
**Histories
of the
Departments of Instruction
of the
University of Rochester
during the
First Fifty Years
1850-1900**

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GREEK

The history of the department of Greek begins with the formation of the first curriculum of studies in 1850. Its history is closely connected with that of Latin, its kindred language; and the two were grouped with French and German under the head of "Department of Languages" in a committee report made to the Board of Trustees of the University on September 16, 1850.

This report became the basis upon which the College curriculum was organized. Two courses of instruction were recognized from the outset-- the Classical and the Scientific. In the Classical Course Greek and Latin were compulsory through the Sophomore year; afterward they could be omitted and other studies substituted for them with the advice of the Faculty. The Scientific Course substituted French and German for the classics, and included more extended mathematical and scientific studies. In 1855 a term each in French and German was added to the Classical Course, and in 1868 an additional term of each was required. In 1872 Latin was introduced into the Scientific Course, and lectures were also given from 1871-83 on such subjects as "Greek History and Life" and "Greek Classics for English Readers." In 1890 the name of the Scientific Course was changed to Latin Scientific, and a corresponding Greek Scientific Course was formed, in which Greek was the required language instead of Latin. In 1900 both Latin and Greek Scientific Courses will be included under the common name of Philosophical Course.

At a time when instruction in Latin and Greek formed a large proportion of the study plan of similar institutions, the policy of this College in regard to the classics may be pronounced liberal. Students were allowed either to omit Latin and Greek wholly and take a Scientific Course, or to discontinue them after two years, other subjects being provided for their election. On the other hand very generous provision was made for the wants of classical students, and an over-proportion of time was apportioned to these languages without sufficiently attractive studies offered as their alternatives. There were undoubtedly important reasons for this adjustment. There were undoubtedly important reasons for this adjustment. There was a strong demand for the classics; Greek, in particular, was hardly more than begun before entering upon the college course, while the scope of its study was broad, including literature, history, and philosophy; the facilities were not so great in other departments which have developed largely in late years. Between 1860-67 (with the exception of 1863) there was no regular instruction in modern languages, while fully as much time was devoted to mathematics and natural science as to the two classical languages.

Between 1850 and 1872 the maximum number of courses in Greek, which were taught in the Classical Course, was nine and did not fall below seven. But as new needs were felt and other departments expanded, the number of Greek courses was diminished, or made more strictly optional with the other subjects. The difference seems to have been, that, at the end of the Sophomore year, a student, who had taken the classics in his first two years, made a new choice at the time of three out of four departments offered, of which one was the department of Languages, including only Greek and Latin. If he included in his choice the latter department, then he completed in his course a total of nine courses in Greek besides the Latin. By the new arrangement he might still choose the department of Languages and take the prescribed Latin courses, but several of the Greek courses were made optional with modern languages, or chemistry, or civil engineering. The catalogues indicate such substitution in 1872 and again in 1882, and the changes affected at least three of the courses in Greek. So that after 1882 practically no Greek was required, without such an alternative studies as have been mentioned, after the Sophomore year. In 1886 the number of hours given to Greek studies ranged from 246 to 356, which was no more in amount than was give to mathematics or Latin, and less than the time taken by natural science. In 1889 Greek was a required subject in the three terms of the Freshman year, and in the second term and one hour of the third term in the Sophomore year. In 1890 the number of required terms was reduced from four to three; viz., first and third terms in the Freshman year and the second term Sophomore, while in all other terms Greek has been elective since that date.

With the extensive introduction in 1890 of the elective system in all studies, there was immediate opportunity for expansion in the Greek department. Under the old system the department as a whole had suffered in proportion as a broader curriculum was adopted; for with the addition of new required subjects in other departments, advanced Greek courses were omitted, or, if not omitted, made optional with the new studies. Under the elective system all the old and additional new courses in Greek could be introduced and opened on equal terms to the choices of advanced students. In 1899 electives were so arranged that it is possible for a student, after completing the three required courses in the middle of the Sophomore year, to elect a different Greek course in each succeeding term until his graduation. Ten courses will

be offered in the catalogue of 1900, each representing some important phase of Hellenic culture, and yet many subjects are omitted that seem essential parts of a Greek course of instruction. With but one instructor in the department, as at present, it is only possible to give this number of courses by opening each elective to the Senior and Junior classes together, and to offer each course in alternate years.

The necessary omission in the regular course of many important subjects suggested so early as 1856 the plan of offering to especially qualified students courses for extra reading, either privately or with the instructor, and with the reward of honorable mention for the work done at Commencement time and in annual catalogue. Each year a special subject was set in the catalogue, originally for one particular class, to be studied the ensuing year: gradually the number of honor subjects was increased until parallel courses were indicated for each class, and each year two or more honor classes have been successfully conducted. Two instances will illustrate the value of such extra readings. Since 1889 there has been no place in the class work for Demosthenes' Orations; in 1890 and 1891 the Greek dramatists were displaced by other courses, both were offered as honor studies.

The requirements in Greek for entrance to the College have been as follows:- in 1850, Greek Grammar, Greek Reader, three books of Xenophon's Anabasis; in 1873, one book of Homer's Iliad was added; in 1881, three books of Homer's Iliad were required; in 1882 Greek Prose Composition was added. Since 1882 no change has been made.

It was stated in the catalogue of 1868-69 that the department aimed to familiarize the student by careful translation of Greek authors and assiduous practice in composition with the treasures of ancient thought and feeling; to fit him to acquire a more careful mastery of those modern languages derived from the ancient; and to use the classics to supplement instruction in rhetoric, and mental and moral philosophy. In 1882 the aim was to afford; (1) careful linguistic training and such study of Greek literary models and modes of thought as will exhibit to the student the method of forming and verifying linguistic principles; (2) a comprehensive view of the character and significance of Greek civilization. The most significant manifestations of Greek social, political, and intellectual life are studied by appropriate courses in their historical development and practical bearings. Since 1890 the catalogue has contained the following description: "The department is regarded as coextensive with ancient Hellenic civilization, and is designed to furnish the student, who completes its courses, with a knowledge of: (1) the essential structure and laws of the language; (2) the elements and mutual relations of the chief factors of Hellenic life; (3) the place and significance of Hellenism as a factor in ancient and modern civilization; (4) more advanced methods and results by special study in selected courses."

The following table contains the names of courses offered in this department from 1850 to 1900. It shows also their distribution in the plan of studies. The numerals indicated the period during which each course was continued.

Freshman year,

First term,

Xenophon's Anabasis 1850-56; Kendrick's Greek Ollendorf 1850-82; Greek Prose Composition, Boise 1883; Selections from Greek historians 1857-72; Xenophon's Memorabilia 1873-81; History of Greek Literature 1881-83; Orations of Lysias 1882-1900.

Second term,

Homer's Iliad 1850-72; Kendrick's Greek Ollendorf completed 1850-78; Selections from Greek historians 1873-89; Greek History 1884-89; No Greek 1890-1900.

Third term,

Homer's Iliad, or Odyssey 1850-67; Selections from Greek historians 1868-72; Homer's Iliad 1873-83; Homer's Odyssey 1884-87; Greek Lyric Poets 1888-89; Greek historians 1890-1900; Greek History I. 1890-1900.

Sophomore year,

First term,

No Greek 1850-1900.

Second term,

Select Orations of Demosthenes 1850-88; Selections from the Attic Orators 1889; Homer's Odyssey, or Greek Lyric Poets 1890-99; Homer's Odyssey 1900; Greek History II. 1890-1900.

Third term,

Demosthenes on the crown 1850-67; No Greek 1868-81; Lectures on Greek Literature, on hour, 1882-89; Greek Dramatists, or Greek Lyric Poets, or Greek New Testament 1900.

Junior year,

First term

Select Greek Tragedies 1850-56; Select Greek Tragedies, Longinus on the Sublime, or Aristotle's Rhetoric 1857-67; Select Greek Tragedies 1868-85; The Greek Tragedians and Plato 1886-88; Plato or the Greek Tragedians 1889; Greek Philosophers- Plato or Aristotle, and History of Greek Philosophy 1890-99; Plato, and History of Greek Philosophy part I, or Aristotle, and History of Greek Philosophy Part II, 1900.

Second term,

Select Greek Tragedies 1850-67; Aristotle's Rhetoric, or Longinus on the Sublime 1868-70; Lectures on Greek Literature 1850-70; No Greek 1871-91; Greek Tragedians 1892-94; Greek Dramatists 1895-96; Hellenistic Greek I Maccabees, or Greek Archaeology-Pausanias 1897-1900.

Third term,

No Greek 1850-1870; Aristotle's Rhetoric, or Longinus on the Sublime 1871; Longinus on the Sublime 1872-81; Lectures on Greek Literature 1871-81; No Greek 1882-89; Post Aristotelian Writers, New Testament and Lucian 1890-95; Greek Dramatists 1896-99; Greek Dramatists, or New Testament, or Lyric Poets 1900.

Senior year,

First term,

Greek Philosophers, Xenophon's Memorabilia, Plato and Lectures on Greek Philosophy 1850-56; Readings and Prelections in Plato, and in Ethics of Aristotle 1857-67; Lectures of Greek Philosophy 1857-77; No Greek 1878-89; 1890-1900, see courses under Junior I courses tabulated under terms I, II, and III of Junior year were elective courses also in the corresponding terms of the Senior year.

Second term,

Plato, Lectures on Greek Philosophy 1850-54; No Greek 1855-77; Readings on Prelections in Plato and Aristotle 1878-80; No Greek 1881-91; 1892-1900, see courses tabulated under Junior II, which were elective also in Senior II.

Third term,

No Greek 1850-80; Readings and Prelections in Plato and Aristotle, and Lectures on Greek Philosophy 1881-83; Plato and History of Greek Philosophy 1884; History of Greek Philosophy (five hours) 1885-89; 1890-1900 see courses tabulated under junior III, which were elective also in Senior III.

The Department has enjoyed during its fifty years of life the services of several instructors. It was organized in 1850 by Asabel Clark Kendrick, D. D., LL. D., Hamilton College, A. B., '31. Dr. Kendrick had been Professor of Greek at

Madison University since 1832, and came to Rochester in the stage coach that brought a large part of Rochester's professional equipment. For thirty-one years, from 1850-81, Dr. Kendrick was Munro Professor of Greek. In 1881 he retired from active duties on account of failing health, but in hope of resuming his work after a period of rest. His name was still enrolled among the Faculty until his death in 1895.

Herman Lincoln Wayland, A. M., Brown University, A. R., '49, was tutor in Greek and History for two years, 1852-53.

William W. Gilbert, A. M., University of Rochester, A. B., '61, was for one year, 1867-68, tutor in Greek and Latin.

From 1873 (and possibly earlier) to 1880, Professor Albert H. Mixer, Colgate, A. B., '49, for ten years Professor of Greek in the University of Chicago, gave instruction in Greek during two terms of each year to the Freshman class.

From 1877-83 Professor Henry F. Burton, A. M., University of Michigan, A. B., '72, then Assistant Professor of Latin, gave instruction in Greek Literature to the Freshman class in the Scientific Course during one term of each year. Professor Burton also taught the Freshman class in Homer's Iliad during the third term of 1878 and the third term of 1881.

In 1881 George M. Forbes, A. M., University of Rochester, A. B., '78, was appointed Assistant Professor of Greek to take the place of Dr. Kendrick, who never returned again to his duties in the College. In 1886 he was made full Professor, and was at the head of the Greek department until 1894, when he was transferred to the Philosophical department. He continued, however, to give two elective courses in Greek until 1896.

In 1891 Ryland Kendrick, University of Rochester, A. B., '89, was appointed Instructor in Greek and Latin, and continued in this position until 1894. In 1894 Mr. Kendrick was granted leave of absence for two years.

In 1894 Adelbert Hamilton, University of Rochester, A. B., '92, was appointed Instructor in Latin and Greek and held the position until 1896 during Mr. Kendrick's absence.

In 1896 Mr. Kendrick returned to the College after two years study in Europe, and in 1899 was appointed Munro Professor of Greek. Professor Kendrick is at present at the head of the Greek Department.

RYLAND MORRIS KENDRICK

Latin

THE TEACHERS OF LATIN

At the opening of the University in November 1850 the Professor of Latin was John Fram Richardson, who had been Professor of Latin in Madison University since 1838. Professor Richardson held the chair of Latin until his death, February 10th, 1868. He was however obliged by ill health to abandon the work of instruction in January 1867.

During the interval between January 1867 and September 1870 instruction in Latin was given by Dr. A. C. Kendrick, Professor of Greek; Otis H. Robinson, Assistant Professor of Mathematics; W. Wallace Gilbert, Tutor in Greek and Latin;

Albert H. Mixer, Professor of Modern Languages; David G. Porter, Instructor in Latin; Joseph H. Gilmore, Professor of Rhetoric; and William C. Morey, Tutor in Latin.

The following table shows the service performed by each of these gentlemen:

	Freshmen	Sophomores	Juniors	
1867	Winter	Robinson		
	Spring		Kendrick	Kendrick
1867-68	Fall	Gilbert		
	Winter	Gilbert	Mixer	
	Spring		Gilbert	Kendrick
1868-69	Fall	Robinson		
	Winter	Porter		
	Spring	Porter	Porter	Porter
1869-70	Fall	Morey	Gilmore	
	Winter	Morey		
	Spring		Gilmore	Kendrick

In the fall of 1870 Adoniram J. Sage became Professor of Latin and did the entire work of the department down to the end of the fall term of 1871. Professor Sage restored the course in the second term of the Senior year which had been omitted since the death of Professor Richardson. During the winter term of 1871-72 no instruction was given in Latin.

In the Spring of 1872 William C. Morey became Professor of Latin, performing the entire work of the department until the fall of 1877, and from 1877 to 1882 giving instruction in Latin to the upper classes.

In the fall of 1877 Henry F. Burton was appointed Assistant Professor of Latin, sharing the instruction in Latin with Professor Morey until the fall of 1882, when he took entire charge of the department, becoming Professor of Latin in June 1883. The course in Roman Law in the Senior year continued to be given by Professor Morey, being now transferred to his new department of History and Political Science.

The following table shows the distribution of the Latin work during the years 1877-83.

	Freshmen	Sophomores	Juniors	Seniors
1877-79	Fall	Burton	Morey	
	Winter	Burton		Morey

	Spring		Morey	Morey
1879-82	Fall	Burton	Morey	
	Winter	Burton		Morey
	Spring		Burton	Morey
1882-83	Fall	Burton	Burton	
	Winter	Burton		Morey (Roman Law)
	Spring		Burton	Burton

Professor Burton has been assisted in the instruction in Latin as follows:

In 1891-92 during his absence in Europe Ryland M. Kendrick, Instructor in Latin and Greek, gave instruction to the Freshmen for two terms, to the Sophomores for one term and for one term to an elective class of Seniors.

In the fall of 1892 Mr. Kendrick took half the work in Horace and Juvenal with the Sophomore class.

In the spring term of 1896 Adelbert Hamilton, Instructor in Latin and Greek, gave instruction to the Sophomores in Tacitus and Juvenal.

In 1898-1900, during Professor Burton's term of service as Acting President, Charles Hoeing, Instructor in Latin, had entire charge of the work of the Freshman and Sophomore classes.

THE SUBJECTS OF INSTRUCTION

Requirements for Admission

The requirements for admission in Latin, as stated in the first catalogue of the University, for 1850-51 were as follows: "Latin Grammar, Cornelius Nepos or four books of Caesar's Commentaries, Six books of Vergil's Aeneid, Cicero's select orations, Translating English into Latin."

In 1870 four orations of Cicero, including the Archias and the Manilin Law, were definitely required. In 1872 Nepos, as an alternative with Caesar, was dropped, but was restored in 1894. In 1873 the requirement in Latin Composition was made definite: thirty-nine sections of Arnold; since 1878 other text-books have been specified. In 1884 six orations of Cicero were required instead of four.

Undergraduate Courses

The Latin course laid down in the first catalogue was as follows:

Freshman year,	Second term,	Select Orations of Cicero.
	Third term,	Livy.
Sophomore year,	First term	Plautus and Terence.
	Third term,	Tacitus's Histories.
Junior year,	First term,	Satires and Epistles of Horace.
	Third term,	Selected Odes of Horace.
Senior year,	First term,	Cicero's Philosophical Works.

Though no definite statement to that effect is made in the catalogue, it is probable that each term's study occupied five hours a week.

Latin (as well as Greek) seems to have been nominally elective after the Sophomore year, for the following

statement appears under the heading "Organization" on page 14 of the catalogue for 1850-51: "The plan of instruction is so adjusted as to allow any who choose, to omit the study of Latin and Greek, with the advice of the Faculty, after the completion of the Sophomore year." This apparently applies to regular students for the degree of A. B. If so, it is an interesting anticipation of the modern elective system. (Latin was elective at Harvard after the Sophomore year at this time.) But this permission was withdrawn in 1859-60, and it is the testimony of students of the first decade that few, if any, ever availed themselves of the privilege while it was offered. This is probable in view of the great prominence of the classics in the curriculum at that time. In the first catalogue, in which seven courses in Latin are named, there were offered nine courses in Greek.

The original Latin course was but slightly modified during the lifetime of Professor Richardson. In 1855-56 Latin was dropped from the first term Junior year, the entire course being thus reduced from seven to six terms. Cicero's Orations remained a part of the work of the Freshman year until 1862-63, when an additional term in Livy was substituted. Other changes were unimportant, consisting merely in the transfer of courses from one term to another.

The following table shows the Latin course as stated in the catalogue for 1866-67, the last year of Professor Richardson's instruction:

Freshman year,	First term,	Livy. Latin Prose Composition.
	Second term,	Livy. Latin Prose Composition.
Sophomore year,	First term,	Select Roman Comedies and Satires.
	Third term,	Selections from Tacitus.
Junior year,	Third term,	Select Odes and Epistles of Horace.
Senior year,	Second term,	Cicero. Lectures on Roman Literature.

During the period from January 1867 to April 1872, though no change appears in the Latin work prescribed in the catalogue, the college records show that it was carried on somewhat irregularly. The full course of six terms was given only in the year 1870-71, the Senior term being omitted in the other years, and in 1871-72 Latin was wholly omitted in the winter term.

Shortly after the accession of Professor Morey to the chair of Latin in April 1872 several changes were made in the subjects taught and in the order of their study. The course announced in the catalogue for 1873-74 was as follows:

Freshman year,	First term,	Livy. Latin Prose Composition.
	Second term,	Livy. Latin Prose Composition.
Sophomore year,	First term,	Horace. Roman History.
	Third term,	Tacitus. Roman Literature.
Junior year,	Third term,	Cicero, de Officiis. Roman Philosophy.
Senior year,	Second term,	Justinian. Roman Law.

The characteristic features of this course as compared with that of 1867 are: the omission of the Latin Comedy and Satire, the addition of the Institutes of Justinian and formal instruction in Roman History.

This course remained unchanged during Professor Morey's occupancy of the chair of Latin, so far as pertained to the subjects taught by him. Some changes were made during that time in the courses given by Assistant Professor Burton, and further changes were introduced by him within a few years.

In 1878-79 the Comedies of Terence and Plautus were substituted for the second term in Livy in the Freshman year. Since 1881-82 Juvenal has been taught either in connection with Tacitus in the third term or with Horace in the first term of the Sophomore year. Cicero's Letters were sometimes substituted for the Comedy and Pliny's Letters for Tacitus. In 1882-83 the Latin course in the third term Junior was made

elective and Quintilian was substituted for Cicero's de Officiis. Two years later Seneca's Moral Essays were added to this course. In 1883 Roman Law was transferred to the department of History. Instruction in Roman Constitutional History was given in connection with three of the required courses; lectures on Roman Literature were given on Saturday mornings for one term to the Sophomores, and on Roman Philosophy in connection with the Junior elective.

The course in Latin at this period covered five terms ending with the Junior year. It was described in the catalogue for 1886-87 as follows:

Freshman
year,

First term, (five hours a week): Selections from the first and twenty-first books of Livy, review of select topics in Latin Syntax, written exercises in Latin Prose Composition.

Second term, Terence or Plautus, Cicero's Letters, oral exercises in colloquial Latin, Lectures on Latin Etymology (four hours a week); Roman History to the times of the Gracchi--Leighton and Lectures, (one hour a week).

Sophomore
year,

First term, Selections from the Odes, Satires and Epistles of Horace, (four hours a week); Roman History--from the Gracchi to the Empire, (one hour a week); Lectures on Latin Literature, (one hour a week).

Third term, Tacitus or Pliny, selections from Juvenal, Lectures on Roman Archaeology, (four hours a week); History of the Roman Empire--Capes's "Early Empire" and "Age of the Antonines" and Lectures, (one hour a week).

Junior
year,

Third term, (optional with Chemistry): Quintilian, Book X., (three hours a week); Seneca or Lucretius, (two hours a week); Lectures on Roman Philosophy.

With slight modifications the course remained as above until the fall of 1890. The general revision of the curriculum which was made in 1890 and which went into effect in the year 1890-91 brought several beneficial results to the Latin department. The extension of recitation hours to the afternoon made possible the division of the lower classes into two sections in the required studies. The required work in Latin was reduced from four to three terms. At the same time a much larger opportunity was given than before for electives in the latter part of the course. So long as the entire course in Latin was taught by one man, it was impossible to give more than three electives each year, but by adopting the plan of offering different electives in alternate years to both Juniors and Seniors, or to Sophomores and Juniors, from four to six electives might be taken by each class during the course of study. With the addition of an instructor to the teaching force in Latin the same or a larger number of electives may now be given without the necessity of alternation or of combining Juniors and Seniors in the same class.

The course in Latin offered in 1900-01 is as follows:

Freshman year,

Second term; required; three sections:- Livy, Latin Composition, Roman History.

Sophomore year,

First term; required; two sections:- Horace--Odes, Satires, and Epistles, Roman History.

Third term; required; two sections:- Tacitus-- Agricola and Germania, Juvenal-- selected satires, Lectures on Roman Literature.

Junior year,

First term; elective:- Plautus and Terence.

Second term; elective: Roman Philosophy.
Third term; elective:- Latin Epigraphy and Palaeography.
Senior year,
First term; elective:- Latin Rhetoricians.
Second term; elective:- Historical Latin Grammar.
Third term; elective:- Roman Archaeology.

Honor Studies

During nearly the whole history of the University extra studies in Latin, not included in the requirements for a degree but encouraged by the offer of prizes or honorable mention, have been pursued by a few students in each class.

From 1856 to 1886 a prize of twenty-five dollars was offered "for an examination upon some portion of a Latin author selected by the Faculty." From 1876 an essay on an assigned subject connected with the author read was required in addition. Competition for the prize was open to members of the Sophomore class "whose scholarship in all departments reached a certain fixed standard." The sum offered as a prize was usually divided into two, and at times into three, unequal parts, which were awarded as first, second, and third prizes to the highest competitors in the order of their standing in the prize examination. Honorable mention was granted to those competitors who did not win a prize if they passed a creditable examination.

The prize system appealed to but one college class and to those only in that class who had good hope of gaining one of the prizes. For the sake of stimulating a larger number of students to do extra work in Latin, the prize was abolished in 1886, and honorable mention offered to all qualified students in each class who should pass an examination upon the text assigned for extra reading. Usually a different author has been prescribed for each class; at times the same subject has been taken by members of two or more classes. To secure the systematic prosecution of the work throughout the college year, weekly meetings of those taking the course are held under the direction of the Professor or Instructor in Latin. In recent years the honor courses have been utilized for practice in sight reading; i.e. oral reading of the Latin text without translation into English.

Graduate Courses

Since 1894 courses of private reading in Latin have been prescribed for graduates who are studying, either as residents or in absentia, for the degree of Master of Arts or Philosophy. These courses include advanced readings in Latin authors, studies in Historical Latin Syntax and Latin Epigraphy and Palaeography, investigations in Roman History and Archaeology, etc. The choice of courses is made by the student after consultation with the Professor; the amount of work is prescribed in advance and varies according as Latin is the sole or the major or the minor subject taken for the degree. Three graduates have received the degree Master of Arts for work done wholly or principally in Latin, submitting these on subjects connected with their graduate studies; viz.

- In 1898, Robert Byrnes English, A. B., '96; "The Private life of Cicero as revealed in his Letters."
- In 1898, Herman Schulte, A. B., '93; "Election Announcements in Pompeii."
- In 1899, Mason DeWitt Gray, A. B., '97; "Roman Medicine as seen in the Inscriptions."

METHODS AND AIMS

In 1850-1872

During the first two decades of the history of the University Latin and Greek studies, constituting at first nearly one-half and never less than one-third of the entire curriculum, were still the chief means furnished by the college course for literary culture. At this time, therefore, it was natural that the distinctively literary side of classical study should be made prominent. This appears to have been the characteristic of Professor

Richardson's instruction. The Latin texts were studied as models of grammatical construction and rhetorical form, with the aim of developing the student's literary taste and training his powers of expression.

Yet in one branch of Latin study at least Professor Richardson illustrated the historical and scientific method of inquiry. Early in his career he became interested in the investigations, then fairly begun in Europe, regarding the ancient pronunciation of Latin, and is entitled to the honor of having been the first college teacher of Latin in this country, - and doubtless the first in the modern world, -- to use the ancient pronunciation in his classes. He introduced the revised system in part at the opening of the University in 1850, and within a few years adopted it as a whole, continuing to teach it throughout his lifetime, notwithstanding much criticism and ridicule. Though the Faculty gave formal consent to the use of the Roman method, it was strongly disapproved by President Anderson and Professor A. C. Kendrick, but was as strongly supported by Professor J. H. Raymond. (I learn the attitude of Professor Raymond from Professor W. C. Wilkinson. The unfriendliness of Drs. Anderson and Kendrick to the use of the ancient pronunciation in college classes has often been expressed in my hearing. At the re-introduction of the Roman pronunciation in 1878 they were still in opposition. H.F.B.)

In 1859 Professor Richardson published, under the title "Roman Orthoepy," a short treatise on the Latin sounds, which fairly represents the state of knowledge on the subject at the time, though more correct views on certain points were presented in the second volume of the great work of Corrsen, which appeared in the same year. Had Professor Richardson lived a year or two longer he would have seen his example followed by Harvard college in the introduction of the Roman pronunciation in 1869.

In 1872-1882

During Professor Morey's incumbency of the chair of Latin the historical and legal aspect of Latin studies was given prominence. The constitutional history of Rome was taught, by means of lectures and dissertations by members of the class, in connection with the Latin courses of the Sophomore year. In the Senior year a course in the Roman Law was introduced, which is still continued as an elective in the department of Political Science. In general the subject matter rather than the literary form of the texts read was made the chief object of study.

In 1882-1900

Within the last two decades the demands made upon the department of Latin in an American college have rapidly increased. So far as our equipment permits, the attempt has been made to meet these new demands. The range of reading in Latin literature has been constantly widened, embracing as many departments of prose and poetry and as many important authors as possible. The study of the concrete side of ancient Roman civilization- topography, architecture, art, and the usage's of political, military, and Private life- has been emphasized. Provision has been made for the scientific study of the Latin language from the historical and comparative standpoint. While the elementary courses required of all students aim at general discipline and culture, in the elective and graduate courses the wants of future teachers of Latin have been specifically considered. "In both the required and elective work, exact translation, with oral reading of the original text, critical study of syntax, style and derivation, informal lectures, free discussion in the class-room, and investigation of special topics by the student, are the means relied on to secure thorough scholarship."

HENRY FAIRFIELD BURTON

Rhetoric and English

On the 13th of May 1850, the committee upon the course of instruction in the University of Rochester, which was opened in November of that year, recommended the creation of six professorships with a salary of \$1200.00 each. One of these was the "Professorship of History and Belles Lettres" which was filled by the appointment of Professor John H. Raymond, who had for ten years held a similar position at Madison (now Colgate) University. Professor Raymond discharged the duties of this professorship till 1855, when he resigned to accept the presidency of the Polytechnic Institute, Brooklyn, N.Y., afterwards becoming the first president of Vassar College.

Upon his resignation, the Reverend S. S. Cutting, who had previously been one of the editors of the Recorder (a Baptist newspaper published in New York), was elected "Professor of Rhetoric and History", a position which he held until 1868. Dr. Cutting was immediately succeeded by the Reverend Joseph H. Gilmore, who had been previously pastor of the Second Baptist Church in Rochester and Acting Professor of Hebrew in the Rochester Theological Seminary, with the title of "Professor of Logic, Rhetoric, and English".

Oliver Wendell Holmes was wont to say that when he was first appointed to teach in the Harvard Medical School, he occupied not a chair, but a settee; and the same remark might well have been made by the first instructor in the department which I have the honor to represent. A report of the committee on the course of instruction adopted by the Trustees on September 16, 1850, provided for a daily recitation throughout the Freshman and Sophomore years in Modern History, Rhetoric, English Literature, Composition, and Declamation conducted by the Professor of History and Belles Lettres; while the same officer was required to give instruction in Logic during the Junior year.

In 1868 the department was relieved of the task of giving instruction in history, although elementary instruction in moral philosophy was among its regular duties; and in addition to teaching all the logic, rhetoric, composition, elocution and English literature that was taught in the college, the Professor was required to teach an occasional term of Latin, and from 1879 to 1883 had a daily recitation for an entire term in anthropology.

Of course it was impossible that good work should be done by one man along so many lines. The logic, rhetoric, and composition had to be attended to; but there was the merest pretence of instruction with reference to the English language and literature, and work in the department of Elocution and Oratory was superficial to the last degree.

In 1892 relief was granted to this over-crowded department by the transfer of logic to the new department of Logic and Pedagogics, and by the appointment of the Reverend W. P. McKenzie as instructor in English. Mr. McKenzie held this position until 1894, when he was succeeded by Mr. Roland P. Gray, who is still serving the University.

Since the appointment of an instructor in English the work of instruction in rhetoric, and to a very considerable extent in composition and elocution, has devolved upon him. The head of the department has thus been free to devote his energies mainly to the work of instruction in English and American literature, in which work is now provided for our students from the beginning of the Sophomore to the close of the Senior year. This work covers the great masterpieces that have been given to the world in our mother tongue, both in prose and poetry, which are studied with the same minute fidelity that is given to those of Greece and Rome, but in a generous and practical spirit, with a special view to the development of literary taste and the promotion of personal culture.

JOSEPH HENRY GLIMORE

Electronic text conversion by Dave Gottfried, December 1998.

Chemistry

The department of Chemistry was established at the organization of the University and Chester Dewey, M. D., LL. D., was elected Professor of Chemistry and the Natural Sciences. His professorship included botany, physiology, and geology, as well as chemistry. Instruction in the latter subject was given by means of text-books, lectures, and experimental illustrations so far as the limited resources of the department permitted. One term of the Junior year was devoted to the study of theoretical chemistry, but no facilities existed for laboratory work of any kind.

In 1861 the duties of this chair were divided, Dr. Dewey becoming Professor of Chemistry, while a new department was established, and Henry A. Ward was elected Professor of the Natural Sciences. After this date, however, on account of failing health Dr. Dewey was no longer able to continue in the active duties of his office, and thereafter instruction in chemistry was given by the Professor of Mathematics and Natural Philosophy until 1867, when Samuel A. Lattimore was elected Professor of Chemistry.

Immediately after entering upon his duties in the autumn of 1867, Professor Lattimore fitted up a room in Anderson Hall with the necessary equipment as a chemical laboratory and established courses of instruction in qualitative and quantitative analysis. The capacity of this room soon became insufficient and a larger room was occupied as a laboratory. Theoretical chemistry was taught during one term of the Junior year as a required study, while courses in the various fields of practical chemistry were offered as electives during the remaining terms of the Junior and Senior years.

In addition to the duties of his special department, Professor Lattimore gave instruction in the subjects of physiology and geology, and was curator of the Geological and Mineralogical Cabinets down to 1881, when a separate professorship of geology and natural history was established and a professor was elected.

In the spring of 1885 Professor Lattimore received from Mr. Mortimer F. Reynolds, President of the Rochester Savings Bank, the offer of twenty-five thousand dollars for the erection of a chemical laboratory. This generous offer came unexpectedly and without suggestion or solicitation. Plans were carefully perfected, the building was commenced in the autumn, and was ready for occupancy in the following autumn of 1886. This building was intended as a memorial of Mr. William A. Reynolds, a Trustee of the University, and the only brother of the donor. It is therefore known as the Reynolds Laboratory.

Samuel Allan Lattimore

Mathematics, Natural Philosophy and Astronomy

In the early years of the University mathematics, natural philosophy, and astronomy were taught by one professor and regarded as one department of instruction. Indeed there was no definite separation of these subjects into different departments under different professors for more than half the period to which this history extends. When there were more professors they divided the instruction between them, not according to any classification of the subjects, but according to their tastes and convenience. For this reason it is thought that in a historical survey of the several departments of instruction in the University these three subjects should be presented together.

The history of them will be given under three heads:

- First, the personal element--Who has done the teaching?
- Second, the matter--What has been taught?
- Third, the manner--How has the teaching been done?

It should be stated just here that in university work the old term natural philosophy has been very generally replaced in modern usage by the term physics. No distinction will be made in this paper between the two terms except so far as is necessary to state the exact names of professorships as given in the annual catalogues.

For the first or personal element we will begin by giving a list of the teachers with their several places in the general department and their periods of service.

Hon. E. Peshine Smith, 1850-1851, Acting Professor of Mathematics and Natural Philosophy

Isaac Ferdinand Quinby, LL. D., 1851-1884, Professor of Mathematics and Natural Philosophy

Alonzo Jonah Howe, A. M., 1861-1863, Professor of Mathematics and Natural Philosophy

Otis Hall Robinson, Ph. D., Tutor in Mathematics 1864-1867, Assistant Professor of Mathematics 1867-1869, Professor of Mathematics 1869-1884, Professor of Mathematics and Natural Philosophy 1884-1891, Professor of Natural Philosophy 1891-

George Daniel Olds, A. M., Assistant Professor of Mathematics 1884-1886, Professor of Mathematics 1886-1891

James Ross Lynch, A. B., Instructor in Mathematics 1889-1891

Arthur Latham Baker, C. E., Ph. D, Professor of Mathematics 1891-

Henry Edmund Lawrence, A. M., Instructor in Physics 1894-1897, Associate Professor of Physics 1897-

It will be seen that Professor Quinby's term of service continued for thirty-three years, including the period of the civil war. At the beginning of the war in 1861 he entered the service as Colonel of the thirteenth regiment of New York volunteers; and Professor Howe was appointed to take his place in the University during his absence. According to the recollection of the writer there were others engaged in teaching in the department during that time, though no mention of them was made in the annual catalogues. After the war Professor Quinby never undertook to do all the work of the department as he had done before it. Nearly all the time till the end of President Grant's administration in 1877, he was in the service of the Federal Government with an office in Rochester. During that time he spent one hour a day with his classes at the University; and after that time, the habit having been formed, he continued to give only about the same time to class-room work till his resignation in 1884.

It was this state of things that led to the appointment of Mr. Robinson, a graduate of the University of the class of 1861, first as Tutor, and then as Professor of Mathematics (It be noted here that Mr. Robinson was the first member of the alumni to be elected to a professorship in the University.). The records show that the greater part of the work of the department soon passed into his hands. From the year 1872-73 he had full charge of the natural philosophy and astronomy, and gave nearly all the instruction in those subjects, besides giving two full courses in mathematics. Professor Quinby's natural preference for mathematics led him to confine his work to the higher branches of that subject.

Upon the resignation of Professor Quinby in 1884, Professor Robinson was made Professor of Mathematics and Natural

Philosophy; and Mr. George D. Olds, a graduate of the University of the class of 1873, was appointed Assistant Professor of Mathematics. He was promoted to a full professorship in 1886. This office he held till 1891 when he resigned to accept a professorship of mathematics in Amherst College. Professor Olds taught the natural philosophy and astronomy in the year 1889-90 while Professor Robinson was absent on account of ill health. To make this practicable Mr. J. Ross Lynch was appointed as a temporary Instructor in Mathematics.

In 1891 Professor Arthur Latham Baker succeeded Professor Olds as Professor of Mathematics, which office he still holds (Professor Baker has recently resigned his professorship, but it is understood that he will continue to do the work of the department for a year at least.). Professor Baker was graduated at the Rensselaer Polytechnic Institute in 1873. He came to the University after several years experience as a teacher of mathematics. From the time of his appointment the two branches of the general department were entirely separated under different teachers; and Professor Robinson became simply Professor of Natural Philosophy, which office he still holds.

About the same time the number of courses of study offered to students in the University was greatly increased by the adoption of a more complete elective system. To provide for the consequent increase in the instruction required, and to relieve Professor Robinson, whose health had become such that he was unable to do full work, Mr. Henry Edmund Lawrence was soon afterwards appointed Instructor in Physics. Mr. Lawrence was a graduate of the University of the class of 1889. He began his work in the spring term of the year 1893-94. In 1897 he was made Associate Professor of Physics, which office he still holds.

Second, The subjects taught.

In the early years of the University no preparation was required for entrance in mathematics beyond arithmetic. In the catalogue of 1856-57 "algebra as far as quadratic equations" was added; and in that of 1866-67 there was the further addition of "the first three books of Robinson's Geometry, or their equivalent." By the catalogue of last year (1899-1900) the requirements for admission are "(1) arithmetic (including the metric system); (2) algebra through quadratic equations, and equations of the quadratic form . . . (3) geometry, all of plane and solid, through the intersection of planes and the relative position of planes, and of planes and lines."

In physics no preparation has ever been required for admission except for the Scientific Course, and that not till recently. Before entering that course students are now required to have the equivalent of one year's training, two-fifths of which shall be devoted to laboratory.

In astronomy no preparation has ever been required.

From the beginning till 1891 nearly all of the work of this department was required. No student was graduated without taking it. It consisted:

In mathematics, of the usual courses in algebra, geometry, trigonometry, analytical geometry, differential and integral calculus, and sometimes a short course in surveying and navigation:

In physics, of mechanics (including solids, liquids and gases), sound and light:

In astronomy, of one general course which was descriptive, mathematical, and physical.

In the early years heat, magnetism, and electricity were seldom taught at all, and when they were taught the courses were very short. The department of Chemistry gave a little attention to these subjects in lectures preparatory to its own work. In the latter half of the general period named above they were gradually introduced, more time being given to them from year to year as their practical importance in the world increased.

The general rule during this period was for the courses in mathematics to be taken in the Freshman and Sophomore years. The courses in physics began in the third term of the Sophomore year and continued through the first and second terms of the Junior year. The third term of the Junior year was devoted to astronomy.

In the year 1890-91 a great change was made in the curriculum affecting every department in the University. Many studies which had been required were made elective; and many new subjects were introduced as electives. The change in this department was not fully completed till Professor Lawrence entered upon his work in 1893-94. Since that time the courses have been substantially as follows:

In mathematics, (A) Required studies: (1) advanced algebra and descriptive geometry, (2) plane trigonometry and solid geometry, (3) analytical geometry, (4) spherical geometry and spherical trigonometry.

(B) Elective studies: (1) differential and integral calculus, (2) advanced analytical geometry.

(C) Honor studies: Students who are qualified by the amount and character of their regular work in the several departments are permitted to take special courses in addition thereto. This work is done under direction of the professors and with their assistance. Students who complete such courses satisfactorily are given honorable mention at Commencement and in the catalogue. Among the courses offered under this provision are: (1) goniometry, (2) modern analytical geometry, (3) orthographic projection, (4) shades, shadows and perspective, (5) projective geometry, (6) differential equations, (7) the elementary theory of functions, (8) the elementary theory of quaternions, (9) the elementary theory of elliptic functions.

In physics, (A) Required studies: (1) mechanics and sound, (2) heat and light, (3) electricity and magnetism. (Course (3) has been required of students pursuing the Scientific Course, and elective for others.)

(B) Elective studies: (1) experimental mechanics and sound, (2) laboratory practice, (3) theory of electricity, alternating currents with experiments, (4) theory of the dynamo and motor with laboratory practice.

(C) Honor studies: (1) theoretical mechanics, (2) theory of light, (3) mechanical theory of heat, (4) electricity and magnetism, (5) current periodical literature relating to physics.

In astronomy, There is no required course. An elective course is given every year to members of the Junior and Senior classes. An honor course is also offered in subjects which are announced from year to year.

Graduate students are admitted to the classes which are pursuing the studies indicated above as "honor studies."

Soon after the University was founded premiums were offered to members of the several classes for the best examinations in subjects assigned to them. The subjects in mathematics were assigned to Freshman classes, nearly every year till 1887 when the premium was discontinued.

About the year 1868 the University received from the late Professor John F. Stoddard the sum of \$1500.00

as an endowment for a gold medal to be awarded to the student in each graduating class who should make the highest attainment in mathematics and physics. For several years the medal was awarded to students after examination, under conditions fixed by the Faculty. The equivalent of the medal is now offered in cash. This premium has not only promoted good work in the regular courses of study, but it has also led to the study of many subjects outside those courses.

Third, How the teaching has been done.

An examination of the history of the department shows that, both in the text-books used and in the mode of giving instruction, the tendency has been from the abstract to the concrete- from the theoretical to the practical. Professor Quinby's instruction was devoted largely to the theoretical principles of the subjects he taught. He was a mathematician. He took pleasure in the exact statement of the laws which underlie natural phenomena, and in the expression of those laws in comprehensive general formulas. His aim was to get corresponding statements and formulas from his students. Beyond this he was not inclined to go. He seldom introduced an experimental illustration into his class-room. He had little patience with instruments. His own mental vision was so clear that he probably never had any use for them himself. Besides, in the early years, when he was doing all the work in mathematics, physics, and astronomy, whatever he may have thought of the value of instruments, he had no time for them. He seldom dwelt upon the practical uses of the subjects he taught. He belonged to the school which preceded the introduction of laboratory methods in college work--a school which paid premiums on thinking rather than on manipulation--a school in which the work of an undergraduate was not so much to acquire habits of investigation as to reconstruct in thought, and give logical expression to the results of investigations already made. The excellence of this method is in its disciplinary value rather than in its immediate practical bearings.

Professor Robinson's aim in his work and the method pursued by him can be given best in his own language as published in the annual catalogue of 1891-92. It is substantially as follows:

The aim of this department is threefold:

First, That students shall acquire as wide a knowledge as practicable of the facts and principles of physics and astronomy; and that they shall learn to express that knowledge in clear and accurate formulas, using, wherever it is applicable, the concise language of mathematics.

Second, That they form the habit of applying mathematical reasoning to questions of science, solving practical problems, and deducing from known formulas the practical scientific principles involved in them.

Third, That they learn to verify by exact observation and experiment the conclusions reached by such reasoning, and to mark the degree of their accuracy, and their limitations.

The instruction is given by text-book exercises, by lectures and by experiments. Opportunity is given to the students in part of the course to become familiar with the use of instruments by making experiments themselves. It is believed that by combining disciplinary exercises with practical work the student will be fitted to pursue by himself advanced scientific reading and investigations with ease.

It is further believed that the principles of the experimental sciences and of astronomy should be studied in their historical development. The discovery and history of the doctrines and formulas found in the books are, therefore, made the frequent theme of class-room conversation.

Professor Olds has kindly responded to a request from the writer, and sent the following statement of his aim and method in his work.

"My aim in the teaching of mathematics is to develop accurate thinking and power of concentration, connected reasoning and clear definite statement; to cultivate in the best students intuitive power and constructive imagination; and to secure to all, even to those endowed with but a limited amount of native capacity for the science, such a knowledge of its principles and results as shall quicken their interest and

equip them for the study of that vast field of natural science of which the bed rock is mathematics.

"The method I would recommend involves the best textbook that the teacher can lay his hands on, supplemented largely by informal lectures- better named dialogues- the object of which shall be, not to present the subject in its finished state, but to exhibit it in process of evolution- to let it grow before the student's mental vision. The basis of the highest class-room efficiency I believe to be the lively sense on the part of the pupil that under intelligent, sympathetic guidance he is, re-discovering truth." - - George D. Olds.

Professor Baker has shown the same courtesy by sending the following, and adding thereto an expression of his pleasure at having an opportunity to give a statement of his method even though very brief.

"In the mathematical department the method of instruction pursued was the investigative, developing, heuristic method, so aptly called by the French the genetic method, as distinguished from the merely re-productive method.

"The dominant thought in the class-room was, not so much what or how, as why. Not only what was the binomial theorem, a polar triangle and its properties, etc., but why did such things exist; not only the derivation of the marvelous number 2.718...., but why should there be such a number; not only what were the four algebraic operations, but why should there be just the particular four; not only what were the various proofs and the different steps, but why those steps and not others. The controlling idea was educative rather than merely instructive, with the purpose of making a thinker rather than a mere reproducer of the text-book; to give a quasi philosophical, existential reason for the various processes in addition to a merely logical one; to provide the student with a suggestive methodology so that he could feel himself potentially able to investigate for himself upon his own initiative; to make him a Froebellian producer and not merely a Pestalozzian reproducer." - - A. L. Baker.

Professor Lawrence came into the Faculty, as has been stated, about the time the curriculum was reconstructed. He came fresh from a course of special training in laboratory methods. He entered upon his work with great vigor and enthusiasm. With the smaller classes arising out of the elective system, it became possible to come into closer touch with the students than ever before. It was his privilege to organize the first class for strictly laboratory work in physics. He thereby introduced what is distinctively known as the modern method. This method is calculated to satisfy the popular clamor for a "practical education"; but for producing mental discipline, broad scholarship, and the ability to grasp and solve great and complex questions, its value is yet to be proved.

The methods of instruction at present are various. Some courses are given wholly by text-book, lecture and recitation; in some illustrative experiments are added; in some the hours of the week are divided, part being given to lecture and recitations and part to laboratory work; and some courses are wholly devoted to laboratory work. These last are designed for those who intend to teach physics, and for engineers- and, in general, for students specializing in physical science.

Text-books have been used from the first in nearly all the courses. There is however no slavery to the texts. Books are used only as general guides through the courses. The professors use a free hand with them in omissions, corrections, and additions by notes and lectures. For a time Professor Quinby used his own work on the differential and integral calculus. It did not, however, prove to be well suited to the needs of our students and another text was subsequently adopted. Professor Baker did much of his teaching from text-books written by himself- some of them in printed form, and some dictated from manuscript.

In the year 1868-69 a digression was made from the usual practice by introducing Ganot's Physics in the French as a text. It was the only text in physics for four years. After careful trial it was decided that, however it might affect the French department, the exclusive use of it was not good for the department of Physics.

The instrumental equipment of the department has always been very limited. By the method pursued in the

earliest years instruments were little needed. Since that period some of the best instruments have been bought as they have been found to be necessary and the professors have taxed their ingenuity and their mechanical skill to devise and construct many which the illustrative and the laboratory methods have required.

In 1876, by the liberality of Mr. John B. Trevor, a contribution was made to this part of the work of the department which deserves special mention. At an expense of about two thousand dollars a telescope was procured with a six inch object glass, mounted equatorially, with circles; and a building was erected with rotating dome for its use. It would be difficult to estimate the value of the service which this instrument has rendered in the study of astronomy during the last twenty-five years.

OTIS HALL ROBINSON

Electronic text conversion by Jacob Pyne, November 1998

Modern Languages

The department of Modern Languages is yet young in the American college, although by no means the youngest. It found a very small and somewhat uncertain place in the curriculum of the University of Rochester at its beginning in the fall of 1850. I was deputed to do the teaching of it, in connection with various other work which was assigned me. During the first two years of the institution, a quite liberal course was offered in French and German was offered to the few scientific students present, but no instruction in the modern languages was given to the classical, although all four classes were represented.

At the close of the college year in 1852 I resigned my position and went abroad for an absence of two years. Upon my return in 1854 I resumed my connection with the University and at the following Commencement in 1855 received the appointment to the chair of Modern Languages, which was then made a distinct department of the University for the first time. During my absence the instruction in these languages had been given by professors in other departments. The courses were now somewhat enlarged and made to include all students- the classical as well as the scientific.

After three years= service in the new department I accepted in 1858 the call to open and organize the first University of Chicago; in which work I was engaged for eight years after which two years were again spent in Europe.

During my absence of ten years from the University of Rochester the instruction in the modern languages shared a varied fate. From 1858 to 1863 it was given by Professor A. C. Kendrick. In the latter year W. C. Wilkinson was elected to the chair, but held the position for only one year. And during the following four years, from 1864 to 1868, the department of Modern Languages is dropped from the catalogue, and no mention is made of any instruction being given in it; although doubtless it was not, during this period, entirely omitted.

At the Commencement of 1867, while I was still abroad I received and accepted the call to resume my connection with the University of Rochester, which was accomplished with the beginning of 1868. Upon this second entrance into the work in this institution it was stipulated that the department of Modern languages should have a larger place in the curriculum and should receive the cooperation of the other departments of instruction. This latter was tried for a time by the introduction of French text-books in physics and in political economy. But after a single attempt the experiment was abandoned, although the idea thus inaugurated was afterwards adopted at Harvard and some other institutions with success, and has continued more or less in vogue to the present time. The field of the department, however, received but little extension, and I had to give much of my time to the helping out of the Greek department during the later years= work of the professor of the branch.

Thus the modern languages had in our University, as also in other colleges, but a slender hold until modern science brought its new claim upon the college, and all at once the importance of these languages was made manifest as a necessary means for scientific research. It is now universally recognized that these languages not only furnish, like the ancient classic tongues, abundant mental gymnastics, but are absolutely essential for scholarly work in nearly every field of human investigation, affording, as they do, the only ready access to all the intellectual resources of these foreign peoples, contributed for our use. And so the department of Modern Languages has come, in all our higher institutions of learning, to rank in importance probably second to that of no other in the educational apparatus.

The difficulty that confronts us is that the college curriculum is overloaded by many subjects demanding place in it, and the burning question of each department today is, How to grow? This problem has occasioned much perplexity to the department of Modern Languages.

I am satisfied that the solution for it, in this case, is to be found essentially in the return to the plan proposed in early work; namely, to secure as far as possible the cooperation of all other departments in inducing

students more and more to begin to do here in college just what they will have to do so largely in the technical schools and in all their graduate work; that is, to carry on their investigations through materials to be found in these foreign languages. It will be seen that in order to bring about this result it is necessary to keep the library well furnished with most recent issues -- literary and scientific -- of the foreign press.

For the furtherance of this aim of initiating our students while in college into the practical use of these foreign languages, they will hereafter be given somewhat earlier in the course, the French being begun with the commencement of the Freshmen year and the German with the third term of the same year also scientific French and German will be given early in the course and their use encouraged in the subsequent work. Every student being now allowed at least five terms of instruction in German and six in French, no one need leave our University without such command of these languages as to enable him to use them for literary and scientific research.

The Italian has been given for several years as an optional and extra branch, and the Spanish also has been recently introduced in the same way. Both of these languages will hereafter be electives in the course.

Under the growing pressure of this new demand upon the department, it was soon discovered that an increase of the teaching force was needed. Accordingly in 1890 Mr. Kendrick P. Shedd was appointed Instructor in Modern languages, was granted leave of absence for a year's preparation in Europe, and begun his work in the fall of 1891. His service has been in all respects most efficient, faithful, and satisfactory, enabling the department to greatly enlarge its usefulness in our University.

ALBERT HARRISON MIXER

Philosophy

FOUNDATION AND DIRECTION

The department of Intellectual and Moral Philosophy was established September 16th, 1850, and was based upon the report of a committee appointed by the Board of Trustees to formulate a plan of instruction for the Collegiate department of the University. The department as designated in the report was entitled: Belles Lettres, Moral and Intellectual Philosophy, and included courses in logic, mental and moral philosophy, and evidence of natural and revealed religion.

The Reverend John McGinnis, Professor of Theology in the Rochester Theological Seminary, was the first instructor, and continued in charge of the department until his death in 1852. He was succeeded in September 1853 by the newly elected President of the University, Martin B. Anderson, who remained in charge of the department until his retirement from the presidency in December 1888. After 1855 he was the incumbent of the Burbank Professorship of Intellectual and Moral Philosophy, which was established by the gifts of Gideon W. Burbank and Lewis Roberts. In 1889 President David J. Hill succeeded President Anderson as the incumbent of the chair. Since the retirement of President Hill in 1896 the department has been in charge of Professor George M. Forbes, who was elected Professor of Philosophy and Pedagogy in 1894.

COURSES OF INSTRUCTION

From its foundation the department has included required courses in logic, psychology, and ethics, covering about sixty, eighty, and forty hours of instruction respectively. Up to 1896, however, logic was connected with the department of Rhetoric and English and the instruction was adjusted to the conception of its organic relation to that department. It therefore preceded psychology and was regarded as preparatory to it. In 1891 logic was formally transferred to the department of Philosophy and later it was made to follow psychology, which, as the foundation study of the department, took the place of logic in the Junior year.

Courses in Greek philosophy (since 1857) and in Roman philosophy (since 1868) have been offered to students in the Classical and Latin Scientific Courses. They have been based chiefly upon the philosophical works of Plato, Aristotle, Cicero, Seneca, and Lucretius, and have included study of the Greek and Latin texts with lectures on the history of ancient philosophy.

The course in the evidences of natural and revealed religion, included in the original plan of courses for Seniors, was continued until 1868. In the decade from 1858 to 1868 courses in aesthetics and the relations of philosophy to religion were given to Seniors. In 1879 a course in anthropology was first offered, giving the University, it is said, the distinction of being the first American college to introduce this study. (An Outline History of the University of Rochester, p. 29.) It was first offered to Juniors and later was made a Senior elective.

A course in the history of modern philosophy with German text-books was introduced in 1890, a course in pedagogics in 1891, and a course in metaphysics under the title "Introduction to Philosophy" in 1894. All Senior electives.

The department of Philosophy, like its sister departments, has for a number of years offered supplementary or "honor" courses to students prepared to profit by them, and one or more of these courses have been given each year. They have usually consisted in the reading, interpretation, and discussion of standard or classic works in English, German, or Greek philosophy, and have occupied two hours per week for one or more terms.

The regular courses now offered are Psychology, Logic, Ethics, Anthropology, Physiological Psychology, Introduction to Philosophy, History of Ancient Philosophy, History of Modern Philosophy, and Pedagogics.

PURPOSE AND METHOD OF THE INSTRUCTION

In 1868, in defining the purpose of his instruction, President Anderson said: "The design of the course in intellectual and

moral philosophy is to fix convictions in the students' minds regarding the reality, certainty, and limits of human knowledge, and show that man has a moral and intellectual constitution existing in the germ before the processes of thought and action begin."

In 1890 President Hill defined the purpose as follows: "The studies in this department are designed to secure a thorough discipline in the processes of abstract thought, to afford each student some comprehension of himself as an intellectual and moral being, and to acquaint him with the methods and results of philosophical inquiry and the great living questions which it is the office of philosophy to solve."

Both followed substantially the same method. A textbook or printed outline was made the basis of instruction, which consisted of lectures and recitations. Both encouraged questions by the student, leading to discussions. Classroom work was frequently supplemented by written or oral dissertations by the student, giving the results of special investigation of assigned topics.

In 1894 a different method was introduced which has since been applied to all courses in the department except those in the History of Philosophy. Textbooks, printed outlines, and dictation are dispensed with, and the material is so organized as to present each topic in the form of carefully formulated problems requiring original observation or reflection by the student as the first step. Critical sifting and discussion of the attempted solutions eliminates the crudities and brings clearly into view the outlines of the topic, and a formal synthesis of results follows. Supplementary reading upon each topic is deferred until the student has thus thought his way into it.

GEORGE MATHER FORBES

History and Political Science

The facts connected with the early years of the University are derived almost entirely from the annual catalogues, in which the stated curriculum may be regarded as showing, in some cases, what was proposed to be done, rather than what was actually done. The committee first appointed by the Trustees to draw up a curriculum of studies indicate in their report a considerable appreciation of the importance of historical studies, especially as forming a part of a scientific course.

In the first catalogue, that of 1851-52, we find that no preparation in history- was required for classical students, but that the applicants for the Scientific Course were expected to pass an examination in United States history, in ancient history and geography and in the Constitution of the United States. In the first curriculum there were assigned to the classical students two terms of the Freshman year for the study of modern history, and three terms of the same year to the scientific students.

The first catalogue contains in the list of the Faculty the name of Professor A. H. Mixer as Tutor in History and the Modern Languages. As Professor Mixer did not, according to his personal statement, teach any modern history, it may be assumed that no modern history was taught at this time. The same catalogue announces international and constitutional law for the second term of the Senior year, and political economy for the third term of the same year, although it does not appear that any one was entrusted with the teaching of these subjects. With the exception of the transference of history from the Tutor in the modern languages to the Tutor in Greek, there does not seem to have been any modification of this condition of things until 1855.

In 1855 Professor Cutting was appointed as Professor of Rhetoric and History, and in 1856 Henry Fowler was appointed Professor of Political Economy. Professor Fowler resigned in 1860, and the teaching of political economy was assigned to the Professor of Rhetoric. In 1863 President Anderson began a course of lectures on ethnology and modern history, which was announced in the catalogue of 1864-65 as a course in the History of Civilization in Europe for the third term of the Senior year. About this time the Professor of Mathematics began giving a course of Saturday morning lectures on Mediaeval History to the Sophomore class. This arrangement of historical studies continued until Professor Cutting resigned in 1868, and the instruction in political economy was temporarily assigned to his successor, Professor Gilmore, and afterwards to President Anderson. The instruction in history was thus divided between the Professor of Mathematics and the President, who was also Professor of Intellectual and Moral Philosophy.

The catalogue of 1868-69 contains a clear and succinct statement in regard to the extent to which the University at this time afforded facilities for historical study. This statement was as follows: "Although the Faculty of instruction embraces no officer who is distinctly charged with the care of this department, an ample course of historical study is yet provided for the student. Instruction is given in Greek and Roman history in connection with the classical department. Mediaeval and modern history are taught in weekly lectures which cover three entire terms. The study of the English language and literature are necessarily approached from an ethnological and historical point of view. In the Senior year an entire term is devoted to the study of the history of civilization, and another term is divided between constitutional law and political economy." The facts presented by this statement as regards the character and extent of historical instruction continued to exist for several years. In 1873 the Professor of Latin began to give lectures upon Roman law in connection with the reading of the Institutes of Justinian; and in 1875 the Saturday morning lectures on mediaeval history were transferred to the same instructor. A new and effective encouragement was given to historical and economic studies by the founding of the Sherman and Townsend scholarships in 1876. In 1877 a department of History was specially recognized and associated with the department of Latin. The Professor of Latin, besides giving the regular instruction in the Latin language and literature, taught the Roman law as a distinct subject, and received the Senior class in the history of civilization. In 1879 the Constitution of the United States was taken up with the scientific section of the Sophomore class; and in 1881 instruction was given in the English constitution to the scientific section of the Freshman class.

In 1882 an entire term of the Junior year was set apart for the study of mediaeval history; and a course of Saturday morning lectures was given to the Senior class on international law.

The department of History was made a separate department in 1883, and the Professor of Latin was appointed as Professor of History and Political Science. Five regular courses in history were now established; the Historical Geography of Europe, the English Constitution, Mediaeval History, Comparative Constitutional Law, and the Roman Law. The subject of political economy continued to be taught by the President; and in 1889 the chair of Political Economy was endowed by Mr. Don Alonzo Watson, and President Anderson was appointed as its incumbent. During this time more special attention was paid to the study of ancient history in connection with the Greek and Latin departments. A certain time during each week of recitation was set apart for instruction in the social and political history of Greece and Rome. This was in accordance with President Anderson's general theory that every subject should be approached from the historical point of view, and that the historical method was not confined to that separate branch of learning usually called by the name of "History." About this time "seminary" work in American Colonial History was taken up with the Juniors on Saturday mornings, and special attention was paid to the use of original sources of investigation. In the temporary absence of President Anderson political economy was taught by the Professor of History.

As a result of the successive steps which have been noticed, the catalogue of 1890-91 was able to present the following courses of historical studies:

1. Political and social history of Greece, in connection with the Greek department, 2d term, Freshman year, two hours a week.
2. Political and social history of Rome, in connection with the Latin department, 1st and 2d terms Freshman, and 1st term Sophomore, one hour a week.
3. History of Europe during the Middle Ages, 1st term, Junior year, four hours a week.
4. History of the Modern States System, 2d term, Junior year, five hours a week.
5. Politics and Comparative Constitutional Law, 3d term, Junior year, five hours a week, elective.
6. History and Principles of the Roman Law, 2d term, Senior year, five hours a week, elective.
7. International Law and Diplomacy, 3d term, Senior year, five hours a week, elective.
8. Political Economy, 1st term, Senior year, five hours a week.
9. Seminary of American History, 2d and 3d terms, Junior year, one hour a week, given to special students.

In addition to these regular courses there were offered nine honor studies:

1. English Constitutional History,
2. American Constitutional History,
3. American Constitutional Law,
4. Contemporary Political History,
5. History of Political Science,
6. Economic History,
7. Special study in the Roman Civil Law,
8. A course for the Sherman scholarship,
9. A course for the Townsend scholarship.

This curriculum of historical studies has been, with some modifications, continued to the present time. The course in Mediaeval History has been extended to five hours a week. The special study of the United States Constitution has been substituted for the general course in Political Science. In 1895 eight graduate courses were added for the benefit of candidates for the second degree. Although no special instructor had been appointed in Political Economy, the economic courses have been given a more definite organization, and now include two required courses, and a special list of honor and graduate studies. From the nature of these honor and graduate courses- in not requiring recitations, but examinations only- it is possible to offer to the student a considerable number of such courses. While these studies are pursued by a comparatively few of

the best students, it may be well to state that during the past year there have been ten of such voluntary courses in history and economics pursued by undergraduate and graduate students.

In conclusion it may be said that the present curriculum of historical studies includes nine regular courses, ten honor courses offered to undergraduates, and ten advanced courses offered to graduates who are candidates for the second degree. The curriculum of economic studies includes two regular courses, and the same number of honor and graduate studies as that offered to students in history. It has been urged that such an extended scheme of studies, with such a small teaching force, cannot represent the actual work which is done in the University. It may be answered that such a scheme does as a matter of fact represent the actual opportunities which are afforded by the University, and that any applicant who presents himself for any course which is offered will not be turned away for want of the necessary supervision and the personal direction required to pursue profitably his desired study. The instruction which is given in nearly all voluntary studies, whether for honors or for degrees, cannot, of course, be in the form of daily recitations; but it can be in the form of advice and personal guidance, by which such studies can be made, in the case of advanced students, none the less beneficial, and much more contributive to the development of personal reliance and scholarly freedom, than if given in the form of daily recitations. The end thus attained is in entire conformity to the highest purpose of education, which is to train the student in those methods by which he will be able to help himself, and may thus become an independent, if not an original scholar.

Nothing can be so fully illustrate the progress which has been in the opportunities afforded for the study of history (and also of other subjects) as the fact that instead of being obliged to apologize for the small number of courses offered, as was the case in the early years of the University, it becomes necessary to apologize for the large number of courses offered, as seems now to be the case. This disparity between the old and the new is due in great part to the general change in the methods of education- the substitution of a variety of elective studies instead of a monotonous uniformity of required studies; the encouragement given to voluntary work which calls for zealous co-operation on the part of the student, and which depends upon occasional guidance and counsel on the part of the instructor in place of the perpetual tutorship required in daily recitations- in short, the treatment of college students as scholars and not merely as pupils.

The college instructor has now under his supervision not simply a group of young men gathered together in a single class-room, but a number of independent and earnest scholars who are pursuing various lines of investigation, and who are looking to him, not as an official superior, but as a friendly guide and counsellor. The old idea, which assumed that every student was a shirk and desired to "follow the line of least resistance," is displaced by the idea that the great majority of students who are pursuing a college education are earnest scholars, desirous to obtain as large an intellectual remuneration as possible for the expenditures of time and money necessary to prepare one's self for an intellectual life. This elevation of the educational idea, together with this demand for increased opportunities, calls for a greater and an increased specialization of studies, and makes the college of the present different from the college of the past.

WILLIAM CAREY MOREY

Geology

INSTRUCTION

The present department of Geology, including only geological science, dates essentially from 1890, but by name from 1896. Geology was made the chief science of the department in 1881, when Edward R. Benton was made Assistant Professor of Geology and Natural History. Previous to that date geology had been included in the department of the Natural Sciences, and the history of the geological instruction is involved with that of the other sciences.

Earthstudy had been recognized at the organization of the University, mineralogy and geology being in the curriculum announced in the first catalogue (1850-51). The courses of study during the fifty years of the University have never failed to include geology. In the first three catalogues (1850-53) mineralogy and geology were scheduled for the third term Senior year in both Classical and Scientific Courses. This was the proper position for the science, considering its comprehensiveness, its dependence upon all the other sciences, and its difficulty in broad treatment. In the fourth catalogue (1853-54) the two sciences were placed in the third term Junior where, they remained for nine years. In the thirteenth catalogue (1862-63) geology appears by itself in the third term Senior, where it was held until 1881.

It would seem from statements in the early catalogues that the instruction in geology and in other of the sciences was mainly or wholly by lectures. In the nineteenth catalogue (1868-69) "Lectures on Physical Geography" were added to the third term Senior.

In 1881, with the creation of the department of Geology and Natural History, geology was carried back to the second term Senior and economic geology was made elective against advanced German in the third term, with the lectures on physical geography still offered. In the next catalogue (1882-83) the economic geology and lectures on physical geography disappear, but mineralogy is included as a third term Freshman study in the Scientific Course. The next year Professor Webster succeeded Assistant Professor Benton and the mineralogy does not appear in the catalogue, being displaced by physiography, while geology was back in its old place, third term Senior, where it remained until 1890. In the catalogue of 1885-86 physiography was displaced by botany and did not reappear in the annual catalogues until 1890 and was not taught until the winter term of 1899.

With the forty-first catalogue (1890-91) came radical revision of the courses of instruction and the creation of two new courses of study. In this year the department of Biology was created and opportunity was thus given to expand the work in geological science so as to make it fairly comparable with the work in other advanced institutions. Up to 1890 it would appear that only one term of five hours per week of instruction in geology was given each year in any course or to any class of students. To this is to be added that transient and irregular attempts at mineralogy, economic geology, and physical geography. Since 1890 four terms of geological instruction have been regularly given, three of them being requirements in the Scientific Course. The four terms are Mineralogy (physical), Elementary Geology (required of Classical and Latin Scientific students), Physical Geology, and Historical Geology. Recently Physiography (including meteorology) has become a regular study for the winter term, and other special advanced courses are offered.

INSTRUCTORS

At the time of the organization the University was fortunate in having in the city and available for its teaching force a man eminent among the first generation of naturalists. Chester Dewey was better known as a botanist, but like all the early self-taught students of nature he was interested in earth studies, and numerous geological specimens in the museum still bear labels in his writing.

The first catalogue (1850-51) bears the name of Chester Dewey as Professor of Natural Sciences, and the

course of study given in the catalogue included chemistry, zoology, botany, physiology, mineralogy, and geology.

In the second catalogue the title of the department was changed to Chemistry and the Natural Sciences, and so remained until 1861, when he is given as simply Professor of Chemistry, and Henry A. Ward was the Professor of the Natural Sciences. Professor Ward's name was carried in the catalogue as Professor of the Natural Sciences from 1861 to 1875, although he was not actively connected with the work of instruction after about 1866.

During 1866-67 James Orton was Instructor in the Natural Sciences. From 1867 to 1881 the instruction in geology and other natural sciences was given by Samuel A. Lattimore, who was called to the chair of Chemistry in 1867, and from 1875 to 1881 there was no department of Natural Science.

In 1881 Edward R. Benton was made Assistant Professor of Geology and Natural History, which was the first use of the term "Geology" in the title of a department. In 1883 he was succeeded by Harrison E. Webster as full Professor of the new department, who was in turn succeeded by the writer in 1888. In 1890 most of the biological work was taken over to a new department, Biology, under Charles Wright Dodge, and in 1896 the title of the department was changed to Geology, although up to the present time one term's instruction in descriptive zoology has been retained.

Following is the list of instructors in Geology:-

- 1850-1851 -- Chester Dewey, Professor of Natural Sciences.
- 1851-1861 -- Chester Dewey, Professor of Chemistry and the Natural Sciences.
- 1861-1875 -- Henry A. Ward, Professor of the Natural Sciences.
- 1866-1867 -- James Orton, Instructor in the Natural Sciences.
(From 1867 to 1881 the instruction in Geology was given by the Professor of Chemistry, Samuel A. Lattimore.)
- 1881-1883 -- Edward R. Benton, Assistant Professor of Geology and Natural History.
- 1883-1888 -- Harrison E. Webster, Professor of Geology and Natural History.
- 1888-1896 -- Herman L. Fairchild, Professor of Geology and Natural History.
- 1896 to date -- Herman L. Fairchild, Professor of Geology.

THE GEOLOGICAL COLLECTIONS

The first catalogue of the University contains the following among its announcements:-

"MINERALOGICAL CABINET, Etc.

By the liberality of several gentlemen a valuable Cabinet of Minerals has been secured, . . ." This statement was continued until 1860. It is probably that the material referred to was the private collection of Dr. Chester Dewey who became the first Professor of Natural Sciences.

The thirteenth catalogue (1862-63) announced the purchase of the Ward Collection in Geology and Mineralogy. A part of the introductory paragraph states the facts as follows:-

"A most valuable and important addition to the educational means of the University has been recently made by the purchase of the great Cabinets of Geology and Mineralogy collected by Mr. Henry A. Ward, now Professor of the Natural Sciences in this institution. This purchase at the low price of \$20,000 has been accomplished by special subscription made by liberal friends of the University, mainly in the city of Rochester. These cabinets, now in process of transfer, will occupy ten rooms in the third story of Anderson Hall, the largest of which rooms is 58 by 33 feet . . . They were collected by Professor Ward during six years of extensive foreign travel and during many careful visits to a large number of the most fruitful American localities. Having been compiled from the first upon a plan which contemplated the most

complete illustration of every point in these two departments of inorganic nature, it is believed that these cabinets offer opportunities to students in these sciences which have not hitherto been presented in this country."

At that time the Ward Collections of Mineralogy, Geology, and Paleontology were the largest and finest geological museum in America, including about 40,000 specimens handsomely mounted and labeled. In 1863 a pamphlet was published giving the list of contributors to the purchasing fund, a description of collections, and quotations from writings of the most eminent scientific men of America in testimony to the surpassing value and size of the collections. Professor Edward Hitchcock said, "The rocks are certainly better represented here than in any other cabinet in the United States, and I doubt whether there is any one in Europe, except perhaps that of Professor Cordier in Paris, so full and satisfactory." Concerning the paleontological material he says, "I have seen no cabinet in this country equal to this." Dr. James Hall said: "I could never have conceived it possible, had I not seen it, that he could have got together such a collection. I believe I know pretty well the collections in the principal institutions of learning in this country, and no one of them has anything like such a collection as this one of Mr. Ward." Dr. John Torrey said, "Indeed no Geological Cabinet in the United States can compare in magnitude and value with this."

Unfortunately the original preeminence of the University geological museum has not been maintained, since no fund was provided for the care and increase of the collections. The abundant American material collected during the last four decades is very scantily represented in the museum. Nevertheless the collections are surpassed at present by very few in possession of universities.

In 1868 "a small but well authenticated collection of flint and bronze implements from the drift region of Abbeville and St. Acheul in France" was purchased; and a collection of rocks illustrative of the Geology of the Andes, collected personally by Professor James Orton, was secured by purchase. Many minor additions to the museum have been made from time to time, chiefly by gift, until now the space accorded the museum, the upper floor of Sibley Hall, is inadequate.

In the winter and spring of 1883 these immense collections were transferred to the fireproof building, Sibley Hall. They were not, however, systematically arranged and displayed until 1889-90, when the writer made the present disposition of the cases and classification of the material. On June 13, 1890, a public reception was held in the museum to celebrate its installation along with the new Museum of Zoology on the third floor of Sibley Hall.

In the twenty-second catalogue (1871-72) Professor Lattimore was announced as "Curator of the Cabinets" and the title was continued until 1880. In the forty-first catalogue (1890-91) the writer was entitled "Curator of the Geological Museum," which title has been continued to date.

HERMAN LEROY FAIRCHILD

Biology

The department of Biology was opened in the fall of 1890 occupying four rooms on the third floor of Anderson Hall – a general laboratory, a private laboratory of the instructor, and a workroom, the examination room being used for recitations and lectures. The department was in the charge of the Instructor in Biology. The equipment of apparatus and other appliances for teaching consisted of six compound microscopes, a small amount of glassware and chemical reagents, together with a few anatomical models already in the possession of the institution.

The first course to be given was on in human physiology to a class of forty-eight Juniors. In the winter term a course was given in practical zoology and one in histology, the latter for the benefit of the thirteen Juniors who were intending to take a course in medicine after graduation. Then of these have since become successful physicians. In the spring term the course in physiology was repeated for the Senior class, the members of which had been prevented from taking it during their Junior year. A course in systematic botany was also given.

In 1891 two courses in practical biology were added to the curriculum and the number of microscopes increased to ten. The bacteriological laboratory was equipped, but instruction was not begun until the fall term of 1893. The Instructor was made Professor of Biology in the year 1891.

In the spring of 1893 course three in practical biology was instituted.

In 1895-1896 three graduate courses were added.

In 1898 the botanical laboratory was opened and Dr. W. D. Merrell of the class of 1891 appointed Instructor. At the same time there was instituted courses in plan physiology, plant morphology, fungi and the fungous diseases of plants, and the physiological anatomy of plants, as well as two graduate courses in botany.

The department now occupies six rooms, offers nineteen laboratory and lecture courses of study, and is fairly well equipped with such apparatus as is essential for the work which it undertakes.

CHARLES WRIGHT DODGE

THE LIBRARY

FOUR PERIODS

Librarians and Assistants

The history of the University library may be divided for the purposes of this paper into four periods:

First, 1850 to 1866, sixteen years;

Professor Asahel C. Kendrick, D.D., LL. D., Librarian.

Second, 1866 to 1889, twenty-three years;

Professor Otis H. Robinson, Ph.D., Asst. Librarian 1866-68

Professor Otis H. Robinson, Ph.D., Librarian 1868-89

Third, 1889-1892, three years;

A committee of the Faculty, Professor William C. Morey, Ph.D., chairman, and

Mr. Herman K. Phinney, A.M., Assistant Librarian.

Fourth, 1892-1900, eight years;

Professor Arthur L. Baker, C.E., Ph.D., Librarian.

The second period is made to include the two years, 1866-1868, when Dr. Kendrick was nominally librarian and Professor Robinson assistant, because Dr. Kendrick took no part in the work which Professor Robinson began at that time and carried on during the following years.

The first two years, 1850 to 1852, Professor Albert H. Mixer, LL. D., was Assistant Librarian. With the exception of the two years 1866 to 1868 the assistants from 1852 to 1880 were students of the University, or of the Rochester Theological Seminary. A list of their names may be found in the General Catalogue of the University published in 1900, though the dates of service given there are not all correct. The efficient service of Mr. Herman K. Phinney, A.M., a graduate of the University of the class of 1877, who has been the assistant since 1880, deserves special mention. While not responsible for the policy of the library, nor the method of its management, he has devoted himself to its daily work for twenty years with great fidelity and marked success.

GROWTH

Gifts

From the first the growth of the library has depended largely - perhaps I should say chiefly - upon the gifts of its friends. These have come in books, in money for the immediate purchase of books, and in an endowment for the increase of the library. The writer has received from the treasurer of the University a printed pamphlet entitled: "List of contributors to the various funds of the University of Rochester from its founding to 1898." This list under the head of Library Fund is by no means complete, nor does it claim to be. Near the end the following statement appears: "There have been many contributions of books and papers to the library by the Federal and State Governments and by individuals of which there is no record in this list." The list is too long to be given in full. The following will show the gifts contained in it valued at one hundred dollars and upwards.

Estate of M.B. Anderson Books \$600.00

Peter Balen Cash 110.00
C.C. Backus " 100.00
W.H. Briggs Books 160.00
S.H. Carpenter " 125.00
S.S. Cutting " 235.00
Chester Dewey's Estate " 250.00
John H. Deane " 2400.00
Mrs. C.L. French " 100.00
D.M. Dewey " 100.00
A.C. Kendrick 1000 volumes and pamphlets
E.B. Litchfield Books 125.00
E.C. Litchfield Cash 100.00
James Lenox and Wm. Kelly Books 300.00
Manton M. Marble " 165.00
E.L. Magoon " 3100.00
Mrs. Marion Rathbone Oliver " 600.00
John V.L. Pruyn " 175.00
John F. Rathbone "Rathbone Fund" Cash 25,000.00
John F. Rathbone Cash and Books 9516.50
Lewis Rathbone " " 1575.00
Lewis Roberts Cash 100.00
Smith Sheldon Books 110.00
S.A. Sawyer Cash 100.00
 A. Lincoln Sage Books 100.00
 Hiram Sibley " 300.00
 Isaac Sherman " 200.00
 A. Trevor Cash 100.00
 U.S. Departments, Washington Books 355.50
 William Webster Map 100.00

R.A. Wright Books 300.00

H.H. Warner " 1000.00

F.R. Wells Cash 1000.00

William S. Kimball Cash 800.00

The most notable gift in this list is that made by General John F. Rathbone in 1865. It consisted of twenty-five thousand dollars in money, the annual income of which was to be appropriated to the increase of the library. From that time it has been known as the "Rathbone Library Fund." Besides this the University has no permanent fund producing income expressly for library purposes.

Purchases

An examination of the early pages of the accession list shows that the library did not begin with a worthless collection of old books, but by the purchase of standard works in language, history, literature, and science. It has never encouraged its friends to send to it the refuse from their attics. Its policy has been to fill its shelves with good books. For many years President Anderson had the oversight of the purchases. He received suggestions from members of the Faculty and directed the librarian accordingly, or made the purchases himself. In the later years of his administration the lists made by the professors were very generally ordered by the librarian without change.

During the last few years the following method has been followed. Of an appropriation for books made by the trustees the Faculty set aside a certain sum for binding, and for periodicals and other books of a general nature which belong to no special department of instruction. The remainder they apportion among the several departments. Within the limits fixed by such apportionment the librarian procures such books as the professors desire. Though the appropriations are not large the growth of the library is never unbalanced, and every professor is able to keep his department equipped with the best books.

Statistics

The library has grown slowly. No very large sums of money have ever been available for the immediate purchase of books. Professor Robinson began his work as assistant librarian May 10th, 1866. His first entry in the accession list was number 6660. A view of the growth since that time may be taken by decades as follows:

In 1866 the number was 6660.

" 1870 " " " 9560.

" 1880 " " " 17080.

" 1890 " " " 25610.

" 1900 " " " 37000.

Before 1866 the number of periodicals taken regularly by the library was very small. Blackwood's Magazine, and the four British quarterlies of that time, the North American Review, the American Journal of Science, the Baptist Missionary Magazine, and a few of minor importance comprised the whole list. From the time named, however, the number increased very rapidly. A complete list of all that are now taken -summer of 1900- would occupy too much space for this paper. The numbers in the several classes as they appear on the library register as follows:

1-General. 41

2-Language.18

3-Archaeology.	5
4-Mathematics.	7
5-Science.	23
6-History.	11
7-Philosophy.	11
Total	116

Rooms Occupied

In its small beginning the library occupied rooms on the second floor of the old university building on Buffalo Street, (now West Main). They were small but conveniently located, and served the purpose very well. As the time for removal approached, however, they became very crowded. On removal to Anderson Hall in 1861 a large room was fitted up for the library on the ground floor directly back of the front hall. The space is now occupied by two lecture rooms. It was a significant arrangement that on entering the building the library room was the easiest room to pass into. It became the general rendezvous of students before the chapel hour in the morning.

Just as this room had become so crowded that some change was necessary it was the good fortune of the library to be provided with its present ample and permanent quarters. At an expense of over one hundred thousand dollars Mr. Hiram Sibley erected on the campus the building which bears his name. It is as nearly fire proof as a building can well be made, and so well lighted that dark corners, the bane of libraries, are next to impossible. The outside walls are double, a light brick wall standing inside and a few inches distant from the heavy outside stone wall. This construction effectually prevents dampness. The building was designed expressly for the library, and will eventually all be used for library purposes. When so used it will accommodate several hundred thousand volumes. The second and third floors are now temporarily used by the departments of Geology and Natural History for lecture rooms, laboratories, and museums. The library was moved into the new building in the summer of 1877.

Readers

Before this time the use of the library by right was limited to officers and students of the University. By courtesy it was extended to the alumni of the University, to officers and students of the Rochester Theological Seminary, to clergymen and teachers resident in town, and to any persons who were pursuing special investigations, and who came properly recommended. By the terms of Mr. Sibley's gift it became a free reading library to the general public from the time it was moved into the new building. The use of it by the public has increased from year to year since that time.

ADMINISTRATION - FIRST PERIOD 1850-1866

Care of the library

During the first period of its history, as given above, the library was conducted chiefly by student assistants. According to the recollection of several of these, whom the writer has been able to consult, they did their work under the general direction of the President of the University. No one acquired much experience; for no one was fit for the work till he had gone through most of his course of study, and was consequently soon to graduate and leave. The work changed hands every year or two.

First catalogue

The only work in which, so far as can be learned, the librarian's hand distinctly appears was the preparation of the first catalogue. This was made under his direction - partly by his own hands. It was in the crude form of author and title slips pasted in alphabetical order on the leaves of huge folio volumes of cheap brown paper. Spaces were left for new slips, preserving the order. This form of catalogue was then in use even in some large libraries. That it proved to be

unsatisfactory here is shown by the fact that it was soon discontinued. Even what was written was so inconvenient that it was little used.

Accessions List

In the year 1857-58 Mr. Daniel Bowen, then assistant librarian, made a list of the books in the order of the numbers entered on their labels. This was the beginning of the list of accessions which is still continued in the same form.

Library hours and methods

The library hours differed at different times; but the rule was to keep it open an or two every day, with an extra hour or two on Saturdays. Readers went to the shelves and selected their own books. The chief work of the assistants was to enter new books on the accessions list, and to keep a record of books taken from the library, and see that they were returned in proper time. With student assistants, changing every year or two, there was wanting that care which comes from a feeling of permanent responsibility. If the assistant wished to be away a few days he procured another student as a substitute, or left the library in the care of the janitor. The administration was in many respects very unsystematic; but it must be remembered that the library was small, and besides it had no fund for its enlargement and care.

ADMINISTRATION - SECOND PERIOD 1866-1889

Who did the work

During the second period, 1866-1889 the librarian, (nominally assistant the first two years,) was actively engaged every day during term time, and much of the time during vacations. The first four or five years he did all the work himself. From 1870 to 1880 he had a student assistant one hour a day, and two extra hours on Saturdays. From 1880 he had the continuous assistance of Mr. Phinney with more hours - the number of hours differing as occasion demanded. In vacations he had such assistance as the work in hand required.

Improvements undertaken

Except that it was more regular the work went on for the first year or two according to the previous method, or lack of method. But as the administration, and most of the actual work, now continued in the same hands year after year it was natural and easy to adopt better methods, and to take up certain much needed general work. It was important too because the Rathbone Library Fund now began to furnish the means for a more rapid growth. The library was fast becoming the most important element in the University equipment; its administration should be such as to develop the greatest usefulness. Besides the general care of the books, and regular attention to the wants of readers, there was needed: (a) classification and arrangement; (b) a catalogue; (c) indexes; (d) instruction to student readers. These improvements will be described in the order in which they were made by the librarian.

The Catalogue

No one now thought of making a new catalogue in the form of the old folio volumes described above; but if not that, the question was, What? Of printed catalogues there were many forms in use, and many objections to them all. They were very expensive; and there was no good practical way of keeping them up to date. The objections prevailed. However convenient it might be to readers a printed catalogue in book form was out of the question.

The manuscript card catalogue had been introduced a few years before that time. It was not in general use and not well known. Many objections were raised to that also. "It presents to the eye only one title at a time." "Time and patience are lost in turning over the cards." "It cannot be carried about, but must be used at the library." "Only one person can consult a given part of it at a time." "The cards will get misplaced." Would it pay to make and keep up a catalogue subject to such objections? The librarian urged that something be done. He had studied the subject and recommended cards. After much deliberation he was authorized to go ahead. Employing students as assistants he made the catalogue complete in the summer vacation of 1870. The library then numbered 9560 volumes. No one has regretted that the card form was adopted. Indeed it seems strange to-day that there should have been any hesitation about it; for since that time it has become almost the universal method of cataloguing. Its introduction has been facilitated by some improvements,

and by the publication of elaborate articles setting forth its merits. There had been many contrivances, some of them very clumsy, to prevent the unauthorized removal of the cards. Our library has the credit of contributing to the improvements by the method of running a wire loosely through them near the bottom. [When the librarian first put the wire through the cards he supposed the device was new. In 1876 he learned from the Government Report on Libraries that a Paris librarian had tried it and abandoned it because, as stated, the wire "Prevents the cards turning readily." Too large wire, or too small holes!] This device, published by the librarian in various ways, has been very generally adopted.

The general form of the catalogue being settled, the next step was to determine what should be the contents of the cards. It was believed that a catalogue made for the use of students inexperienced in the use of libraries should be made so simple as to require very little explanation. Whatever might be said in favor of a systematic, or classed catalogue it would not do here. It should be made so that it would be enough to say to a student who had never consulted a catalogue, "Look for what you want under its own name, as you would in a dictionary." Following this principle cards were written for the author and the subject of a book as shown on its title page. Extra cards were sometimes written for subjects treated which did not appear in the title. The cards were then arranged alphabetically in one collection. Though in some respects incomplete they formed what is called a dictionary catalogue.

A few years afterwards the titles were copied on better cardboard, with slight changes to suit the changes in the classification of the books. New cards were regularly added for new books; but no fundamental change was made in the method during this period.

Indexes

After the catalogue was completed the work of indexing was taken up. There was a growing tendency on the part of good writers to publish the latest investigations and the latest opinions in the form of brief monographs. The shelves of the library were filling up with this most valuable matter in the volumes of periodical, and other miscellaneous literature. Their titles gave little or no hint of their contents. The librarian remembered his own experience as a student ten years before thumbing the indexes of such volumes one by one. The only comprehensive index to periodical literature at that time was that published by Mr. William F. Poole in 1853. There was no general index to the volumes of miscellanies.

Before beginning the work the librarian wrote to about twenty of the leading libraries of the country to learn whether any one was preparing the desired indexes for publication. The answers to these letters are now before the writer. At the distance of twenty-seven years they form interesting reading. All felt the great need of such a work; but no one was preparing it. A few were writing cards for the most valuable articles and inserting them in their catalogues of books. Mr. Justin Winsor of the Boston Public Library wrote: "In reply as to what we do for an index to periodicals since Poole's I beg leave to say we only mourn." Mr. Poole said that he hoped at some period hereafter to issue a supplement to his index; but he was too busy to do it then. Mr. VanName of the Yale College library wrote: "We make no attempt to keep an index of the current periodical literature. . . . I know of no work that supplies the want."

Finding that nothing was to be expected from others the librarian with student assistants, in the summer vacation of 1873, indexed the leading sets of periodicals in the library from 1853, the date of the Poole's index, down to date. The next summer a similar work was done with the most valuable volumes of miscellaneous matter not periodical. These indexes attracted much attention, as no library was known to be doing at that time such a work of complete and regular indexing.

The indexes were made at first in book form, but afterwards copied into volumes so made as to be capable of enlargement at pleasure. [This form devised by the librarian is described in the Government Report on Libraries published in 1876.] They were continued by the addition every summer vacation of matter contained in the new books till the Library Association began the work of indexing. Under its patronage a new edition of Poole's Index to Periodical Literature, edited by Mr. Poole himself, was published in 1882. It was followed not long after by the Library Association Index to General Literature, edited by Mr. William I. Fletcher. As the association contemplated continuing this work by the publication of supplements from year to year there was no longer need of continuing it at local expense and labor.

Classification

When the catalogue was made there was no attempt to make a thorough scientific classification of the library. It was still small. It had grown very slowly; and as it grew it had been roughly divided into a few general classes. This rough classification was revised and the classes numbered. The numbers were written in the books and on their respective cards. The classes were in no way subdivided, nor was there any definite arrangement of the books in a class. The whole subject of classification and arrangement was reserved for a future study.

When the time came for removal to the new building it became important to take up this subject. The library was larger and growing more rapidly. There would now be room to carry out any desired plan. But what plan or system should be adopted? The librarian believed that in so difficult a matter it would be wise to consult up-to-date specialists, who were making library administration the work of their lives. What he wanted was not the best theoretical classification and arrangement of human knowledge as contained in books, but a practical working plan, adapted to the needs of college men - one that would be for them the most simple and useful educational apparatus. He visited some of the best libraries and wrote to others. What he learned was that, though all had substantially the same thing to do, there was no agreement in the mode of doing it. Some had hobbies; others were wiser and less certain of perfection. He visited Amherst College, where Mr. Dewey, with his characteristic enthusiasm, was just introducing his new decimal system. After a careful study of it his judgment was that it was not suitable for a college library. [The writer learns from the present librarian of Amherst College that, though the Dewey system has not been formally abandoned there, they "have gradually worked away from it."] At Harvard College Library, which had an elaborate, systematic classification, the first assistant said emphatically, "Don't make it like this." It was very complete but for the average student very unpractical.

Out of all these consultations the librarian got no help except as he was helped by learning what not to do. He concluded to follow substantially the principle which he had himself previously written out with care and published [See Government Report on Libraries, page 509.] - that the classification of a college library should follow in general the division among the professors of the subjects in a complete curriculum. Of course such general books as cyclopedias, dictionaries, government reports, general periodicals, etc., would have to be classified apart from the scheme. This plan seemed to have many advantages and few disadvantages. A discussion of it would be beyond the scope of this paper.

The fact that the rough classification which already existed had in a very general way grown on this plan was at the same time an evidence of its merits, and a relief in the work of reconstruction. It should be stated, however, that, to the librarian's regret, the new classification was made to follow the old a little too closely. Considerations of time and expense prevented a complete and thorough overhauling in this respect. The librarian subsequently made a few changes, and had in mind others which he was unable to make. Besides, the plan contemplated the addition of certain minor details as the growth of the library should make them necessary.

For the sub-classes, which determined the arrangement of the books, a modified form of the method used by Mr. J. Schwartz of the Apprentices' Library of New York was adopted. The books of a class were separated into four divisions according to their heights as measured. Each division was then arranged in the order of the authors, alphabetically.

Instruction to Students

To make the library most useful to students the librarian was accustomed to give them regular instruction in the mode of using it. He showed them how to carry on an investigation - reading a few paragraphs in one place, a few pages in another, and a few volumes in still another, till they made the library yield up all it contained on the subject in hand. He showed them how to find their own books. He made this work an occasional class exercise, sometimes in the lecture room, and sometimes in the library, where he explained the use of the catalogue and the indexes and even the encyclopedias and the tables of contents of the books. He had not worked long before he found that even these minute details were important. He did every thing he could so to remove obstacles as to make the use of the library easy, pleasant and profitable, and to make the students intelligent readers early in their course. It was the work in a very limited way of a professor of books and reading. The librarian believed in this work; and nothing that he did during those years was more highly appreciated, or apparently more beneficial to students.

In this work several of the professors took a part. Saturday was specially set apart for it, when they came in to help students in their several departments. They kept lists of topics on the tables with references to books. These were a great help. It was very gratifying to see the intelligent activity of a large percentage of the students which resulted from this

work. [On this subject see the librarian's paper read at the Washington meeting of the Library Association, February 1881, and published in the Library Journal, Vol. VI. p. 97.]

Access to the Shelves

As the library became larger it became necessary to set some check upon the practice which had prevailed of allowing all readers to go to the shelves at their pleasure. A middle course was taken between the general practice of colleges of excluding students altogether, and the other extreme known as the open shelf. Professors went to the shelves of course; and they took students with them. Otherwise students were excluded except on Saturdays. Permission was given to them to go, however, on request, for good reasons. Saturday was a free-for-all day - made so for the purpose of giving the students an opportunity to learn how to use a library. The instruction which has just been mentioned was followed up by work with students one by one, or in small groups. The theory was that several professors would always be present, who, together with the librarian and his assistant, could keep a close watch over the habits of students and prevent abuses. This Saturday privilege was naturally regarded as dangerous to the welfare of the library. It was charged that it would lead to the mutilation and loss of books. But the president and the librarian believed that it would be regulated, and that it was conducive to the highest efficiency of the library; and they contended for it privately and publicly. [See Government Report on Libraries, p. 516; and Proceedings of the University Convocation 1876, p.116.]

It may be added right here that the library continued to be managed on similar liberal principles nearly down to the present time. A short time ago a careful comparison was made of the books with the accessions list; and, allowance being made for deficiencies which could be accounted for, it was found that less than eight volumes per year had disappeared. When it is remembered that in the early years everybody went to the shelves at all times without restraint, and that even the key to the door was often lent by the assistants, the number of books lost seems surprisingly small.

Library Movement of 1876

The history of the library during this period would not be complete without making mention of the general library movement of 1876. Three events marked that year as the beginning of a new era in library administration - (1) the publication of the Government Report on Libraries in the United States; (2) the formation of the American Library Association; (3) the beginning of the publication of the American Library Journal. The first gave the librarians all sorts of information about the libraries of the country; and it introduced them to each other at least by publishing their names and addresses. The second brought them face to face, and created an enthusiasm in library work which had not before existed. The third operated to keep them in touch with each other. More than 1500 librarians were now for the first time able easily to exchange ideas on their work. Nor has it been an empty privilege. It has been said that the librarians, when together in association, form one of the liveliest bodies of specialists in the country.

Since the beginning of this movement in 1876 improvements have been made in every direction. Courses of instruction are now given preparatory to the work of a librarian, giving it a tendency toward the rank of a profession. Under the study and discussion which the association, the journal, and the schools are giving to them, antiquated methods and clumsy devices are passing away. There is a tendency towards uniformity in library administration. Librarians of the same class, working practically under the same conditions, and having the same end in view, are beginning to know each other and to adopt the same methods. Unquestionably the successful librarian of the future will have to be in close touch with the best librarians; and he will have to be thoroughly informed as to the fundamental principles of his work, the methods pursued, and the devices used.

It is fair to add that this library took an active part in the movement of 1876. The librarian contributed three articles to the Government Report; he was among those who organized the Library Association at Philadelphia; and he was a contributor to the early numbers of the Journal.

ADMINISTRATION - THIRD PERIOD 1889-1892

The third period was marked by no special change in method. The Faculty Committee began by furnishing the reading area of the large library room with more and better furniture, making it much more convenient and attractive. They had plans for other changes which were never made. For the greater part of the time the library was left to the sole care of Mr. Phinney, whose management did not differ essentially from that of the preceding years.

ADMINISTRATION - FOURTH PERIOD 1892-1900

Public Documents

This period began when Professor Baker became librarian and was terminated by his resignation. Before this time the library had been made a public depository for government publication, but little attention had been given to them. No regular account had been kept, and it was never certain whether the library was receiving them all or not. The new librarian corrected this. Through his efforts the library came to receive them regularly.

He went further and effected an arrangement with the Rochester Academy of Science by which the library became the depository of its library.

Cataloguing - Dewey System

In January 1893 the librarian began, at his own instance, the work of re-cataloguing the library, and changing its classification from what had been described to the decimal system to which allusion has been made. Its author, Mr. Dewey, had made some improvements in it since it was first introduced in the Amherst Library; and it had been adopted by a considerable number of other libraries. We shall not undertake to describe it here further than to say that it divides the library by subjects into ten general classes; that each class is then divided by subjects into ten sub-classes; and that each of the hundred sub-classes is again divided by subjects into ten divisions, making a thousand in all. The books of each division are arranged alphabetically by authors and labelled in a way to mark their places.

After the above date all new books were classified and catalogued on this plan; and the work of changing the old books was carried on as the library force available for such work permitted. Student labor was largely employed. The librarian so organized it by an elaborate system of signs and symbols that unskilled students were able to take up the merely clerical labor of writing cards at the point where the skilled labor of the library corps was no longer needed. This enabled one skilled cataloguer to keep a dozen unskilled clerks busy.

When Professor Baker resigned, early in the year 1900, somewhat less than half of the old books had been recatalogued. That work was very soon discontinued, and also the cataloguing of new books on the Dewey plan. It is now uncertain whether it will be taken up again or not.

Indexing

It has been stated that the work of indexing, which formed so important a feature of Professor Robinson's administration, was discontinued when the American Library Association took up the work of publishing indexes. Professor Baker revived it by introducing a plan of cataloguing the contents of all books of a miscellaneous nature, not periodicals, as they were received into the library. This was done on the Dewey plan in such a manner that a single card or group of cards in succession, would show all the material (as catalogued) in the library on a given subject. This work had extended to several hundred volumes when the work of recataloguing was discontinued, as stated above. It was Professor Baker's plan in time to include in this scheme articles in periodicals as well as in other miscellanies.

Access to Shelves

The privilege which has been mentioned of going to the shelves on Saturdays, and by request for good reason on other days, was one which had to be looked after very carefully by the librarian. The tendency was first to regard every occasion as one worthy of special privilege, and then so far to presume upon the good nature of the librarian as to omit the request. The rule might have been easily enforced, but as a matter of fact the tendency toward license prevailed more and more from year to year. When Professor Baker became librarian he found the shelves practically open all the time. He corrected that state of things after a few years, not by going back to the old rule, but by adopting the principle of strict exclusion of all.

Library a Study Room

In the year 1890-91 a great change was made in the curriculum of the University, which involved a change in the hours of lectures and recitations. Before that time the work was so arranged that the classes did all of their class-room work of a day in consecutive hours. They went for lectures or recitations directly from one room to another, with no intervals between the several exercises. At 12:30 this work was all done; and students were not required to remain, or to return after that hour to the University. After the change class-room work was begun at about 8 o'clock in the morning, and continued, with a short interval in the middle of the day, till 4:30 in the afternoon. The library room was made a waiting room and place for study as occasion required. This laid upon the librarian and his assistants the duty of caring for a room full of students much of the time. The number of library hours was increased so that it was practically open from morning till night. Mr. Phinney, with his large experience, continued to be the efficient man of all work. In 1898 a second assistant, Mrs. Rich, was employed, her special work being to keep the registry of the circulation, and the accessions list of the periodicals, and to attend to the binding. The main library room was fitted up with electric lights; and drugget was laid upon its floor. All together its daily appearance now became that of greater activity than every before.

Books removed to Professors Rooms

It is worthy of mention that during the last few years there has grown up a practice of removing a considerable number of books from the library to rooms suitable for study connected with the several departments of instruction. They are kept for the periods required under the supervision of the professors, and used as directed by them. Besides being useful in the regular curriculum work, these books, carefully selected for the purpose, greatly facilitate the pursuit of special courses of study. This practice, which began somewhat informally, bids fair to become a permanent feature in the use of the library.

OTIS HALL ROBINSON