

Indiana, which must have been a significant part of the original collections surely constituted most of the other 350 fossils that were saved. Twenty-two specimens were eventually returned to Indiana University from Washington, of which 12 are currently repositied in the departmental type collection. About 110 specimens still remain in the U. S. National Museum collections. What happened to the remainder of the 349 specimens is not clear.

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The Mystery of the Missing Megalonyx

It is quite clear that the giant ground sloth skeleton, Megalonyx, survived the fire, although what eventually became of this large and important fossil is a mystery today.

In the 1887-88 annual bulletin a section on the Museum states that the Museum is now on the second floor of newly constructed Owen Hall. Collections include 1500 minerals as well as many more deposited by Professor Branner. Fossils number several thousand, including the finest specimen of Megalonyx Jeffersoni. Recent donations of fossils and minerals are also listed, including a "tapir bone from a cleft of rock" by Capt. Perry of Ellettsville.

The University archives contain an invoice from Ward's Natural Science Establishment in Rochester, New York, dated October 10, 1901 for \$201.94. This is for mounting the skeleton of Megalonyx, a case for the fossil, and freight charges. So, the specimen was complete and intact at the turn of the century. There is also a hand-written memorandum that seems to be a press

release titled "Additions to Museum". The document says, in part, "In 1883 fire destroyed the building that contained the university museum and efforts were made at once by Dr. David Starr Jordan to secure another collection. . . Another valuable addition is the bones of a megalonyx, a mammal belonging to the edentata, a group which no longer have representatives in the temperate regions of America. The bones were found near Henderson, Kentucky, and were originally a part of the Owen collection. At a recent meeting the Trustees ordered the bones to be mounted. Dr. Eigenmann decided upon a unique plan for mounting. Instead of having the missing parts "restored" by plaster casts the bones are mounted in the relative position they would occupy in the skeleton, the missing parts being supplied by the imagination. A third addition is the bones of a mastodon found on a sandbar in the Ohio River at very low water. These were presented to the museum by Karl Kramer, of Rockport, a graduate with the class of 1901." This release is undated but it may be close in age to the Ward's invoice. At any rate, it also clearly demonstrates that the Megalonyx specimen survived the fire.

By 1901 there was not a single museum room at the University. Instead, several departments each had a its own small museum. Presumably the giant ground sloth was possessed by the zoology department, given Eigenmann's role in having the specimen mounted.

The specimen was clearly extant and mounted as Eigenmann had

wanted, because Oliver P. Hay saw the specimen in 1912 or shortly before that, when he published his paper on Pleistocene vertebrates in the reports of the Indiana Geological Survey.

In correspondence between Cumings and Bryan it seems that a museum was intact as late as 1937, but that with increasing pressure for space as enrollment increased, especially at the close of World War II, many large specimens apparently were stored away so that some small museums failed to survive.

If the specimen were in charge of the Department of Geology it may have been destroyed shortly after Charles Deiss became chair in 1945. There apparently was a great "housecleaning" of poorly attributed specimens at that time. There are reports that a dump truck was backed up to a second story window of Owen Hall and students tossed unwanted specimens out the window.

In 1947 the anthropology department had on display in a Franklin Hall window display case five bones of the sloth. The specimens may have been saved from a trash heap, perhaps one caused by Deiss' cleaning out of Owen Hall, by Professor G. K. Neumann of the anthropology department. Another story is that there was a fire in a storage building and Neumann rescued the specimens from the ruins of that fire. Presumably the remainder of the skeleton was destroyed either in the fire or in the cleaning out of Owen. I cannot attest to the truth of either one of these stories. When the anthropology department moved, the remaining five bones were boxed up and stored in the basement of the Student Building, where the University Museum was situated.

When Mather Museum opened the specimens were not wanted and were given to the Indiana State Museum, where they now reside. What happened to the other 60 odd bones is not known. Whether zoology or geology had custody of the sloth is not known.

And there the story ends, with the mystery unsolved.

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Upon Jordan's return from Europe he immediately began trying to replace some of the destroyed museum collections. He was especially concerned about the fish collections, his specialty. He also was instrumental in obtaining a collection of stuffed birds that had been labelled by President Theodore Roosevelt.

The Board of Trustees realized that the small site at the south end of College Avenue (Seminary Square) would ultimately become too small and unsuitable as a campus. Jordan negotiated purchase of the present campus location on what was then the Dunn farm on the east edge of town. The initial site was 20 acres in extent and Theophilus Wylie thought the purchase was a mistake and too costly. He would have preferred the funds to be used to strengthen the library and scientific apparatus. The Trustees also obtained permission and funds to build three new buildings-- Owen, Wylie, and Maxwell halls. Owen and Wylie halls were completed in 1884 and Maxwell (later Mitchell) was constructed the next year. The geology laboratory was in Owen Hall, along with zoology and botany.

The University Bulletin for 1884 also reflects the University's growing commitment to research. For the first time a list of papers published by faculty and students during the past year was printed in the bulletin. All papers are scientific in nature, no social sciences, languages, arts, or humanities papers are listed. David Starr Jordan, either alone or with co-authors, has 49 papers listed. A senior science major, Benjamin F. Adams Jr., from Bloomington, had two chemical analyses of oolitic limestone published in the Report of the Indiana Geological Survey for 1881. This is apparently the first published report of a geological nature by an IU student. Adams graduated from IU in 1883 with a Bachelor of Arts degree. In the next year's annual report and bulletin, Adams is listed as a student in chemistry, presumably a graduate student. It was about this time that students were allowed to "specialize" in specific subjects.

Another student much influenced by Jordan was Willis S. Blatchley, who is listed as publishing a paper on local plants as a sophomore. Blatchley, from Bainbridge in Putnam County, was later to become an important botanist, geologist, and State Geologist in Indiana. During his junior year Blatchley is listed as a major in biology and geology. He published two papers in the Proceedings of the Philadelphia Academy of Sciences on the genera Umbra and Pemephales. He graduated from IU in 1887, with a degree in biology. He did a senior thesis on the flora of Monroe County and stayed on as a graduate student in biology, completing a Masters thesis on the butterflies of Indiana. Blatchley later

became State Geologist of Indiana in 1894 and held this post until 1910. He was responsible for some of the most important economic and scientific papers published on Indiana, not only in geology but also in biology. The geological survey reports included such non-geological research as reports on crawfishes, birds, modern mollusks, flowering plants, orthoptera, insect galls, mushrooms, arachnids, modern mammals, and beetles.

It was during this same time interval, 1883 to 1885, when significant changes in graduation requirements and course offerings occurred. Required courses were restricted to the freshman and sophomore years and more advanced courses in a variety of subjects with possibilities of choices become available. Thus elective subjects became firmly established under Jordan's influence. The idea of a student "majoring" in a specific subject--initially called "specializing"--was introduced.

By 1885 the Department of Natural Sciences had been abolished, and was replaced by a Department of Biology, which for one year included zoology, botany, and geology. This inappropriate placement of geology was rectified the following year, 1886, when a Department of Geology was established. In April, 1885, the Board of Trustees voted to establish a separate chair of Botany and Geology.

By the next year, in 1886, the University had hired John Caspar Branner, to fill the newly created chair of Botany and Geology and a separate Department of Geology had been created.

The decade from 1880 to 1890 saw formation of many of the departments currently recognized in the University. This, along with earlier establishment of elective choices of courses, was part of Jordan's effort to relax the rigidity of earlier course requirements and to afford advanced students the opportunity to pursue independent study. President Jordan was a strong proponent of these changes.

John Branner was from Tennessee and did his undergraduate work at Cornell, where he became friends with Jordan. As an undergraduate he spent several years in Brazil as a geological assistant, thus delaying his graduation until 1883. Branner returned to South America several times, both in the role of a geologist and as a botanist. He was 45 years old and on the staff of the Pennsylvania Geological Survey in 1885 when Jordan brought him to Indiana. During his first year in Bloomington Branner was awarded a Doctor of Philosophy degree by IU. Despite his primary research in geology, his PhD dissertation was on the "Fibre-vascular bundles of Palms". Two years later, in 1887, Branner taught 70 students and gave 15 hours of lectures a week in botany and geology. He possessed great vigor and talent (Melhorr, 1967).

In 1885 Branner taught dynamical and structural geology to sophomores (5 students), special courses in advanced geology to juniors all three terms (5 students). In addition he taught courses in botany, entomology and Portuguese and is cited as having published 10 scientific papers. He is listed as an instructor in botany as well as geology.

At this time the geological laboratory is on the second floor of Owen Hall, convenient to the Museum. Large collections of geological maps and diagrams are mentioned, as are transits, levels, telemeter rods, protractors, notebooks, drafting tables and drafting paper. The lecture room has large mounted photographs of geological subjects. There is also a photographic laboratory for production of both positives and negatives used to illustrate geological lectures and the geology of regions studied in classes.

In addition, there is a summer school of geology and topography, which is mentioned only briefly.

In 1887 Branner was appointed State Geologist of Arkansas and was given a two-year leave of absence by IU, which was later renewed for an additional two years. He never did return to full-time teaching at IU, because he was hired by Jordan to come to Stanford University before the second two-year leave had expired. In 1887 two new courses were introduced--elementary and advanced topographical geology, but these apparently were not taught on campus. The arrangement seems to have been that Jordan would take over teaching of the introductory geology courses in Branner's absence. The advanced geology courses, including the new topographical courses, would be taught by Branner in Arkansas with IU students serving as assistants on the Arkansas Geological Survey. According to Cumings (Melhorn, 1967) Branner's "common practice was to have his graduate students cut their teeth in the Paleozoic backwoods of rural Arkansas where Branner almost

literally kicked them off the train, forcing them to do geologic mapping on their own with little or no assistance from their mentor. It is not surprising that in view of this Spartan introduction to field geology their studies . . . in later years were so thorough and accurate."

This was a time when topographical maps were being beginning to be produced by the Federal Government, especially the mapping department of the United States Geological Survey. This work was done using plane table and alidade, so there was a need to train young geologists in these surveying methods.

The bulletin for 1886-1887 for the first time lists students specializing in geology. The very first graduate in geology was not an undergraduate but rather a graduate student, David R. Moore, from Logan, Ohio, who had an A.B. from Miami University. He did an M.A. thesis on Silurian fossils of Franklin County, Indiana and received his degree in 1886. A resident graduate student in geology is also listed, John Franklin Thompson, from Richmond, Indiana who held a B.S. degree from Hillsdale College. There is no record of Thompson completing an advanced degree.

The only undergraduate geology major listed is Ernest Percy Bicknell, from Bicknell, Knox County, Indiana. He is listed as a senior and as a junior was listed in biology and geology. When he graduated in 1887 his senior thesis was a review of the genus Semotilus, so he apparently reverted to biology.

No other geology majors are given in the bulletins until 1888 when Richard Ellsworth Call, from Des Moines, Iowa, is

listed as a junior geology major. Mrs. Armina H. Mitchell of Bloomington is listed as a special, non-degree, student in geology.

Jordan was assisted for one year, 1889-1890, by Louis Rettger. Rettger was a graduate student in zoology and assisted in mineralogy and histology.

The 1889-90 bulletin lists five geology majors as sophomores. They are Claude E. Siebenthal from Vevay, Harry Landes from Carroll, Edward Martin Kindle from Trafalgar, John F. Newsom from Elizabethtown, and Elmer John Todd. Todd and Siebenthal did not receive A.B. degrees from IU, although the latter later received advanced degrees from Stanford. Siebenthal, Kindle, and Newsom later all made important contributions to Indiana geology (see below).

In 1890 a momentous event that affected not only geology but the entire University occurred. Leland Stanford came visiting Bloomington in his private railroad car. Stanford was set upon creating a new, important university in California bearing the name of his son, Leland Stanford Jr. He interviewed Jordan and offered him the first presidency of what was to become Stanford University. Jordan accepted, and by the next year he had hired away from Indiana seven of its top faculty members, including John Caspar Branner. In addition three other top faculty left for other universities during the next two years. Taken together this was a devastating blow to a faculty of 27, to lose more than one-third of their strength at once, and to lose their most able

scholars. Jordan could offer the excitement of starting a new university from the ground up, and very importantly, he offered conspicuously better salaries than did IU. For instance, Branner received an offer of \$5000 per year from Stanford, whereas IU was paying him \$1500 a year as professor in addition to \$200 a year as curator of the museum. Apparently no effort was made by IU to provide counter offers of money. Branner later became the Vice-President of Stanford and was the second president of Stanford University, succeeding Jordan, from 1913 to 1915. Branner produced Stanford's first geology graduate, Herbert Hoover, who was a geologist, not a mining engineer as is so often claimed. Hoover was perhaps the most universally known, respected, and financially successful geologist of all time (Melhorn, 1967).

Of much less significance to IU but of considerable importance to the newly formed Department of Geology was the graduation of the first undergraduate departmental major in geology in 1890, Richard Ellsworth Call. In the next year John Newsom is listed as a senior and a new senior, John H. Means of Moorefield is listed. Means' name does not appear in earlier bulletins and it seems likely that he was a transfer student or changed majors. Siebenthal and Landes are juniors and Kindle is not listed. Kindle presumably dropped out for a year because he reappears the next year and graduated a year behind Newsom. Newsom graduated in 1892 and Kindle received his A.B. degree in 1893.

In a 1977 Department of Geology newsletter containing a list of all IU graduates in geology, Kindle is listed as the first graduate but that is clearly incorrect. The newsletter list has the next graduates in 1898 as Lee Fent Bennett and Charles G. Daily. This also is incorrect, as Newsom, Landes, and Mears are omitted as well. The first female geology major at IU was Emma Leberta Wilson, who graduated in 1899. For a complete listing of all IU geology graduates see Appendix B.

Call continued on at IU as a graduate student and did field work with Branner in Arkansas. He received an M.A. degree in 1890 on the geology of Crowley's Ridge in Arkansas. Call also published a catalog of the fresh-water mollusks of Indiana.

Claude Siebenthal did not receive a degree from IU. As an undergraduate he taught geology classes in the transition year after Branner left and before Vernon Marsters was employed. He was an assistant geologist on the Indiana Geological Survey from 1896 to 1899. He published, with T. C. Hopkins, in 1897 a major report on the "Bedford Oolitic limestone", the premier building stone in the United States. He also published a paper on the Silver Creek hydraulic limestone (1901). Both of these reports were published by the Indiana Geological Survey. He went to Stanford University, following Branner and Jordan, and received a PhD degree from that institution, and later was with the U.S. Geological Survey.

Edward Kindle was one of the foremost alumni of the department. He graduated from IU in 1893, during Marsters' first

year, was an instructor for one year, and an assistant geologist with the Indiana Geological Survey for three years, until 1901. Kindle published extensively on Indiana stratigraphy and paleontology, especially in the reports of the Indiana Geological Survey. He published a catalog of Indiana fossils, a report on the Silurian rocks of northern Indiana, with V. M. Barnett on the Waldron Shale, and on the whetstone and grindstone rocks of Indiana. Kindle later had a distinguished career as a paleontologist with the U. S. Geological Survey and with the Canadian Geological Survey.

John Newsom graduated in geology at IU and received his PhD from Stanford University. He published numerous papers on various aspects of southern Indiana geology, especially in the *Journal of Geology* and in the *Indiana Academy of Science Proceedings*. He did research on the Knobstone rocks, on peneplanation, on drainage systems, and on the natural gas explosion at Waldron, Indiana. As a result of the summer field classes he published a geologic and topographic cross section, from Hanover to Vincennes, in the *Journal of Geology* in 1898 and in the *Indiana Geological Survey reports* in 1903. He eventually became a professor of geology at Stanford.

Two other geologists need to be mentioned briefly. T. C. Hopkins was trained by Branner at Stanford. He published 14 papers on Indiana geology between 1896 and 1904. G. H. Ashley also studied with Branner at Stanford and became one of the leading coal geologists in the United States, publishing 12

papers on coals or related rocks in Indiana from 1898 to 1910.

#### Vernon Marsters as Chair

Upon the departure of Jordan and Branner, the University, after some negotiations, elected Vernon Marsters as Associate Professor of Geology. He did not arrive until the year after Branner left, in 1892. The geology courses were taught in 1891 by Claude Siebenthal, while he was a junior geology major. Marsters was a Canadian. He did his undergraduate work at Acadia College in Nova Scotia and was a graduate student, then an instructor, at Cornell from 1888-1891, coming to Indiana in 1892. Marsters had commitments at Cornell and initially tried to negotiate splitting the first academic year between the two institutions. This was eventually rejected by Cornell and so Marsters came to IU. He had not completed any graduate degree at Cornell and came to IU with a bachelors degree from Acadia. He was joined that first year by Edward Kindle, a recent graduate of IU in geology, as an instructor. Kindle had been an assistant on the Arkansas Geological Survey with Branner prior to that. While a student and instructor at IU he published one paper with Marsters on the geological literature of Indiana, one on a South American catfish, presumably under influence of Jordan's legatees, two short papers on local geology and a list of birds in Brown County. All of these were in 1893 and 1894.

Marsters immediately changed the entire schedule of geology courses upon his arrival. Topographical geology is no longer taught and the introductory course, Geology I, consisted of

mineralogy and crystallography and Geology II was blowpipe analysis. The old elementary subjects of dynamical and structural geology became Geology III and an advanced course in mineralogy and petrography was introduced. This arrangement only lasted one year. By Marster's second year Geology I had reverted to dynamical and structural geology. Only one undergraduate major is listed, Edward F. Smith of Vevay, in 1892 but he later transferred to chemistry. Claude Siebenthal is listed as a graduate student.

Kindle was replaced as an instructor by John Flesher Newsom in 1894. John Newsom's arrival at IU signaled a return to the emphasis on field studies that was initiated by Jordan and Branner. He began what was called the Indiana University Geological Survey (not to be confused with the Indiana Geological Survey, a State agency). This was essentially a summer field course in geology, with different emphasis on techniques and problems. One summer the students mapped a swath across southern Indiana that was 6 miles wide and 84 miles long. Another summer's work was reported in the Arbutus yearbook for 1897 as follows:

The Geological Survey during the last summer worked upon the Knobstone group of this State. In this group are found the Knobs of Floyd, Clark, Scott, Washington and Jackson counties and the hills of Bartholomew, Brown, Johnson and Morgan counties. The formation extends from the Ohio river on the south, north about one hundred and forty miles.

The members of the survey were: A.C. Veatch, L.H. Jones, L.F. Bennett, F.R. Mitchell, J.A. Price, with Prof. J.F. Newson as Director.

The work of the survey was to run the line of parting at the base and at the top of the formation; to run lines of levels to determine the dip of the rocks; to run profile sections across the formation in order to fully determine its geology; and to map the eastern face of the knobs.

Work was begun near New Albany, June 30, but because of the excessive heat little was done during the first few days. Immediately after starting the members were divided into groups of two each. A few days later each one went for himself. One worked on the eastern part of the formation, and the others on the western and northern limits.

The summer was full of never-to-be-forgotten experiences. The Fourth of July was spent in Wyandotte Cave. The party left New Albany by boat on the 3rd, reaching Leavenworth, six miles from the cave three o'clock in the morning. It was too late to get beds, so all agreed to walk part way to the cave and then sleep wherever a place could be found, until morning. This was done. After walking what seemed to them several miles they found a beech tree by the roadside. Here each one made for himself a bed of the stones and sticks in the vicinity and there slept until daylight. A passer-by in the early morning halted and viewed the crowd with greatest astonishment, no doubt thinking he had found a party of genuine tramps.

When the cave was reached all were nearly tired out, hot and hungry, and ready to testify that was the longest six miles on the face of the earth. The most of the day was spent in the cave. That afternoon a livery rig took all back to Leavenworth, which place they left that evening. They arrived in New Albany the next morning a wiser but poorer party. There was just thirty cents in the entire crowd.

That day the members of the survey separated. They were not together again during the entire summer. Mr. Veatch was soon compelled to leave because of a slight sun-stroke, and Mr. Mitchell left in a few weeks on account of other duties. One of the party was by himself for nearly two months, there being weeks at a time that he did not see a single person he knew.

Each one met with many amusing experiences. All were chased by dogs and all, time and again, were refused a night's lodging because they look so much like tramps. One night about sundown Prof. Newsom and Mr. Bennett came to a house and asked that they might stay over night. The man of the house, after closely scrutinizing them said, "yes." A little later he came and told them he couldn't keep them, "the women folks didn't like the looks of them." This was not the first time such a thing had happened.

All kinds of people were met. Some could not do enough for one when they found out his business, and other were as inhospitable as they could well be.

While it is sometimes exasperating to be taken for a tramp it is also funny. To be sent on "to the next house" half a dozen times to get a chance to stay all night after one had walked all day, was a common occurrence. One of the party relates that he tried eight places one night before he was allowed to stay. He says when he did find a place the woman treated him so well and cooked him such a fine supper he soon forgot about the inhospitality of the other people of the neighborhood.

Geology was not the only thing learned by the members of the

survey. They learned that the nature of the rock of a region largely determines the character of its people. In the sandstone and shales section of the formation they studied, the people are generally poor, large families living in house of two or three rooms, many of whom had never been outside their county. As a rule these people are very hospitable. They will share their all with a stranger. In the limestone region the people are more well-to-do and less hospitable.

The summer's work was finished September 7, after a week of topographical work in the vicinity of Vincennes and Washington.

Marsters served as an associate professor for one year and then was promoted to professor for the remainder of his tenure at IU, which ended in 1904. As a professor he received a salary of \$2000 and Newsom received an instructor's salary of \$800. When Newsom was promoted to assistant professor his salary was raised to \$1200. In that same time period the departmental budget ranged from \$350 to \$650 per year, and the geology library budget was either \$100 or \$200 in different years.

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#### The Geology Library

The Department of Geology has had its own library for many years, beginning during the early years in Owen Hall. The library budget for books and periodicals was meager to say the least. During the Cumings years the budget was commonly \$200 to \$400 per year.

I have been unable to determine when the geology library first acquired a full-time librarian. The first librarian in the departmental records is Peggy Wagner, in 1951. In the alumni newsletter for 1953 Rebecca L. Taggart is listed as the librarian. The next year, 1954, Richard L. Snyder was the librarian. Snyder only stayed two years and by 1956 Richard D.

Walker was the librarian. He removed with the library also for two years, when Ellen Freeman became librarian in 1958. Ellen oversaw the move of the library from Owen Hall to the new geology building in 1962. She died suddenly in 1979 while still librarian. She was replaced by Lois Heiser at that time and Lois has been the librarian since then.

Beginning in 1946 and continuing into the 1950s the librarians and faculty concentrated efforts on acquiring back numbers of periodicals to fill voids in the library holdings. In 1956 the library held 20,000 volumes and about 16,000 maps. About 2000 volumes were stored in hallways in Owen Hall because of lack of space on the top floor. The library was adding between 500 and 1500 volumes a year. A reprint collection was started in 1958.

Expansion of the library really began with occupancy of the new Geology Building in 1962, where there were initially 6000 square feet occupied, and this was expanded in 1978 by another 4200 square feet.

With the staff of the Indiana Geological Survey also benefiting from a larger, expanded library, the Survey made notable contributions to the holdings by their system of free exchanges with other state geological surveys and mining bureaus. These publications are received by the library with no cost attached, thus helping out the library budget considerably. As of 1996 the total volume holdings of the library were 108,000 volumes, 34,000 microforms, and 250,000 maps. The library at one time received a record high 1150 periodicals. That number was cut

substantially in 1979 and 1983, as the prices of the journals continued to increase at a very great rate. In 1996 the library was once again in the process of making difficult decisions about elimination of journal subscriptions that were of minor importance to faculty, students, and Survey personnel. The library is free and open to all citizens of the State. In addition to the general stacks, the library maintains a rare book room that is kept locked, where many early, valuable works are kept. The map library contains a wide variety of geologic maps, atlases, and a complete set of USGS topographic maps of the United States.

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During his 13 years as chair Marsters was absent on leave for the years 1896-97 and 1897-98 at Harvard University, where he completed a Masters degree. When he returned to IU the name of the department was changed from Geology to Geology and Geography and continued thus until 1904 when Marsters left and Cumings became chair. While Marsters was absent on leave, John Newsom was an acting assistant professor in charge of the department the first year and an assistant professor the next year. He was assisted the second year by James Arva Price as laboratory assistant. While in charge Newsom requested that the University purchase a small gasoline launch (\$1200) for the Mississippi River. He planned to conduct student field trips and research on outcrops along the river. He states that the geology department at Chicago had gone to the Arctic, Cornell sent expeditions to

Greenland and Brazil, and Princeton had gone to Patagonia. Nothing came of his request.

Marsters returned and taught at IU in 1903 when he was granted another leave of absence for the 1903-1904 year. The purpose of this leave is not clear, but apparently there was some dissatisfaction between Marsters and the University. Marsters wrote annual reports that repeatedly emphasized the extreme need for additional space for the department, requests that were repeatedly ignored by the University. At any rate, Marsters did not return to IU and by 1905 he was a government geologist in Peru and later a consulting geologist. He was replaced as head of the department by Edgar Roscoe Cumings, who was to continue on as head for a record 39 years until 1942. Cumings had come to IU fresh out of graduate studies at Cornell, although he almost didn't make it to IU.

Cumings was offered a position as instructor in 1898 and was appointed to the position. However, he applied first for a one semester sick leave of absence for the Fall term, 1898, and then requested an additional Spring term leave for the same reason. At that time he was still in Ithaca, New York. He was confined to hospital but the nature of his illness is not known. Marsters proposed that if he did not begin teaching by Fall, 1899 that a competent replacement be hired. Cumings did come to IU in August, 1899. In the 1898-99 bulletin "Mr. -----" is listed as teaching historical geology, apparently a notice that Cumings had not appeared as planned. When Cumings did appear,

Newsom left, so that Marsters and Cumings were sole faculty for 1899-1900. The next year Joshua William Beede was hired to replace Newsom, at an instructor's salary of \$900. Beede was from Kansas, received his A.B. in 1896 from Washburn College in Topeka, his PhD in 1899 from the University of Kansas and had taught science at the Effingham, KS high school for two years prior to receiving his appointment from IU.

In 1901, when Beede arrived, Cumings left for a two-year leave of absence at Yale University, where he received the PhD degree in 1903. On his return to IU that Fall Marsters had gone on leave, resigned, and Cumings was appointed acting head of the Department of Geology and Geography as an assistant professor, at a salary of \$1000. He became full-time head the next year, in 1904.

During all this time the geology department was housed in Owen Hall in space that was restrictive and inadequate.

Because of the important change that took place in 1903-- Marsters leaving and being replaced by Cumings first as acting head for one year and then as head of the department--I place the break between the 19th and 20th centuries three years forward, in 1903.

#### THE TWENTIETH CENTURY

##### The Cumings-Beede Year

There are several generalizations that can be made concerning the Department of Geology during the time interval from 1903 to 1919.

In the first place, the department was remarkably stable during that time. Cumings and Beede constituted the permanent faculty until 1917 when William Logan was employed. They were assisted by a series of young men, graduate students, many of whom went on to have important professional careers as geologists.

There were never many students at any one time. It commonly happened that there were as many or more graduate students in the department as there were undergraduate majors. The few that did major in geology commonly went on to graduate school, obtained a Masters degree, and became professional geologists.

Cumings and Beede both pursued active research programs and were energetic in publication of their results. They seem to have formed a compatible team, with sufficiently similar and different interests that they complemented each other. This period ended with the resignation of Beede at the close of the 1918-1919 academic year.

For this 16 year period I will focus on mechanical aspects of the department, on communications between Cumings as head of the department and IU President William Lowe Bryan, on the students who were enrolled during that time, and on the research of Cumings and Beede.

When Vernon Marsters returned from leave at Harvard in 1898, he had the departmental name changed from Geology to Geology and Geography. This was done to emphasize courses in physical geography that were then being taught. Upon resignation of

Marsters in 1902 and his departure in 1903, and Cumings becoming first acting head for one year and then permanent head the next year, the name of the department reverted once again to Geology. Cumings had been hired as an assistant professor in 1898. He had leave of absence for two years, 1901-1902, when he completed a PhD degree at Yale. He returned just in time for Marsters to take leave, from which he never returned to Indiana.

Marsters had complained for years about the inadequate space that the department had, to no avail. Just as he was departing, in 1902, the department finally moved from Owen Hall into new quarters in the new Science Hall (now Lindley Hall) that had been built in 1902. Owen Hall became the School of Medicine for many years. The department was situated on the third and fourth floors of Science Hall. There was a geological lecture room for general and historical geology and for physical geography, as well as a general geology laboratory. The mineralogy laboratory could accommodate 20 students and the paleontological laboratory six students. There was also a small lab for advanced studies.

In 1926 Cumings wrote a summary of the quarters occupied by the Geology department during his tenure. His report for the period from 1895 to 1926 is reproduced, in part, below.

"When I first became identified with the Department of Geology at Indiana University, in 1898, the Department had one-half of the basement of Owen Hall, and two rooms on the main floor. One of these rooms was surrendered to the Department of Astronomy in 1898. This left the Department in possession of two laboratories of fair size, a small lecture room and an office and library combined. At that time there were perhaps 30 students in the Department and two on the teaching staff. The total collections of fossils were contained in a row of cases along one side of one of the laboratory rooms. [Note that this statement

seems to imply that the Geology department did not have the Megalonyx sloth specimen in its possession at this time].

In 1902 the Department moved into its present quarters in Science Hall, occupying four rooms on the top, or attic, floor and three rooms on the third floor. The Department also had the use of a very large room in the basement, which was afterwards surrendered to the Department of Physics. When the Medical School moved into Owen Hall [1902], the Department came into possession of three more rooms, one of them large. Later--about 1915--we surrendered a small room on the third floor to the Department of Psychology. In 1903, when I became Head of the Department there were 20 students and two members of staff, Professor Beede and myself. At present [1926] there are on the average 600 students, eight full time professors and instructors, four Assistants, and a preparator. The collections have increased many fold, and much material has been packed in boxes and stored in a temporary storage building, where it is likely to become an almost total loss.

Among the courses taught, general geology was taught all three terms by Cumings. In addition he taught dynamical geology, structural geology, mineralogy (Spring term only), paleontology (all three terms), and "Seminary Evolution", which must have been an advanced seminar. It should be noted that neither the Botany nor the Zoology departments offered instruction in evolution at this time. Beede taught economic geology, the physical geography courses and all summer field work as well as a summer course in general geology, presumably for teachers. Both Cumings and Beede offered research in geology in all terms.

The IU Bulletin for 1908 and for several succeeding years contains a folded topographical map of Bloomington in the front of the book. This map was made by G. E. Burton, one of the undergraduate geology majors at the time.

Students majoring in geology took 3 full years of geology--that is, nine one-term courses, as well as introductory chemistry, biology, and astronomy. Interestingly enough they were

not required to take any physics or mathematics courses. Beginning in 1908 economic geology and systematic paleontology became graduate courses. However, the paleontology course was open to students who had one course in zoology and a year of introductory geology. Economic geology was open to seniors in geology or chemistry. Evolution is now a full-fledged course, not a seminar, and a new course in advanced physical geography was added.

By 1910 10 undergraduate geology courses were offered, some taught by graduate students. General geology and physical geography were taught each term. Mineralogy was a Spring course. Advanced physiography, economic geology, evolution, advanced field work, and systematic paleontology rounded out the offerings. These last four courses were also offered for graduate credit.

In 1910 the requirements for the Doctor of Philosophy degree were spelled out. Graduate work must consist of not less than three years of study. The student must have a major subject and not less than two minors. The committee consisted of the heads of those departments in which the work was done. There was a final examination and presentation of a thesis. The thesis must be original work and must give evidence that the candidate is capable of forming an independent judgement on the recent literature of the department. The final defense, or examination for the degree, was conducted by a committee consisting of all the instructors under whom graduate work has been taken. Other