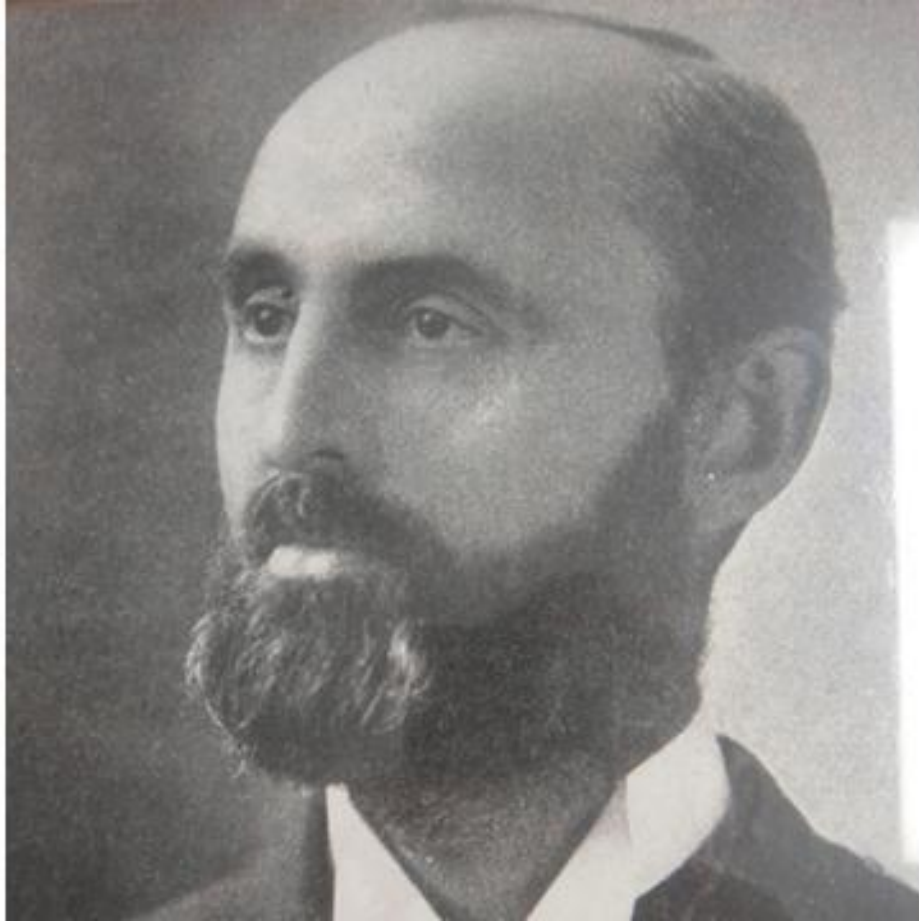
Dr. Chase published two books on courses that he taught. The first entitled "National Outline Records of Materia Medica" was used in his offering on drugs. The second published in 1900 and entitled "The Prescription and Formulary" was designed for medical, dental and pharmaceutical students as well as practitioners and strived to inform them how a prescription should be written. The second part of this book, the formulary, was left to the student to fill in. Dr. Chase showed his sense of humor in the second book. In the "Prefatory Remarks" section he referred to this as "The Author's Apology." He thought the public would say "What, another book!" and he confessed that he again had yielded to the temptation "to write a book."

He was instrumental in forming the Middletonian Medical Society. This organization came into being during the 1899/1900 college year and was named after W. D. Middleton, the dean of the College of Medicine. It was formed to meet the various needs of medical students. A periodical entitled "The Middletonian" was published twice a year. This contained articles on clinical subjects, comments by and about various class members on a variety of topics as well as articles by faculty on education or about past and present members of the Department of Medicine.

During his tenure, Dr. Chase was much involved in expanding the curriculum in Materia Medica. He spent some time in Dr. Sollmann's laboratory learning pharmacologic laboratory techniques and in 1901 he initiated a laboratory course in Experimental Pharmacology for medical students.

In an article in the Iowa Medical Journal in 1913, Dr. Chase pointed out that the course on drugs (materia medica) used to include therapeutics and was presented in a didactic fashion. A few years earlier therapeutics was shifted to the clinical side of the curriculum and materia medica was developed along the line of pharmacology.

The University first granted a Master's Degree in 1888 and in 1898, students were accepted into Ph.D. degree programs. The Graduate College was not organized until 1900. Graduate work in Pharmacology was first listed as an approved area of study in 1908 and at that time Dr. Chase, who was Professor of Materia



Charles Sumner Chase
Second Head of the Department
(1892-1920)

Medica and Therapeutics became a member of the graduate faculty. Thus, he became the first pharmacologist at Iowa to be a member of the Graduate College. Pharmacology was available as a major or minor study. The only required course in Pharmacology was one entitled "Experimental Pharmacology." He also introduced a formal course in research in 1915. The first graduate degree in pharmacology (a Master of Science) was awarded in 1916, under his direction. The first graduate was Benjamin Herman Schlomovitz and his thesis was entitled: "The Relation of the Sino-Aurocular Junction to the Chronotropic Influence of the Inhibitory Cardiac Nerve (Turtle)."

In 1912, he took a course in bacteriology at the University and received a grade of S. The purpose of this, apparently, was so that he would be qualified to serve as the milk inspector for the City of Iowa City.

In 1915, the College of Medicine began to refer to chiefs of departments as heads, and thereafter his title was Professor and Head. The name of the department had been changed in 1914, adding Pharmacology to the title (Department of Materia Medica and Pharmacology).

After Dr. Chase retired as head, he continued to teach the dental pharmacology course and to begin to write a history of the medical school.

During Dr. Chase's tenure, other people had appointments within the department. These included the Dragstedt brothers:

Lester Reynold Dragstedt, 1916-17. At the time he had a M.S. degree. He subsequently became chairman of the department of surgery at the University of Chicago.

Carl Albert Dragstedt, 1917-18. At the time, he had a M.S. degree. He subsequently became chairman of the department of pharmacology at the University of Northwestern.

Benjamin Herman Schlomovitz, BS, Wisconsin 1914, MS Iowa, 1910, Instructor, U. Iowa, 1914-1916

Benjamin Johnson Chapman Reynolds, B.Sc. Instructor, U Iowa, 1919-1922

John Bennett, A.B., Missouri, 1910, Demonstrator in Pharmacology, 1911-1914

References:

Chase, C.S.: Pharmacology in the College of Medicine. Iowa Medical Journal 20: 502-505, 1913-1914.

Who's Who in America, 1954-55, for C.A. and L.R. Dragstedt

Obituary, Iowa City Press Citizen, Nov. 27, 1929, p2.

"The Prescription and Formulary" by C.S. Chase, Geo. C. Hubbs, Printer and Binder, Waterloo, IA, 1900

C.S. Chase CV

**OSCAR HENRY PLANT
THIRD HEAD OF PHARMACOLOGY
(1920-1939)**

With the retirement of Dr. Chase, Dr. Plant was appointed to head the department. Dr. Plant had extensive training in research and his appointment clearly indicated that the College of Medicine wished to expand its efforts in this area.

Dr. Plant was recruited from the University of Pennsylvania to Iowa with the understanding that an additional structure would be built to provide a larger pharmacologic teaching laboratory. Initially this was to be on the east side of the Iowa river. However, on the advice of Abner Flexner, new quarters for the entire medical school were proposed and these were built on the west side of the river. Partial funding was obtained from the Rockefeller Foundation. Dr. Plant was intimately involved in the planning and supervision of the construction of the Medical Laboratories building, which opened in 1927. He also formed the Machine Shop in the Medical laboratories and made many ingenious modifications of apparatus for teaching and research purposes. He always considered teaching as his first obligation.

Other interests of Dr. Plant included bird life, woodcarving, fishing and stamp collecting. In the spring, he spent many hours in City Park viewing the first migratory birds. After the Medical Laboratories building was occupied, it is said that he maintained one room for his stamp collection and adorned the walls with pictures of birds.

The first doctorate degree was awarded to Ira Pierce in 1931. It was entitled "A method for quantitative estimation of morphine in animal tissues and excretion."

During Dr. Plant's tenure other people were appointed to professorial ranks within the department.

These were:

Dr. George Henry Miller
Dr. Harry Victor Atkinson
Dr. Erwin G. Gross
Dr. Ira Pierce

In 1939, Dr. Plant was elected president of the Pharmacology Society

Dr. Plant died suddenly and unexpectedly on October 1, 1939, of coronary disease. His death occurred one day after his 64th birthday.

References:

Oscar H. Plant death registration, Johnson County Court House.

Oscar Plant CV



Oscar Henry Plant
Third Head of the Department
(1920-1939)

ERWIN G. GROSS
FOURTH HEAD OF THE DEPARTMENT
1940-1960

Dr. Gross joined the Department of Pharmacology at the University of Iowa in 1929 as an associate professor. He was appointed professor in 1937, the first full professor who was not a department head in the College of Medicine

Following the untimely death of Dr. Plant in 1939, Dr. Gross was appointed acting head of the department. He was made permanent head of the department in 1940.

Dr. Gross's research laid the basis for many of our present concepts and experimental techniques and especially the direction that the department took.

Dr. Gross' early work involved vitamins and various nutritional studies.

He was a pioneer in the study of anesthetic agents. With Dr. Stuart C. Cullen, the head of anesthesiology (1938-1958), they were the first Americans to evaluate the pharmacologic and clinical usefulness of curare. Research by Dr. Gross and his associates into the inert gas xenon in 1955 showed that this inert gas had anesthetic activity. Dr. Gross became the first human to be anesthetized with xenon. Dr. Cullen was the anesthesiologist. Studies by Dr. Gross and colleagues in the 1950s resulted in considerable change in the hypotheses and theories about the mechanism of general anesthesia.

Other major contributions of Dr. Gross have been in the area of morphine and morphine-related agents. From experiments beginning in the 1920s, Dr. Gross and his colleagues are credited with developing much of the basic scientific knowledge about the physiological actions of morphine. They described the intestinal smooth muscle stimulating actions of morphine as well as the gastric relaxing activity. They were the first to evaluate the metabolism and distribution of the drug. They isolated the sulfate conjugate in 1940. In 1947, Dr. Gross and colleagues first postulated cholinergic involvement in analgesia produced by morphine.

Dr. Gross continued to do research in the two decades following his retirement, with the publication of some 20 manuscripts during this period.

During World War II, Dr. Gross along with Dr. Pierce had double teaching loads as the health professional schools began double admissions and double graduations to try to meet the increased demands of the military services.

Following the war, Dr. Gross laid the basis for and the establishment of a graduate program in pharmacology. He recruited faculty with interests in biochemical and



Erwin G. Gross
Fourth Head of the Department
1940-1960

physiological pharmacology and toxicology as well as an interests in clinical and basic investigations.

Dr. J.P Long, who studied with Dr. Gross and later headed the Department, said that “Dr. Gross’ educational legacy incorporated and encouraged a wide diversity of faculty interest and skills and resulted in an educational program that came to be highly regarded internationally and was called simply “Iowa Pharmacology.” This program provided an environment for extended graduate experience and also made available expert teaching in the classroom.”

The first training grant in pharmacology from the National Institutes of Health was received in 1958 during the tenure of Dr. Gross. Times were simpler then. The entire length of the grant was only ten pages and this included 3 ½ pages devoted to Dr. Gross’ curriculum vitae. At the time that the grant was submitted, the department had trained 13 Ph.D. students and 3 M.S. students from 1950 to 1958.

Dr. Gross was always dedicated to pharmacology as a discipline and he demonstrated this in 1935 when he vigorously opposed the appointment of an ASPET committee to evaluate whether the society should continue. There was a belief at that time that all of the drugs that there ever were to be were already in existence, and thus there was no further need for a society dedicated to drug investigation.

Dr. Gross’ national and international stature as a pharmacologist was recognized by his election in 1955 to the presidency of the American Society for Pharmacology and Experimental Therapeutics. During his tenure as President, he was responsible for moving the location of the fall ASPET meeting to a city where all members of the Society would receive equal treatment and equivalent access to facilities. He was also active in the American Physiological Society, and the American Society of Biochemistry and a number of honorary societies, including Sigma Xi and Alpha Omega Alpha.

Dr. John W. Eckstein, Dean of Medicine, at the time of Dr. Gross’ death and a former student of Dr. Gross, commented that “Dr. Gross’ service spanned and contributed to, a period of great growth in the college. His luster as scientist was one of the strengths of the college and was an important factor in attracting other top-flight people to the UI faculty.”

A symposium honoring the 20th anniversary of Dr Gross’ retirement was held in Iowa City in August of 1980. The proceedings were published in Life Sciences, volume 27 in 1980. Dr. Long pointed out that it was an honor to express our thanks to the individual who began the graduate program at Iowa

Faculty added by Dr. Gross were:

Robert M. Featherstone, Ph.D. – joined department in 1944

Education:

B.A. Ball State Teachers Col. 1940

M.S. U. Iowa, Chemistry, 1942
Ph.D., U. Iowa., Chemistry, 1943

Professional career:

Instructor, U. Iowa, 1944
Asst. Prof. U. Iowa, 1946

Fred Warren Schueler, Ph.D., joined department in 1947

Personal data:

Born: 1921, Fort Collins, CO.
Died: Sept. 7, 1964, New Orleans, LA.

Education:

B.A., Colorado, 1943
M.A., Colorado, 1945
Ph.D., U. Chicago, 1947

Professional career:

Assistant Professor, U. Iowa, Pharmacol., 1947
Associate Professor, U of Iowa, Pharmacol., 1950
Professor and Chairman, Tulane Univ. Pharmacol, 1958-1964

Research interest:

Relationship of chemical structure to biological action
(chemobiodynamics)

Hugh Hiliary Keasling, Ph.D., joined department in 1951

Personal data:

Born September 19, 1922, Wilmington, IL.

Education:

B.S. - College of Pharmacy, State University of Iowa.
M.S. - College of Pharmacy, State University of Iowa
Ph.D. - Department of Pharmacology, College of Medicine, State .
University of Iowa, 1951

Professional career:

Assistant, College of Pharmacy, State University of Iowa, Jan. . .
1948-June 1949.

Graduate Assistant, College of Medicine, Dept. of Pharmacology,.
State University of Iowa, Sept. 1949 – June, 1950

Instructor, College of Medicine, Dept. of Pharmacology,
State,. University of Iowa, Sept. 1950 – June 1951.

Associate, College of Medicine, Dept. Pharmacology, State
University of Iowa, Sept. 1951 – June 1952.

Assistant Professor, College of Medicine, Dept. of
Pharmacology, State University of Iowa, Sept. 1952 –
June 1955.

Traveling Fellowship to University of Illinois, Feb.-Sept. 1953.

Associate Professor, College of Medicine, Dept. of Pharmacology,
State University of Iowa, July 1955 -

Areas of major interest: Central Nervous Systems and Analgetics

Charles B. Pittinger, M.D. – joined department in 1956

Personal data:

Born April 27, 1913, Akron, Ohio

Married 1949, three children.

Education:

B.S. (Chemistry), University of Akron, 1935.

M.D. University of Cincinnati, 1949.

Rotating Internship, State Univ. Iowa Hosps., 1949-1950.

Resident in anesthesiology, State Univ. of Iowa Hosps., 1950-52.

M.S. (Anesthesiology) State University of Iowa., 1952.

Professional career:

Secondary school science/mathematics teacher, Akron, 1935-1937.

US Air Corps, junior asst., assoc. chemist and chemist, Wright .
Field, Dayton Ohio, 1937-1945.

Associate, Anesthesiology and Pharmacology, Col. of Med., SUI, .
1952-53.

Assistant Professor of Anesthesiology, COM., SUI, 1953-56.

Associate Professor of Anesthesiology and Pharmacology, COM,
SUI, 1956.

Areas of Major Interest: Anesthetics

John Paul Long, Ph.D. – joined department in 1956

See chapter on Dr. Long as Department Head.

James R. Fouts, Ph.D. – joined department in 1957

Personal Data:

Born, August 8, 1929, Macomb, IL.

Education:

B.S. (with highest honors) Chemistry, Northwestern University,

Ph.D. Biochemistry, Northwestern University, 1954.

Postgraduate research, Lab. Chemical Pharmacology, Nat. Heart
Inst., Bethesda, Md. Aug. 1954-Oct. 1956.

Professional career:

Instructor, Nurses course in chemistry, NW Univ., 1953-54.

Tutorial Fellow, Biochemistry Dept., NW Univ., 1951-54.

Drug Metabolism Pharmacologist, Wellcome Research
Labs, Burroughs-Wellcome & Co., Tuckahoe, N.Y. Oct.
1956-Nov. 1957.

Assistant Professor, Dept. of Pharmacology, COM, SUI,
1957-

Areas of Interest: Drug metabolism and drug enzyme systems.

It should be noted that many labs were converted to television demonstrations under Dr. Gross,

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LAUREN A. WOODS
FIFTH HEAD OF THE DEPARTMENT
1960-1970

With the impending retirement of Dr. Gross, a search for a new head was begun in the fall of 1959. Dr. Lauren Woods of the Department of Pharmacology, College of Medicine, The University of Michigan, was one of several people contacted. Dr. Woods was not very impressed with the situation at Iowa and after his interview he wrote a four page letter to the chairman of the committee describing what needed to be done. After a period of four weeks, he received a call to make a follow up visit from Dr. Robert Hardin, who was now acting dean, since Dean Norman Nelson had had a heart attack. Dr. Woods always believed that his letter may have been part of the cause of the heart attack of Dr. Nelson. Following negotiations which included President Hancher, Dr. Woods accepted the position. He looked forward to a great challenge and the opportunity to implement his ideas. Dr. Woods' term at Iowa began July 1, 1960.

Dr. Woods wanted to develop a strong toxicology interest in the department. He recruited Gabriel Plaa with this in mind. In 1963, Dr. Woods submitted a toxicology program project grant to NIH. Following the site visit, Dr. Woods did not feel very confident of obtaining funding. However, two weeks later, Fred Stone, the Director of the Institute of General Medical Science, NIH, called and asked Dr. Woods to rewrite the application for the purpose of establishing the first National Toxicology Center in the United States. This was done with the assistance of their staff. Thus it seems that this initial modest application was in the right place at the right time. Space for the Toxicology Center was found at Oakdale, (a TB hospital with much empty space). It was located about four miles west of the main campus. Space was renovated in this facility and it became operational in 1964. James Fouts, was appointed Director of the Oakdale Toxicology Center and additional faculty were recruited (Drs. VanOrden and Steele) as well as additional graduate students. Ph.D. graduates of the toxicology program dominated the Toxicology Society for a number of years.

Clinical Pharmacology was also an interest of Dr. Woods and he strongly supported the development of such a program. A Clinical Pharmacology unit was organized in Internal Medicine and Dr. William Wilson appointed to head the unit in 1962. He and all members of his unit also received joint appointments in the Department of Pharmacology. Research space and access to graduate students were a part of the cooperative arrangement with Clinical Pharmacology.

When Dr. Woods first came to Iowa, he made air conditioning of the Pharmacology offices and laboratories a requirement for accepting the position. This was installed in 1962 along with some remodeling of the department. The addition of the air conditioning in the offices was not without problems. Up to this time, the policy of the



Lauren A. Woods
Fifth Head of the Department
(1960-1970)

university was that air conditioning might be rationalized for laboratories and for animal care units but not for offices. During the summer, Dr. Woods was on a family vacation in Europe. When the ultraconservative university provost learned that air conditioning was being installed in offices in the department, he objected. The faculty informed him that the matter would be brought to the attention of Dr. Woods as soon as he returned. The work continued and the complaint apparently was mislaid.

Space became a problem as more faculty and students entered the program. Planning for an addition to the Medical laboratories began shortly after the arrival of Dr. Woods. The initial proposal was for an L shaped addition which would sit on the road running past the Med Labs. This project fell through and a new building to house the basic sciences was proposed. By 1967, funding from the state, NIH and NSF was obtained and construction began in 1968. Completion did not occur until 1972 and by that time Dr. Woods had left although he returned for the dedication.

Dr. Woods was very concerned that he be punctual. He would write letters and reports and then hold them and send them out just before they were due. He had a drawer full of such letters. Dr. Woods would on occasion ask me to do a report. At first I would drop everything else to do the report. When I noticed his box of letters, I began to ask when it was due. Thus, I did not stop doing everything but was able to do the report in a reasonable time and still get it to him well before the deadline.

Membership in the Pharmacology society (ASPET) was pushed by Dr. Woods. As a result all faculty members of the department became members. Presentation of papers at the spring and fall meetings of the society was also pushed by Dr. Woods. Practice sessions were held in the department to prepare for the meetings.

Dr. Woods had two students with a vote at faculty meetings. He was the first at the University of Iowa to do this.

Faculty added during tenure of Dr. Woods:

H. E. Williamson, Ph.D., 1960

Michael J. Brody, Ph.D., 1961

James L. Spratt, Ph.D., M.D., 1961

Gabriel Plaa, Ph.D., 1962

Bernard Becker, Ph.D., 1964

Lucas S. VanOrden, III, Ph.D., M.D, 1967

William Steele, Ph.D, 1967

Lawrence J. Fischer, Ph.D., 1968

Joint Appointments:

Dr .W.R. Wilson, Medicine, 1964

Dr. R.J. Roberts, with Pediatrics, 1968

Dr, V.S, Aoki, Medicine, 1969

In 1970, Dr. Woods was elected president of the American Society of Pharmacology and Therapeutics.

Dr. Woods resigned in June 1970 to take the position of Vice-President of Virginia Commonwealth University.

During the tenure of Dr. Woods, the department achieved marked recognition. In 1966, the American Council on Education published "An Assessment of Quality in Graduate Education". This study was headed by Allan M Carter, Vice President of the American Council on Education. Twenty-nine academic departments were evaluated by surveying nearly 900 department chairmen, 1700 outstanding senior scholars and scientists and 1400 younger academicians. Fifty-two departments of pharmacology were evaluated. The University of Iowa ranked sixth in quality of graduate faculty and seventh in effectiveness of graduate program. The faculty was in the "strong" category and the program in the "attractive" category. The department was the highest ranked of all of the evaluated programs at the University of Iowa

In January 1971, the American Council on Education issued another report of graduate schools. Thirty-six fields of study at 130 graduate schools were ranked by more than 6000 scholars. In pharmacology, Iowa, along with Minnesota and Yale, was tied for first in the top group. During the ten-year tenure of Dr Woods, the department had come a long way. Once again, the department was the highest ranked of all the evaluated programs at the University of Iowa.

References:

Minutes of faculty meetings
CV of Dr. Woods

The John Paul Long Years

JOHN PAUL LONG SIXTH HEAD OF THE DEPARTMENT 1970-1983

With the resignation of Dr. Woods, Dr. Long was made acting head of the department and then permanent head.

Research and Teaching Interests:

- Dr. Long's interest in pharmacology began while he was an undergraduate student in chemistry. At the time, the College of Pharmacy was located in the chemistry building. There was considerable interaction between these units. As a consequence, Dr. Long became interested in the interaction of drugs and chemicals with biological systems.
- During his graduate training, which was under Dr. Schueler, he was influenced by chemobiodynamics. This is the study of correlations between the chemical constitution of various materials and their ability to modify the function and morphology of biological systems.
- He became a pioneer in the field of autonomic pharmacology. Initially he was involved in the synthesis and evaluation of a group of cholinesterase inhibitors that included hemicholinium.
- Dr. Long's short time at Sterling Winthrop was very profitable for the company. At the time, tranquilizers were first being marketed. Dr. Long looked at the chemical structures of the compounds on the market and then looked at the chemicals that Sterling had in its control. He found one was similar and the company was able to market this as Trancopal. It is still on the market.
- He trained 15 M.S., 23 Ph.D. and 18 postdoctoral fellows.
- He published more than 300 papers.
- Dr. Long believed in involving everyone in teaching and research. In his lectures he would call out names of students and ask them questions. Sometimes students pretended not to be there. Some students he would call on every lecture. These students got to be celebrities in the class.
- He allowed himself to be a subject in anesthesia experiments. When Dr. Pittinger of anesthesiology gave the lectures on anesthetizing agents, Dr. Long allowed himself to be anesthetized with nitrous oxide (laughing gas). The results were a riot each year.
- Dr. Long is also known for comics he drew on his computer.

Teaching changes made during tenure of Dr. Long

In 1971 a summer Drug Workshop given by the graduate students was presented. This was deemed very successful and evolved into a recognized course and was given each fall. Dr. Long stated that he was pressured into giving the course by his "socially



John Paul Long
Sixth Head of the Department
1970-1983

aware” graduate students. Dr. Long stated “we are living in a drug orientated society in which we take a pill to relieve pain, calm us or stimulate us. Most of us don’t understand the potential for harm when we reach for a pill bottle.”

A course for nurses was introduced during Dr. Long’s tenure.

A masters program in pediatric-pharmacology was added. This was combined with the residency in pediatrics.

Pharmacology courses were organized into three groups. An upper level course was given each semester and allowed students in medicine, pharmacy or dentistry to take pharmacology in the fall or spring semesters. This was possible because the courses given to these groups were so similar. As a result of this, medical and pharmacy students were put in the same class as well as dental students who were taking pharmacology out of the regular sequence in the fall semester. In the spring, the course was taken primarily by dental students, but also pharmacy or medical students who want pharmacology out of the regular sequence. The availability of a course for medical students in each semester had been a goal of the college of medicine. Pharmacology was the only basic science department to meet this goal. The second group was designed for nursing, dental hygiene and anesthesiology assistants. The third group was designed for undergraduates wanting a course in pharmacology.

Pharmacology training was reorganized in 1975. The requirement for a master’s degree was dropped from the Ph.D. program.. A qualifying examination, written and oral was installed at the end of two years of study.

The department moved into the Basic Science Building in 1972 (subsequently renamed the Bowen Science Building in 1975). The extra space was very welcome. There were problems however. The building was very noisy and very bright. Changes had to be made to make the building livable. The building was dedicated in April, 1973, This was a two day affair with talks given by several faculty.

Dr. Long believed the faculty should be actively involved in running the department. He allowed the faculty to vote on all matters. He only overturned their vote a few times.

Faculty added to the department under Dr. Long:

Dr. Ranbir Bhatnagar, 1972
B.Sc. Lucknow Univ.
B.V.Sc. Agra Univ.
M.S. Physiology, Mich. St. Univ.
Ph.D. Michigan St. Univ.

Dr. Jeffrey Baron. 1972

Dr. Vincent Aoki retroactive to 1969

Dr. Thomas Tephly. 1971

Dr. Gerald Gebhart, 1973

Dr. Gary Dutton, 1980

Dr. Tom Shires. 1972

Dr. Ann Autor, 1973

Dr. Kent Hermsmeyer, 1973

Joint Appointments:

Dr. J.J. Ambre, Medicine, 1972

Dr. Reynold, Medicine,, 1978

Dr. Ian Phillips, Physiology, 1978

Dr. J. Harvey, Psychology, 1978

A symposium in honor of Dr. E. G. Gross was given in 1980. Papers presented were published in Life Sciences. A list of some of the major research products of the department are given in the appendix.

Dr. Harold Williamson served as acting head while Dr. Long was on sabbatical.

In 1982, Dr. Long believed that he had served as head long enough and asked that he be replaced. He agreed to stay on until a new head was appointed.

References:

Minutes of faculty meetings
Curriculum Vitae of Dr. Long

The P. Michael Conn Years

P. MICHAEL CONN SEVENTH HEAD OF THE DEPARTMENT 1983-1994

After a long search which involved two search committees, P. Michael Conn of North Carolina was appointed head of the department.

Faculty added to the Department under Dr. Conn:

- Dr. Barry Kasson, 1987
- Dr. Gary Rogers, 1986
- Dr. John Koland, 1990
- Dr. Sean Murphy, 1993
- Dr. Stephen Lewis, 1992
- Dr. Mario Ascoli, 1990
- Dr. Rory Fischer, 1987

Joint appointments:

- Dr. Frank Faraci, Internal Medicine, 1999
- Dr. Don Heistad, Internal Medicine, 1999
- Dr. Howard Knapp, Internal Medicine, 1991
- Dr. Raymond Hohl, Internal Medicine, 1993
- Dr. Michael Miller, Psychiatry, 1993
- Dr. Alan Kim Johnson, Physiology, 1983

The book "Essentials of Pharmacology" was published by the department. It did well and was translated into Spanish. It was adopted by three medical colleges in Mexico.

Dr. Mike Brody died December 2, 1990. In his memory a Michael J. Brody Lectureship was established. Graduate students in the department select the lecturer. A plaque in the second floor open area has recorded the lecturers. Many notable people have been selected. (see list)

Teaching:

The department voted to develop four tracks for the graduate program.

These were:

- Cellular and Molecular Pharmacology
- Chemical Metabolism and Toxicology
- Cellular and Integrative Neuropharmacology
- Integrative Cardiovascular Pharmacology and Autonomic Pharmacology,

On January 15, 1994, the ten full professors (primary appointments) in the department requested Dean Lynch to change the leadership of the department. This resulted in several meetings with Dean Lynch as well as Dr. Henri Manasse, vice president for



P. Michael Conn
Seventh Head of the Department
1983-1994

Health Affairs. On August 29, 1994, Dr. Conn indicated that he would be resigning as Head of the Department of Pharmacology prior to Dec. 1, 1994.

References:

Minutes of faculty meetings
CV of Dr. Conn

The Arthur Spector Years

ARTHUR SPECTOR INTERIM HEAD OF THE DEPARTMENT 1994-1996

Following the resignation of Dr. Conn, Dr. Arthur Spector, of Biochemistry was appointed acting head of the department.

A search committee was appointed to look for a new head of the department. Dr. Ascoli was the departmental liaison to the committee.

In 1995, the National Research Council rating of doctoral programs indicated that Pharmacology at Iowa was ranked 19 out of 119 programs putting in the first quartile.

A symposium in honor of Dr. John Paul Long was arranged. It included research papers and a banquet.

References:

Minutes of faculty meetings



Arthur Spector
Interim Head of the Department
(1994-1996)

The Gerald Gebhart years

**GERALD F. GEBHART
EIGHTH HEAD OF THE DEPARTMENT
1996-2006**

After a search, Dr. Gerald Gebhart of the department was appointed head.

Research interests: focus on nociception, or how the body senses and responds to pain and how pain can be controlled. He has been involved in mapping the body's own intrinsic pain modulation system particularly the pain arising from internal organs.

Faculty added to the department under Dr. Gebhart:

- Dr. Dawn Quelle, 1997
- Dr. Fred Quelle, 1997
- Dr. Herb Proudfit, 1998
- Dr. Minetta Gardiner, 1999
- Dr. Nancy Lill, 2000
- Dr. Stephan Strack, 2001
- Dr. Johannes Hell, 2000
- Dr. Mary Horne, 2002
- Dr. Yuriy Usachev, 2003
- Dr. David Sheff, 2003

Joint Appointments

- Donna Hammond, Dept of Anesthesia, 2000
- David Wiemer, Chair, Dept of Chemistry, 2004
- Joseph Hill, Dept. of Internal Medicine, 1999
- Ulla Kopp, Dept. of Internal Medicine, 2000
- Kathryn Lamping, Dept. of Internal Medicine, 1999
- Timothy Brennan, Dept. of Anesthesia, 2002

The department issued a revised statement of procedures and policies for the MS and PhD programs in 1998. Previous statement was in 1975.

The department was significantly remodeled in the late 90's.

Dr. Howard Jacob, a former graduate student, presented the Henry Pickering Bowditch Award lecture at the 2000 ASPET meeting.

The departmental budget was significantly reduced for fiscal year which started July 1, 2001. A number of changes had to be made..

- The summer undergraduate research program was terminated,
- Student travel no longer paid for by department.



Gerald F. Gebhart
Eighth Head of the Department
1996-2006

Invited guest speakers will now have 50% of cost paid for by faculty inviting them..

Replacement of computers in main office to wait until next year.

Tuition and stipends for first year students will only be paid for summer and fall during their rotations. Once assigned to a lab, faculty will have to pay stipends and tuition,

Users of core equipment will not pay maintenance contracts.

Amount of salary taken from grants to be increased.

Dr. James Spratt was chosen teacher of the year for his efforts in the medical pharmacology class in 2001.

Dr. Brian Cox, a former graduate, assumed the position of Councilor for ASPET in 2005. He is also an adjunct professor in the department.

Dr. Gebhart announced that there will be a fundraising for a J.P. Long Endowed Chair in Pharmacology. The objective is to raise 1.5-2 million dollars.

In 2006, Dr. Dr. Gebhart made the decision to move to the University of Pittsburg.

References:

Minutes of faculty meetings
CV of Dr. Gebhart

The Donna Hammond Years

DONNA L. HAMMOND **Interim Head of the Department** **2006-2010**

Following the resignation of Dr. Gebhart, Donna Hammond was appointed temporary head of the department. This temporary appointment lasted for over three years.

Dr. Hammond is a professor in the Anesthesia Department as well as a joint appointment in the Pharmacology Department.

The J.P. Long Plaque was celebrated on Oct. 24, 2008.

Faculty added

Dr. D.P. Mohapatra, 2008

Dr, Songhai Chen, 2008

References:

Minutes of faculty meetings

CV of Dr. Hammond



Donna Hammond
Interim Head of the Department
(2006-2010)

The Curt Sigmund years

**CURT D SIGMUND
HEAD OF THE DEPARTMENT
2010 TO 2019**

The search for a head of the department resulted in the hiring of Dr. Curt Sigmund who was a professor in the Departments of Physiology and Biophysics and Internal Medicine.

The department was remodeled under Dr. Sigmund. Each core is now an open area. No small labs or offices for students and post docs now exist. Thus it is now easier to vary lab space of faculty. Bench area can be increased or decreased without changing rooms. It is not possible to eat in labs with this setup. There is an eating area.

There was a fire in the department, on June 11, 2017, due to an idle electrical extension cord. There was considerable damage estimated to be \$500,000 in the department, but increased to \$1,500,000 when water damage to floor below included. This estimate did not include damage to lab equipment or other supplies that had to be repaired or replaced.

Teaching changes:

In 2015 medical school changed to an integrated offering of basic sciences, the class in Medical pharmacology therefore ceased to exist and lectures on pharmacology were given in the integrated course. Members of the department giving lectures has decreased as members teaching them have retired. Clinical faculty and pharmacists in hospital are doing more of the teaching of drugs in the integrated course.

In 2016 pharmacy changed to an integrated program and the pharmacology course ceased to exist.

In 2018, the pharmacology course in dentistry ended in the College of Dentistry. Karen Baker, of the College of Dentistry, took over teaching of the course,

The course in nursing anesthesiology still exists. It is a small group but now the graduate students have been added to this course since the medical pharmacology course no longer exists. Lectures on tapes are now given.

The biostatistics course is now taught by the department.

The undergraduate drugs course still exists. Enrollment has dropped since the athletic program was dropped. It is now given as two courses, one for science major and another for non-science majors.



Curt Sigmund
Ninth Head of the Department
(2010-2019)

An anonymous former student made a gift of \$50000 to establish a student travel award in honor of Dr. Ranbir Bhatnagar.

Catherine Marcinkiewicz, Ph.D. was awarded a Williams-Cannon Faculty Fellowship.
Donald Heistad, M.D. was awarded a distinguished mentor award.

Matthew Potthoff, Ph.D. was awarded a Roy. J. Carver Endowed Professorship.

Dr. Potthoff was appointed head of the Molecular and Cellular Biology program in 2018. He reorganized program and changed name to Molecular Medicine.

Faculty added by Dr. Sigmund:

- Kamal Rahmourni, Ph.D., 2012.
- Matthew Potthoff, Ph.D., 2012
- Justin Grobe, Ph.D., 2012
- Anne Kwitet, Ph.D., 2010
- Catherine Marcinkiewicz, Ph.D., 2018
- Deniz Atasoy, Ph.D., 2018
- Huxing Cui, Ph.D., 2016
- Qi Wu, Ph.D., 2012

Secondary appointments added:

- Toshi Kitamoto, anesthesia., 2016
- Chris Benson, Internal Medicine, 2012
- Kathleen Sluka, Physical Therapy and Rehabilitation Science, 2020

In 2009, Dr. Sigmund made the decision to move to the Medical College of Wisconsin to head the Department of Physiology.

References:

- Minutes of faculty meetings
- CV of Dr. Sigmund

The Ted Abel years

**EDWIN G (TED) ABEL, III
HEAD OF THE DEPARTMENT
2019 TO**

The search for the replacement for Dr. Sigmund ended with the appointment of Dr. Ted Abel, who was a professor of Molecular Physiology and Biophysics, Psychiatry and Biochemistry. He had moved to The University of Iowa in 2017 as the founding director of the Iowa Neuroscience Institute

The name of the department was change to “Neuroscience and Pharmacology” at the request of Dr. Abel.

As noted in an annual report on our people, “Dr. Abels research focuses on memory consolidation, the cellular and molecular process which long term memory is stored. He pioneered the use of genetic approaches to manipulate cellular signaling processes in neurons, and his work on protein kinase A was the first to functional connect long-lasting forms of synaptic plasticity to memory in mammals. In creative experiments examining the role of sleep in memory, Abel found that brief periods of sleep deprivation impaired memory consolidation. Using a combination of molecular, genetic, and viral approaches, he determined that sleep loss impacts cAMP signaling, protein synthesis and spine structure, making him the first to identify molecular approaches that reverse the impact of sleep loss on memory storage. Throughout his career, Abel has used knowledge of deficits in patients with schizophrenia, autism and intellectual disability. His recent work on mouse models of autism has defined for the first time, a potential molecular mechanism underlying the male bias of this disorder.”

Faculty added by Dr. Abel:

Jon Resch, Ph.D., 2021.

Joint Apointments

Oliver Gramlich, Ph.D. Ophthalmology, 2021

Thomas Nickl-Jockschat, M.D. Psychiatry, 2021

Lane Strathearn, M.D .Pediatrics, 2020

References:

CV of Dr. Abel



Edwin (Ted) Abel, III
Tenth Head of the Department
(2019-2026)

Summary

The faculty of the Department have been the recipients of many awards, honors and accomplishments

Recipients of major awards in Pharmacology:

Abel award:

Fred W. Schueler

John Paul Long

James R. Fouts

P. Michael Conn

Thomas R. Tephly (While at U. Michigan)

Otto Kraye Research Award

Michael J. Brody

Clinical Pharmacology Award

Reynold Spector

Career Award, Division of Toxicology

Curtis D. Klaassen, a graduate (While at U. Kansas)

Major Offices Held in Pharmacology

President of the American Society of Pharmacology and Experimental Therapeutics

Oscar Plant

E.G. Gross

L.A. Woods

Treasurer of ASPET

John Paul Long

University honors to graduates of the department:

Dennis Boatman, 64 MS (Pharmacology), MD.1966
Award for service, 2009
Lawrence Dorr, MS 1965 (Pharmacology), MD, 1967
Distinguished alumni, 2009
Ann Bonham, 80 MS, 86 PhD (Pharmacology), 2012
Achievement award
Gerald Gebart, 69 MA, 71 PhD (Pharmacology) 2014
Achievement award
Laura Shawver, 79 BS 84 PhD (pharmacology) 2011
Achievement award

Society of Toxicology,

Presidents (Former Students)

R.L. Dixon
Jim Gibson
Jerry Hook
Curt Klaasen
Mike McClain

SOT Achievement Award (Former faculty and graduates)

Gabriel Plaa
Robert Dixon
Curtiss Klaassen
James Gibson
James Kehre

William B. Bean Lecturers

Michael J. Brody, 1979
John P. Long, 1981

D.C. Spriesterbach Dissertation Prize (Awarded to student receiving most worthy Ph.D.)

Mark Knuepfer, 1982

J.P. Long Teaching award created by College of Medicine in 1996 to commemorate Dr. Long's devotion to teaching, Awarded to members of basic sciences.

Recipients in the department:

Rory Fischer, 2013
Dawn Quelle, 2015
Stefan Strack, 2019

JP Long Professorships in Pharmacology

Yuriy Usechev and Stefan Strack in 2017

College of Medicine Second year teaching awards:

Dr. J.P. Long

Dr. Michael Brody

Dr. James Spratt

SOME MAJOR PRODUCTS OF RESEARCH IN THE DEPARTMENT OF PHARMACOLOGY

During a symposium held in 1980 to honor E. G. Gross, a compilation of research achievements of the department was made. These are listed below.

1. First pharmacological and clinical studies of curare in the USA.
2. First animal and human anesthesia induced by xenon.
3. Demonstration of neuromuscular inhibition by selected antibiotics.
4. Demonstration of a possible cholinergic link in the production of analgesia by morphine.
5. First pharmacological and human studies with halothane in the USA.
6. Gastrointestinal actions of morphine and analogs in dogs and correlation with human physiology.
7. Morphine intestinal stimulating activity correlated with release of serotonin.
8. The first observation that an insecticide (chlordane) would increase various metabolic pathways in liver microsomes (microsomal induction).
9. Discovery of bis-quaternary inhibitors of cholinesterase.
10. Discovery of hemicholinium-3 (HC-3) and demonstration of cholinergic nerve terminal inhibition.
11. First demonstration of dopamine receptors on sympathetic nerve terminals that, when activated, inhibit the release of norepinephrine.
12. One of the first to demonstrate that experimental renal hypertension does not develop normally in the absence of the sympathetic nervous system. At the time these studies were performed, a new tool for conveniently producing sympathectomy became available: An antibody to the nerve growth factor. Animals treated at birth with this antibody grew up essentially sympathectomized.
13. A large number of studies have helped identify the substance histamine as a chemical transmitter of neurogenically mediated vasodilation. The demonstration that "active vasodilation" participates in reflex control of the circulation is fundamental as the documentation that the endogenous amine histamine is the chemical messenger. The neurotransmitter function is unique in that histamine is released from a non-neural storage site in close functional communication with special adrenergic nerves.
14. Basic information about the chemical mediation of estrogen-induced uterine hyperemia has been described. Early studies showed that prostaglandins play a major role in the response. More recently it was demonstrated that catecholamine were important intermediates in producing the complex response that in part involves increased synthesis of prostaglandins.
15. Studies illustrating the role of the central nervous system in experimental hypertension is ongoing. A few years it was discovered that removal of a small region of the anterior hypothalamus, identified as the receptor region for the cardiovascular effects of angiotensin, prevents the development of most forms of experimental hypertension. These studies were the first to demonstrate directly that a specific region of the brain was important for the pathogenesis of hypertensive disease and this region of the brain is AV3V (anteroventral third ventricle).
16. Involvement in the basic renal research on Lasix (furosemide) prior to the marketing of this drug.
17. Research showing that Lasix increased renal blood flow. This has led to its usage as a diuretic of choice in individuals with decreased renal function.
18. Studies showing that diuretics (Edecrin and Lasix) which increase renal blood flow do so by a mechanism that involves prostaglandins.
19. The mechanism of action of the hormone aldosterone has been shown to involve RNA stimulated protein synthesis.
20. Lincomycin and other antibiotic have neuromuscular blocking properties. This can lead to toxicity during surgery.

21. Research demonstrated extra renal hemodynamic actions of Lasix and the relationship of these effects to therapeutic and toxic actions this drug, e.g.
 - a. beneficial action of Lasix in the treatment of pulmonary edema is in part due to a shift of blood to capacitance vessels.
 - b. toxic actions of Lasix on visceral organs is related to a decrease in blood flow to these areas.
22. Show that the site of action mercurial diuretics in the kidney is the ascending loop of Henle.
23. Research on methods for IV Drug Administration. Results may explain previous problems with drug therapy failures and conflicts in the literature regarding pharmacokinetics.
24. Studies evaluating the role of oxygen in newborn lung disease. Results demonstrate that oxygen severely delays lung maturation including the pulmonary vascular development. The experiments may explain chronic manifestations of lung disease encountered in infancy.
25. Experiments that determined the mechanism of transport of certain drugs into the central nervous system (e.g. penicillin and methotrexate).
26. Experiments on the mechanism of vitamin transport into the central nervous system. These studies provided an explanation for the general lack of success of megavitamin therapy for disorders of the central nervous system.
27. Studies of racial differences in pharmacokinetic properties of various drugs.
28. Use of paramedical personnel to improve health care in outpatient medical clinics.
29. Developed SAR approach for drug design that included considerations of charge and spatial aspect as well as inter-atomic distances.
30. Neural pathways involved in reflex vasodilation.