

GILBERT O. RAASCH, STUDENT OF WISCONSIN'S ANCIENT PAST

*Donald G. Mikulic*¹

*Joanne Kluessendorf*²

ABSTRACT

Milwaukee-born geologist and paleontologist Gilbert O. Raasch conducted the most extensive study of Wisconsin Paleozoic rocks during the first half of the twentieth century. Largely self-educated, he assembled comprehensive paleontological collections from Cambrian, Silurian, and Devonian strata of the state, documenting his work with detailed field notes and maps. Beginning when he was in high school and continuing through his time as a college student and museum professional, Raasch wrote a number of innovative papers about the geology of Wisconsin. Significantly, his detailed biostratigraphic approach allowed him to develop evidence that resolved some important geological controversies and misinterpretations of these rocks. Although widely recognized as the expert on Wisconsin Paleozoic geology, unfortunately Raasch never was able to secure the research position in the region that would have allowed him to continue to follow his interests and further develop his ideas. Although he expanded his studies into surrounding states, he eventually had to abandon his true research interests in favor of employment in the oil industry of western Canada. Although Raasch was very successful in this new pursuit, our understanding of Midwestern Paleozoic geology and paleontology suffered a significant loss by his departure.

INTRODUCTION

Gilbert O. Raasch is widely acknowledged as Wisconsin's most prominent twentieth-century student of Paleozoic geology and paleontology. Through classic papers, meticulously documented collections, detailed field notes, and unpublished manuscripts, Raasch has provided scientists with a unique legacy invaluable to future research on the Lower Paleozoic strata not only in Wisconsin, but the rest of the Midwest as well. Although others have studied the geology and paleontology of these rocks, no one has left a similar wealth of irreplaceable specimens, observations, and ideas. In addition to his skills as a research scientist, Raasch was also a dedicated educator who made a lasting impact on the public's appreciation and understanding of area geology.

Raasch's accomplishments are even more impressive, considering that he made most of them over a short interval at the beginning of his long career. Unfortunately, his career can be viewed as a significant lost opportunity for Wisconsin. Despite his many contributions and the promise of an even more productive

future, Raasch never was able to secure the type of employment in Wisconsin or the Midwest that his capabilities and accomplishments warranted. Sadly, his research in the region was cut short, and he spent most of the last sixty years of his life working elsewhere by necessity, not by choice. Although others have studied the same subjects and region more recently, no one has been able to fill the scientific void Raasch left behind in Wisconsin. As a result, critical documentation of the area's geology and paleontology was never done, and the opportunity to do so may have been lost.

More than simply documenting Raasch's career and scientific contributions, we have attempted to uncover the factors that prevented Raasch from enjoying the kind of employment that would have utilized his unique talents for the benefit of all. Although his entrance into the profession was atypical and his focus unusually intense, in the end it was the actions of others that steered Raasch's career away from his original goals and out of the Midwest. The history of Raasch's career can also serve as a lesson to young geologists.

¹Illinois State Geological Survey, 615 East Peabody Drive, Champaign, Illinois 61820

²Weis Earth Science Museum, University of Wisconsin-Fox Valley, 1478 Midway Road, Menasha, Wisconsin 54952

MILWAUKEE BEGINNINGS

The beginning of Raasch's scientific career marks an important change in the character of geological and especially paleontological studies in Wisconsin. Previously, wealthy amateur naturalists, such as F.H. Day, T.A. Green, E.E. Teller, and C. Monroe, supplied most of the fossil specimens used in research by professional scientists (Mikulic and Mikulic, 1977; Mikulic, 1983; Mikulic, 1991; Kluessendorf and Mikulic, 1997; Mikulic and Kluessendorf, 1998). In contrast, Raasch was the first to make extensive, systematically assembled, and well documented collections for his own stratigraphic and paleontologic studies. How does a small boy without mentors or a specialized background become an outstanding paleontologist and geologist? Part of the answer lies in his own curiosity and ambition, but the German cultural influence of early twentieth-century Milwaukee also played a major role.

Gilbert Oscar Raasch, the younger son of Henry C. and Matilda (Spetz) Raasch, was born in Milwaukee, Wisconsin, on May 27, 1903. He grew up in a German neighborhood on the northeast side of town in a family that embraced typical German values of

the time, although his parents were proud that Gil spoke English at home while his cousins spoke only German. His father, a skilled tradesman and successful businessman, was the senior partner in the Milwaukee Tile & Mosaic Company. Henry Raasch was also active in local politics and labor organizations. He served several terms on the Board of School Directors for Milwaukee Public Schools, was a founding member of the *Milwaukee Leader*, an active member of the Socialist Party, and held the office of president in the International Tilers' Union (Usher, 1914). As a result, Gil had a very political upbringing and remembered attending "monster" political rallies at the Milwaukee Auditorium as a small boy. He was also introduced to a number of prominent Wisconsin politicians, such as Milwaukee mayor Daniel Hoan, Wisconsin governor Francis McGovern, and Congressman Victor Burger and his wife, who were also family friends.

Gil's first exposure to geology came at the age of four when he and his mother collected beach pebbles and fossils along the Lake Michigan shore at Whitefish Bay. Although his mother had an informal interest in nature, no one in the family made any effort to direct him into a naturalist

profession. In fact, his father never was convinced of the utility of Gil's interests, which undoubtedly seemed strange in the hard-working practical culture in which he was raised.

During his adolescence, Gil began collecting Devonian fossils from the glacial drift along the banks of the Milwaukee River near his home, but he never gave much thought to the science of his finds. However, this all changed one day in his sixth grade geography class when he learned that geologists could determine the relative age of rocks by studying their fossil content. Fascinated



Figure 1. Devonian exposures at the Milwaukee Cement Company Mill #2 quarry on west side of the Milwaukee River, Milwaukee, Wisconsin (circa 1890s). After this quarry was abandoned and partially flooded, Raasch would walk on the winter ice to collect fossils from the walls, including the tunnels such as the one at the right side of this photograph.

by this idea, Gil was inspired to visit the recently abandoned Milwaukee Cement Company quarries, which he had seen in operation during a family picnic years before. Located along the Milwaukee River a couple of miles from his home, these exposures of the Devonian Milwaukee Formation proved to be highly fossiliferous and a great source of specimens for Gil's growing collection. Gil found that he could collect fossils even during the winter by walking on the ice of these water-filled quarries to reach otherwise inaccessible exposures.

Occasionally, he would even venture onto weak ice in the partially flooded old mine entrances (fig. 1) — a dangerous practice that took the lives of many local youths.

Interested in learning more about his fossil finds, Gil took advantage of local opportunities that were seldom available to young middle-class boys elsewhere and, as a result, a child's hobby became a life-long career. Fortunately for Gil, early twentieth-century Milwaukee had notably progressive views on public education, which were inspired in large part by its German community. The city had an outstanding public museum and library that provided Gil with a unique opportunity to learn the details of local geology and paleontology and to identify the specimens he found. Instead of beginning with popularized books written for the general public, he borrowed the classic scientific monographs about Wisconsin written by Hall (1867), Chamberlin (1877), Whitfield (1882), and Cleland (1911). To supplement this published record, he made use of the museum's extensive exhibits of local fossils.

Through his library and museum work, Gil was able to learn of other important localities around Milwaukee, which he visited via the local trolley system. Most important of these sites was the famous Silurian



Figure 2. Silurian exposures at the Schoonmaker Reef in the G.D. Francey Coal, Stone & Supply Company quarry, Wauwatosa, Wisconsin (circa 1913). The west wall of the quarry seen in the background was the site of Gil's big adventure, around the time that this photograph was taken (from Mikulic and Kluessendorf, 1998).

Schoonmaker Reef at Wauwatosa (Mikulic and Kluessendorf, 1998), where his career was almost cut short. During one of his first visits to the site, Gil entered the empty quarry, thinking that the workman had quit work for the day. Much to his surprise, however, the quarry soon was rocked by a series of explosions, causing him to attempt a hasty retreat up the famous west wall (fig. 2) of the pit. Apparently the workers had left only temporarily after lighting explosive charges in large blocks that they were trying to break up. After the excitement subsided, Raasch and the workers returned to their respective tasks. The Schoonmaker reef became one of Gil's favorite localities, and, even at this young age, he was able to relate Hall's (1862) and Chamberlin's (1877) classic descriptions of the reef to the outcrops and fossils he encountered there. One of Gil's most important accomplishments at the Schoonmaker Reef was making a small collection of fossils that now represent the only specimens still available from the reef flank beds of this historically important locality.

All these early activities helped Gil develop the unique abilities that would figure so prominently in his later career. For example, he made extensive lists of the fossils he was finding at each locality and de-



Figure 3. Shaft site and dump pile of Late Devonian rocks from which Raasch collected, the city of Milwaukee Linwood Avenue Intake Tunnel, near Lake Park, Milwaukee, Wisconsin (circa 1913; from Mesiroff, 1914).

veloped the skills of fossil identification for which he was later renowned. He spent considerable time carefully preparing, identifying, and labeling his specimens, becoming an expert on the paleontology of local Silurian and Devonian rocks at a very young age.

These activities might have continued merely as an intense hobby; however, Gil's future changed in seventh grade when, by chance, he met Ira Edwards at the old Milwaukee Cement Company quarries. Edwards, who recently had been hired as the geologist at the Milwaukee Public Museum (MPM), was out on one of his first field trips to examine local outcrops. That same day, Gil also was out collecting, and he was amazed to see "a real geologist" wearing high-topped boots and equipped with a real geologist's hammer and chisel, at what had been "his" outcrops. Watching Edwards pound away on an exposure that he had already determined was a poor fossil prospect, Gil, although very shy, decided that he could not pass up the opportunity to talk to Edwards. Trying to think of a way to start up a conversation, he remembered that there was a fossil cephalopod in a block of rock near the railroad bridge too large for him and his friends to collect. Gathering his courage, Gil raced up to Edwards blurting out "I know where there is a *Gyroceras eryx* in a large block, and you can have it if you can get it out." Edwards, with a shocked look on

his face, was momentarily speechless upon hearing the small scruffy boy correctly using formal scientific names for local fossils. This would become one of Edwards' favorite stories, to relate to all interested parties. Had it not been for this encounter, Gil thought he probably never would have become a professional scientist (Raasch, 1948a).

Shortly after this encounter, Gil made an important discovery, which resulted in his first scientific paper. In 1913, when he was in eighth grade, the city of Milwaukee began construction of a water intake tunnel out into Lake Michigan

(Mesiroff, 1914). Rock excavated from this tunnel was dumped near the main construction shaft located on the Lake Michigan shore at Lake Park, about a mile from Gil's home (fig. 3). He recognized that it presented an excellent opportunity to collect fossils from the seldom exposed Devonian rocks overlying the Milwaukee Formation. He made an extensive collection of this material, balancing large slabs on a board during his trolley rides home, much to the bewilderment of fellow passengers. His specimens established the age of these rocks as Late Devonian—the youngest bedrock in the state. He later coauthored a paper on these rocks with Edwards (Edwards and Raasch, 1922). Gil's collection remains the only significant source of rock and fossil specimens from these youngest Paleozoic strata in Wisconsin.

Recognizing Gil's extensive knowledge of local paleontology and impressed by his collecting skills, Edwards hired him as a part-time assistant in the MPM Geology Department in 1919. Although only 17, Gil was the sole geologist at the museum when Edwards went on leave in 1920. During that time, Raasch "represented" the department at the Geological Society of America annual meeting in Chicago—certainly as one of the youngest participants. At the museum, Gil was employed primarily to identify and catalogue the fossil collection. He continued to ex-

plore the outcrops of southeastern Wisconsin, making extensive new collections while formulating his own ideas about local Paleozoic stratigraphy. The Devonian remained his primary interest, and he made a detailed section of a roadcut north of Thiensville, which he later designated as the type section of the Thiensville Formation. His museum work also included public education duties, including leading local field trips and giving lectures as well as other activities, such as participating in a museum expedition to Mount Rainier in 1921 (fig. 4). On the way to his first public talk, however, he was so scared that he hoped the trolley would get into an accident so he wouldn't have to show up. Luckily, fate did not intervene and he later became a very gifted lecturer.

During the 1920s, Raasch divided his efforts between museum work and his formal geologic education. Although these efforts continued to expand his expertise and accomplishments as a scientist, they also locked him into a situation that ultimately would force him out of the career he worked so hard to develop. After Gil graduated from Riverside High School in 1921, Edwards convinced him to pursue a college education in geology. Taking his advice, Gil enrolled at Milwaukee Normal School, which was located only a few blocks from his home. Although he soon left the school because it lacked geology courses, he did meet his future wife there.

In 1922, Gil enrolled in the geology program at the University of Wisconsin in Madison as a beginning student with a conspicuously nontraditional background. Not surprisingly, he discovered that his expertise and interests frequently distracted him from following the normal course work expected of a more typical student. Because of his extensive field and museum experience, Gil clearly knew more about Silurian and Devonian geology of the state than anyone on the faculty or anywhere else, for that matter. One of the high points of his freshman year at Madison was hearing his elderly "mentor" T.C. Chamberlin speak to one of his classes. Most of Gil's geologic efforts were still directed toward his museum job, however, and he continued to work there on weekends and during vacations. In 1923, Edwards arranged to have the MPM purchase his fossil collection for \$100, as a way to help finance his student expenses. This purchase represented the MPM's first comprehensive and well documented collection of Milwaukee area Silurian and Devonian fossils, forming the nucleus of its



Figure 4. Ira Edwards (left) and Raasch on the Milwaukee Public Museum expedition to Mount Rainier in 1921. (Photograph courtesy of Avis Worthington.)

extensive Wisconsin Paleozoic research material.

The 1920s marked the beginning of Raasch's lifelong research focus on Cambrian geology and paleontology of the Midwest, but the decade would end with Gil trapped in the middle of a major controversy involving some of the most prominent stratigraphers in the country. This new interest in the Cambrian arose from his participation in a road materials program of the Wisconsin Geological and Natural History Survey (WGNHS). In 1913, the WGNHS established a program to study the Paleozoic rocks of the state to find better sources of road materials (Hotchkiss, 1924). Because much of this work focused on understanding the stratigraphy of Cambrian and early Ordovician rocks, the WGNHS secured the assistance of Edward O. Ulrich of the U.S. Geological Survey. Ulrich recently had proposed a major revision in the classification of these rocks, erecting two new systems: the Ozarkian and the Canadian (Merk, 1985; Weiss and Yochelson, 1995; Byers, this volume). Therefore, the



Figure 5. *E.O. Ulrich (right), Fred Thwaites (left), and Willard Yeakel at lower Silurian outcrops along the shore of Green Bay, Idlewild Point, near Sturgeon Bay, Wisconsin. During one of the Wisconsin Geological and Natural History Survey summer road materials trips. (WGNHS photograph 741 by W.O. Hotchkiss, 1914.)*

WGNHS considered him to be “the best informed man on this continent with regard to the stratigraphy of these older formations” (Commissioners of WGNHS, 1916), and they needed him to work out the complex relationships of these and other Paleozoic rock units in Wisconsin. Over the next several years, Ulrich spent a few weeks each summer in the field with W.O. Hotchkiss, Ernst Bean, and other Survey staff studying outcrops of these rocks (fig. 5). In 1919, Hotchkiss invited Ira Edwards to accompany the field party on one of its summer tours; he returned to the MPM with a collection of Cambrian fossils. Raasch was surprised at the abundance and diversity of the fossils from the oldest Paleozoic rocks in the state, and he began to study them with his usual vigor.

When Gil began his university studies in Madison, two new opportunities arose that further directed him into Cambrian research: proximity to Cambrian outcrops and direct involvement with E.O. Ulrich and the WGNHS project. From his Madison locale,

Raasch was able to spend many weekends traveling around central Wisconsin collecting Cambrian fossils for the MPM, where he still worked part time. He would explore the countryside by train, watching for promising localities. When he spotted one, he would disembark at the next stop and walk back to the site. On one of these trips in 1924, he discovered his famous Point Jude merostome (aglaspid) parting—the world’s single richest known source of these unique fossil arthropods. During the same year, Gil became an official assistant to Ira Edwards in a new mapping effort related to the Ulrich/WGNHS road materials program. It had become clear that the project was too big for Ulrich to finish on his short summer visits, so the MPM and the U.S. National Museum (USNM) were formally included as participants (Ulrich and Resser, 1930). Raasch did an outstanding job collecting and identifying specimens from the detailed measured sections he made and, undoubtedly, Edwards was eager to have him assist in the work.

While working on this project, Edwards and Raasch became well acquainted with Ulrich, marking the real beginning of Raasch's formal Cambrian research. In early 1926, Ulrich provided funding for both men to spend a three-month "apprenticeship" working on the paleontology of the Upper Mississippi Valley Cambrian project at the USNM in Washington, D.C. This was a wonderful educational experience for Raasch because he was able to work with the USNM's large collections and library, learn techniques, be exposed to new ideas, meet many prominent paleontologists, and demonstrate his exceptional skills and knowledge to them. A special bonus of the trip was meeting Charles D. Walcott, Secretary of the Smithsonian Institution and the most prominent Cambrian worker in the world. Gil also used his time in Washington to expand his paleontological knowledge by examining the local Cenozoic outcrops and the full geologic range of the museum's collections. More important, he learned how to prepare, photograph, and write descriptions of his fossils for scientific publication. Of course, the main purpose of the trip was to begin work on the Wisconsin Cambrian faunas, which were divided among Ulrich (who, along with Charles Resser, covered the trilobites), Edwards (brachiopods), Rudolf Ruedemann (graptolites), and Raasch (Merostomata). These studies were to make use of the older USNM collections in addition to the extensive new and better localized material from the WGNHS and MPM collecting programs. Raasch spent most of his time in Washington preparing and photographing specimens for this work.

Throughout the 1920s, Raasch worked primarily on the Cambrian and Devonian, becoming well recognized for his abilities. His outstanding work at the MPM was rewarded in 1925 when he was made an assistant curator at the age of 22. That same year he married Polly Gutowski, whom he had met back at the Milwaukee Normal School. As he was "more interested in marriage" at the time, Gil completed his course work by correspondence while residing in Milwaukee, where he and his bride lived in a new house that his father built for them. His museum work provided him with the means to continue his Devonian research, including trips to Michigan and Ontario in 1927, which led to his second publication (Raasch, 1928).

In 1928, Raasch embarked on a comprehensive field program studying the Wisconsin Devonian,

which led to some of his most important contributions to the stratigraphy of the state. Through his long-term study of Devonian outcrops, beginning when he was in high school, he was able to recognize the presence of older Devonian rock units below the well known Milwaukee Formation (Raasch, 1935a). Previous workers, such as Chamberlin (1877), had thought these poorly exposed rocks were Silurian, but Gil's meticulous paleontologic efforts demonstrated their true age.

Gil received his B.A. from the University of Wisconsin (UW) in 1929, producing a thesis on the Devonian of Michigan (W.H. Twenhofel, advisor). Later that year, he was presented with an outstanding opportunity to advance his career when the UW Geology Department hired him as its first full-time curator of the Geology Museum. On December 1, Raasch resigned from his comfortable ten-year MPM job, and moved to Madison. Things were looking up for Gil, and he seemed to have a bright future in the work he loved so much. Unfortunately, although the next decade would witness the publication of some of his most important research, it would end in the loss of his career in Wisconsin.

THE MADISON YEARS

Gil was an outstanding choice as curator of the UW Geology Museum. He was extremely well qualified with his extensive knowledge of Wisconsin geology and paleontology, his ten years' experience at the MPM, his enthusiasm, and his clear view of what would be needed to make the museum a success. The Geology Department's commitment to establishing a worthy museum was clear in its decision to hire the first full-time curator with an official faculty position. When Raasch arrived, he found the museum in a disastrous state, owing to years of neglect and a considerable loss of space (Burrell, 1975). It was not much more than a storage area with a few old exhibits that occasionally were used by students. The collections were modest and the most important specimens were some of R.P. Whitfield's type specimens figured in the old Geological Survey of Wisconsin volumes (Whitfield, 1882). The most significant exhibit material comprised a few of Ward's fossil vertebrate casts and the mounted mastodon skeleton from Richland, Wisconsin. Raasch made great plans to develop a real museum, having the same variety of programs he had participated in while at the MPM. Much to his disap-

pointment, however, he soon discovered that, with the onset of the Great Depression, the department would not fund the museum at any level above his salary. Making the best of the situation, Gil set out to do what he could. His first priority was to curate the collections properly by instituting the Museum's first cataloging system and to expand the collections by acquiring new specimens during his research. Within a few years, he established what the department had never had previously: a functioning museum in which most specimens were cataloged and accessible, a new comprehensive collection of Wisconsin Paleozoic fossils, improved exhibits, and a program of public education that included radio interviews. Raasch had no departmental teaching responsibilities, although he was active in providing students with potential research topics and giving advice and assistance in their work. He was also able to continue his own research and pursue his graduate education, so his field work and collecting continued at an impressive level. The only change in his research was that the Cambrian became his main focus at the expense of the Milwaukee area Devonian.

Over the years, Raasch's role in Wisconsin Cambrian research had changed dramatically. He had begun as a field assistant to Edwards, but through his usual comprehensive work, he quickly became the expert on the subject. Unfortunately for Gil, his expertise placed him in the middle of a major controversy between E.O. Ulrich and Charles Schuchert, a situation from which he would not emerge unscathed. Ulrich and Schuchert had started out as amateur collectors, colleagues, and good friends in Cincinnati. Later, they became two of the most prominent stratigraphers in early twentieth-century North America. Along the way, they also became major adversaries, differing over scientific issues such as the validity of Ulrich's Ozarkian and Canadian Systems, but possibly having more personal disputes as well (Merk, 1985; Cloud, 1987; Weiss, 1992; Weiss and White, 1998; Weiss and Yochelson, 1995).

Sadly for Raasch, supporters on both sides of the Ulrich-Schuchert dispute were part of the Madison geological community long before he joined the department. Gil's future advisor, William Twenhofel (a former Schuchert student at Yale), and others at UW had been working on local Paleozoic geology for nearly as long as Ulrich. Twenhofel had a very dim view of many of Ulrich's ideas and was part of a local

"Schuchert Camp" in competition with Ulrich's WGNHS Cambrian-Ordovician studies. For example, around 1918 L. Martin, W.H. Twenhofel, and F.T. Thwaites completed a manuscript on the geology and geography of the Sparta-Wilton topographic quadrangles, which was to have been published initially by the WGNHS and later by the USGS (Commissioners of the WGNHS, 1918, 1922). The manuscript was never formally published by either organization, possibly an early victim of the dispute. Edwards once told Raasch that Twenhofel had considered trying to get a law passed by the state legislature to bar outside parties (that is, Ulrich) from doing research in Wisconsin. Even if this was an exaggeration, it certainly suggests that there was considerable animosity between the two groups.

Around the same time, an even more serious controversy arose that involved not only the same local Paleozoic workers but many other Madison geologists, including C.K. Leith, chair of the UW Geology Department. In 1921, Schuchert was the nominee for President of the Geological Society of America (GSA). Ulrich, acting on his own personal dislike for Schuchert, became the principal player in, if not the originator of, a divisive attempt to subvert his candidacy (Weiss, 1992; Weiss and White, 1998). Ultimately, Ulrich's plan failed; however, many individuals were caught up in the controversy before it ended, with resulting long-term ill will. In Wisconsin, Leith became directly involved when he was unknowingly named as nominee for vice president on the Ulrich ticket (from which he promptly withdrew). In addition, Ulrich's friend and the head of the WGNHS, W.O. Hotchkiss, was also involved, functioning as Ulrich's Wisconsin coordinator to enlist other local GSA fellows to sign a petition for the special ticket, which he signed himself. Surprisingly, even Twenhofel was drawn into the fray on the Ulrich side at first, although he did not sign the petition (Weiss, 1992). He was likely misled by initial claims that the official ticket was being challenged over how nominees were chosen, rather than being aware of its true purpose to attack Schuchert. The fact that Leith, the alternate vice-presidential candidate, was chair of his department might also have had an impact on Twenhofel's early decision to support the petition. In the end, several others, in the department and the WGNHS, signed the controversial petition (Weiss, 1992).

Obviously, by the time Raasch started as department curator in 1929, significant potential for animosity between the Schuchert and Ulrich camps had developed in Madison. Initially, Raasch was considered a member of the “Ulrich Camp” because of his close association with his mentor Ira Edwards, his position as an understudy to Ulrich, and his active participation in the WGNHS mapping program. Gil was well treated and highly thought of by the Ulrich Camp, and his inclusion in their program and their support for his research had a significant impact in developing his career. Raasch became very well acquainted with Ulrich and remained fond of him throughout his life. He remembered that Ulrich was one of the first geologists he met who collected bed by bed, which was important for establishing precise biostratigraphic relationships that were needed to work out problems in the Cambrian. Of course, Raasch had not questioned Ulrich’s ideas at first, but as he worked more independently on the Cambrian and took some of Twenhofel’s classes, he began to realize that Ulrich had made some important misinterpretations about these rocks and fossils. Wanting to stay out of the controversy, Gil kept quiet about his new ideas for as long as he could, but eventually it became known that he held the key to resolving some of the scientific disputes between the two camps. Twenhofel had long thought that Ulrich was wrong, based on his understanding of facies, but he lacked the biostratigraphic proof needed to disprove Ulrich. Only Raasch had the skills, knowledge, and field program required to resolve the controversy, using a combination of comprehensive collecting and biostratigraphy.

In 1924, Ulrich had subdivided the Wisconsin Cambrian (and lower Ozarkian) into a thick sequence of 12 stratigraphic units. Denying the existence of facies, he believed that all the units were laterally persistent in character and separated by unconformities (Merk, 1985). In addition, Ulrich had relied on some marginally acceptable biostratigraphic information, including in some cases nothing more than small, old, poorly located collections made by others. Using Raasch’s new data, Twenhofel, Raasch, and colleagues (Wannenmacher and others, 1934; Twenhofel and others, 1935) were able to demonstrate that a significantly thinner sequence of nine Cambrian rock units was a more realistic interpretation (Merk, 1985). They also showed that a number of Ulrich’s successive units were really facies of one another.

Raasch began to publish his own papers on the Wisconsin Cambrian in 1935, the most important of which appeared in the Kansas Geological Society’s Ninth Annual Field Conference guidebook (Raasch, 1935a, b). Most interesting of these contributions is his article on Paleozoic stratigraphy in the Baraboo area, which addressed the Ozarkian problem in Wisconsin (Raasch, 1935b). Ulrich (1924) had described the conglomerate at the base of his Devils Lake Sandstone and underlying rocks as “the best objective evidence we have in establishing the verity of the break between the Cambrian and the Ozarkian.” On the basis of what he observed in the Baraboo area and in outcrops on Lake Mendota, Raasch had conclusive evidence that Cambrian fossils occurred in strata above those that Ulrich had identified as his younger Ozarkian strata. Moreover, his evidence appeared in the same outcrops that Ulrich considered the best examples of the unconformity separating the Cambrian from his Ozarkian. Raasch’s work marked the beginning of the end of the Ozarkian System in Wisconsin, and Ulrich would have to look elsewhere for evidence to support his creation. Raasch still liked and had a high regard for Ulrich, so he wrote his paper in a complimentary manner to “soften the blow.” Unfortunately, his plan didn’t work as well as he had hoped and, indirectly, the paper was one of several factors that resulted in his leaving the curator position at Madison for a less-than-ideal alternative.

LEAVING MADISON

By 1935, Gil appeared to have been very successful at the University of Wisconsin, and it would have seemed that he had a very promising future to look forward to there. He was well on his way to completing his Ph.D. on the Cambrian Merostomata, he had accomplished a lot in the museum as curator, and he was recognized as an expert on the Cambrian of the Upper Mississippi River Valley by some of the most influential geologists in the country. He played a major role in the Wisconsin part of the eight-day, 1,542-mile-long Kansas Geological Society Field Conference to the upper Midwest in 1935 (fig. 6). At the time this was one of the largest field trips ever conducted in the area, attracting 115 participants, including many of the most prominent geologists in the region. It gave Raasch an opportunity to demonstrate his knowledge to this important audience, showing that he was on the cutting edge of the profession. However, even as he



Figure 6. W.H. Twenhofel (left), Arthur Trowbridge (center, front row), and Raasch (right) on the 1935 Kansas Geological Society Field Conference. Photograph caption by F.T. Thwaites, photographer, reads: “Raasch arguing with Twenhofel and Trowbridge at Mendota.” (Photograph courtesy of Avis Worthington.)

enjoyed this attention, a number of factors that had developed over the years were beginning to make him feel very uncomfortable in his position as department curator.

Most obvious of these factors was his changing role in the Twenhofel–Ulrich controversy. He had tried to remain separate from the more personal aspects of the dispute, but in the end he found himself in what he described as “a no man’s land” between the two camps. Some Ulrich supporters now viewed him as a traitor because he developed the evidence that allowed Twenhofel to get the upper hand in many of the arguments between the groups. Alternatively, the Twenhofel camp continued to view him with suspicion as a former opponent and now a “turncoat” whom they could never fully trust. In addition, some UW faculty viewed Gil as a little too ambitious for his position as curator; others thought he was too serious and focused on his work compared to the rest of the faculty. He did get along well, however, with the students and some of the faculty. One of his most notable friendships was with Robert R. Shrock (fig. 7). Raasch and Shrock, the department paleontologists, had frequent discussions about paleontological matters and had begun a joint research project on the Kentland Disturbance in Indiana.

But otherwise, Gil was beginning to feel friend-

less at Madison. He had worked hard not to antagonize the principal players in each camp. Surprisingly, Gil was most successful with Ulrich, even though he had dramatically undermined some of Ulrich’s most important ideas on the geology of the area. This was most evident during a discussion on local Paleozoic geology during the Kansas Geological Society Field Conference dinner in Madison, when Ulrich stood up and announced to the entire crowd that “Raasch was the only one who knew anything about the Wisconsin Cambrian.” Although this was a highly complimentary statement from a very prestigious individual, Raasch thought this comment would end up causing him more trouble with the Twenhofel camp. Instead of being able to enjoy the compliment, Gil leaned over and whispered to his wife, “after that I don’t think I will still be in Madison a year from now,” and he would be right.



Figure 7. Robert R. Shrock (left) and Raasch in University of Wisconsin Geology Department staff photograph (circa early 1930s). (Photograph courtesy of Avis Worthington.)

Was Raasch correct in his assessment of his position at Madison, or was he being somewhat paranoid? Undoubtedly, Raasch realized that some faculty would bristle at a person in his position getting that much recognition. For example, there was already some jealousy in the department because he was publishing as much or more than most of the teaching faculty. More important, however, was the nature of his relationship with Twenhofel, his advisor. Even though they had co-authored several papers and it was Gil's work and biostratigraphy that had provided the evidence to prove Ulrich wrong, he felt that Twenhofel didn't really like him, and their professional relationship continued to decline. Raasch respected Twenhofel and found him to be a great teacher, but a less-than-gifted field geologist. When in the field together, Gil recalled that he had to run ahead to the next outcrop whenever possible and quickly measure the section, otherwise Twenhofel would merely estimate the thickness of individual rock units and not bother to get exact information. Certainly, his being more knowledgeable than Twenhofel in certain areas and his initial association with the Ulrich Camp clouded their relationship. Joe Emielity, a student in the department in the late 1930s, remembers a rumor that "Twenhofel was taking credit for Raasch's work" (J. Emielity, 2000, verbal communication). However, in the end, the problems with his advisor were not the direct cause of Gil's departure from Madison. He probably would have stayed on as curator and completed his doctorate if this was all that he had to deal with. Quite by accident, he became aware of another, far more serious problem that affected his employment situation directly.

In 1934, Raasch applied for support from The Geological Society of America (GSA) to complete his merostome work and to publish it as a GSA Special Paper. Soon after applying, he was called into Twenhofel's office and told that his proposal had been returned because GSA would only fund proposals from a faculty member. Understandably, Gil was shocked to now discover that, although he was still curator, his faculty status had been revoked without his knowledge. At first, he thought that it had something to do with his poor relationship with Twenhofel, but he later discovered that he lost his position as part of a blatant exercise in nepotism. C.K. Leith, the very authoritarian chair who usually made all departmental decisions himself, had wanted his son Andy to suc-

ceed him in running the Geology Department someday (Bailey, 1981). As an early step towards realizing this goal, Leith appointed Andy as assistant professor in the department in 1934, surreptitiously using Raasch's faculty position because the university would not provide an additional new position for the department. Shortly afterwards, Leith was overthrown as departmental chair for other reasons, but the damage to Raasch had already been done.

After Twenhofel told him what had transpired, Raasch went to the new chair to try to rectify the situation. A year passed, and neither request was addressed. Raasch felt that his overall position in the department had continued to decline, and he decided that he had no choice but to leave. Having met some oil geologists on the Kansas Geological Society field trip who were very impressed with his capabilities, Raasch was offered two higher paying jobs in the oil industry, and he accepted one in 1936.

His departure from Madison was not the end of his trouble with the department, however. Gil later learned that some UW faculty members had secretly visited the MPM to search for specimens that they politely claimed he had taken without authorization from the UW collections. Some of this supposedly missing material was part of the Whitfield (1884) type specimens, which never were part of the UW collections to begin with and had long been housed at the University of California. Other "missing" specimens, such as his merostome collection, were collected either while he was employed by the MPM or collected at his own expense and, therefore, were never part of the university collection. Raasch was particularly incensed about this attack on his integrity, considering that he had single-handedly built up the UW geology museum's reference collections, had never been asked about any "missing" material before others were contacted, and no department policy existed against staff and students keeping their own collections of fossils, rocks, or minerals, which many did even if collected on university time.

IN THE OIL FIELDS AND WORLD WAR II

Raasch spent the next four years working as an oil geologist in Kansas and Oklahoma. Unfortunately, the fields he worked on were not good producers and by 1941 he was unemployed and on his way back to Wisconsin. His most important scientific accomplishment during this time was his 1938 discovery of a Permian

insect bed in Oklahoma. Needing money to support his family, Raasch sold insect specimens to Ward's Natural Scientific Establishment in Rochester, New York. In turn, Ward's sold these specimens directly to an unnamed scientist who was planning to describe the material. After a while, Ward's informed Raasch that their customer was Frank M. Carpenter at Harvard University's Museum of Comparative Zoology, the most prominent fossil insect worker of the twentieth century, so that they could work together directly. In 1940, Raasch and Carpenter assembled a collection of more than 5,000 fossil insect specimens, with funding from the GSA (Raasch, 1946; Carpenter, 1947). Although this is one of the richest



Figure 9. Raasch (left) on Wisconsin Geological Society field trip to Whitnall Park, Milwaukee Co., Wisconsin, June 8, 1941. (Photograph courtesy of Richard Worthington.)



Figure 8. Joe Emielity (left) and Raasch on field trip to western Wisconsin (circa 1940). (Photograph courtesy of Joe Emielity.)

Permian insect localities known, the fauna remains largely undescribed.

Upon returning to Milwaukee in early 1940, Raasch was penniless and needed to secure employment to support his family, which now included two daughters, Avis and Elaine. Of course, the most logical place to look for work was the MPM. His old friend Ira Edwards was now museum director and hired Gil as the supervisor of the museum's WPA program. Here he met Joe Emielity, a recent UW geology graduate who was also working in the program. Gil was given space to work on his research in the MPM Geology Department, where he resumed his Cambrian work and rekindled his interest in the local Silurian. Raasch and Emielity did field work together on the local Silurian and made several field trips to the Cambrian of western Wisconsin (J. Emielity, 2000, verbal communication). In addition, they met with Charlie Bell from the University of Minnesota and others for a Cambrian field conference (fig. 8). Raasch also continued his public education interests, participating in activities of the Wisconsin Geological Society, for which he had been a charter member in 1936 (fig. 9), and he was paid to conduct classes in geology and astronomy at the Milwaukee Social Center. Throughout his life, Gil had valued interaction with enthusiastic amateurs and schoolteachers, and he always felt that it

was the duty of professionals to educate and encourage the public in science.

Aside from his WPA job, the MPM held the potential for better employment possibilities because the recent appointment of Edwards as museum director had opened up a curator position. Gil would have liked nothing more than to spend the rest of his career working there. Unfortunately for Raasch, the museum, and the state, he would not get the job. Competition for the position within the MPM had been intense, even before Gil returned to Milwaukee. Naturally, other museum employees interested in the position were not happy to see Raasch back in town, considering his qualifications and past association with the institution. At one point, he was invited to lunch with some of the staff, only to be threatened over his interest in the job, and he was told that, if he applied for the position, they would cause political trouble for him through their connections in City Hall. Although Edwards seemed very friendly towards Raasch, to the long-term detriment of the MPM, he was not hired for the position even though, unquestionably, he was best suited for the job. Why he was passed over for the position is unclear and surprised many at the museum (J. Emielity, 2000, verbal communication).

The only positive result from Raasch's WPA museum employment was that his friend Joe Emielity was later able to secure a position as an assistant scientist in the Geology Department. Gil had encouraged Emielity to work on local paleontology, which he did for the next 35 years. Although he was prohibited from doing local research and had no support, Joe documented numerous temporary rock exposures in the Milwaukee area, expanded the collections, and encouraged several generations of young collectors, many of whom became professional geologists, including the authors of this paper.

In the summer of 1942, the WPA program was canceled and Raasch was forced to find employment elsewhere. After working in a factory for a short time, he applied for and received an officer's commission in the Army Air Force, where he worked in intelligence. Assigned to SHAPE (Supreme Headquarters Allied Powers, Europe), he played a central role in developing the idea of using areal bombardment to destroy German rail lines instead of focusing on more traditional targets such as centralized rail yards. For his work in "Operation Strangle," Raasch was decorated with the Bronze Star. In January 1946, Raasch was

discharged from military service with the rank of major, and he returned to UW on the GI Bill to complete his doctoral degree. By this time, he had already published his original dissertation topic on the Cambrian Merostomata (Raasch, 1939) and Twenhofel, his former advisor, had retired in 1945. Lewis Cline served as his new advisor, and his new dissertation topic on the Wellington Formation of Oklahoma addressed the geologic setting of the Permian insect beds that he had discovered in 1938. With his doctorate completed just five months later, in May 1946, Raasch left the University of Wisconsin for the last time.

THE ILLINOIS YEARS

After an interruption in his scientific career lasting almost ten years, Raasch was once again able to seek employment that would allow him to pursue some of his research interests in Midwestern Paleozoic geology and paleontology. The position he now secured probably was not what he had hoped for, but he did value public education and would also be able to continue some of his Midwestern research. In 1946 the Illinois State Geological Survey (ISGS) had decided to reestablish its educational program, which had been interrupted during the war. At the suggestion of Carl Bays, an ISGS geologist who had been a colleague in Madison, Raasch was hired to head the program, based on his vast experience in public education in Milwaukee and Madison. The intent of the ISGS education program at the time was more in the form of "public relations" intended to encourage the teaching of geology in state high schools.

Shortly after arriving in Urbana, Illinois, Raasch had rebuilt a program of public field trips and talks, radio interviews, and other activities (Raasch, 1948b), which were very successful. For the next seven years, he would lead almost fifty well attended trips to all parts of the state, covering all aspects of Illinois geology. Aimed towards high-school teachers, the field trips also included the general public, frequently drawing 50 to 100 participants each (fig. 10). They were so well received that the ISGS was still receiving complimentary letters about Raasch's leadership more than thirty years later.

Preparation for these trips took Raasch to all corners of the state, allowing him to expand his geological background and occasionally conduct some research. The trips themselves provided some important



Figure 10. Raasch speaking on one of the Illinois State Geological Survey public field trips at an Ordovician exposure, probably in northwestern Illinois (circa 1950). (Photograph courtesy of Richard Worthington.)

information. On a 1950 trip to the National Quarry at Joliet, one participant found a trilobite specimen (*Ekwanoscutellum laphami*) in Brandon Bridge strata, providing Gil with some critical information about Silurian stratigraphy of the region. (Unfortunately, he couldn't talk the boy out of the specimen.) Even though his Survey job was demanding, Raasch had several outstanding assistants, including Louis Unfer and Margaret Bargh, who played a key role in making the education program successful. Under Raasch's direction, the ISGS education program became the best of any state survey in the country, and it remains successful to this day.

While he was fulfilling all expectations with the education program, Gil had other talents to contribute to the ISGS, and, of course, he wanted to get back to his research interests. Unfortunately, he would again run into problems, not because he was neglecting his official duties, but because of turf wars among the Survey staff. Having been hired to run the education program, Raasch had to request permission to work on stratigraphy and paleontology, which were the domain of another division in the Survey. Because it had become well known that he was already an accomplished researcher and noticeably underemployed in his position at the Survey, he received permission to

serve as the ISGS Cambrian expert. There was a distinct lack of enthusiasm for this arrangement from members of the Stratigraphy and Areal Geology Section (SAG Section), who were in charge of this kind of work. However, there was little Cambrian exposed in the state and no one else was really working on these rocks, so, given Raasch's reputation in the field, no serious objections could be made. Over the next few years, Gil played a major role in Cambrian studies, serving on the

Cambrian Subcommittee of the Division of Geology and Geography at the National Research Council and publishing several papers (Raasch, 1950, 1951, 1952). At the ISGS he also worked with Herb Glass on an innovative approach to identifying the Cambrian–Ordovician boundary using clay mineralogy, which, unfortunately, never was published (H. Glass, ISGS, 1999, verbal communication).

Permission to work on the Cambrian would not be extended to other subjects, however, and it was Gil's interest in the Silurian that would lead to trouble later on. Since its beginning early in the twentieth century, the ISGS had a number of individuals working on Silurian rocks of the state. The most important project developed in the early 1930s, with J Harlen Bretz's mapping in the Chicago area and the insoluble residue studies of these rocks undertaken by Lew Workman. Although this effort lapsed, interest in the Silurian had been reestablished during the 1940s by Heinz Lowenstam's discovery that Silurian reefs controlled some of the Illinois oil reservoirs. Lowenstam (who was good friends with Raasch) left the Survey in mid-1948 and, by the time Raasch again started to work on his Wisconsin-based Silurian project in his spare time, little was being done in the Illinois Silurian.

Gil expanded his efforts and thought that his work was being done with official approval. In the ISGS interim board report dated February 24, 1953, Raasch was listed officially as “preparing a paper which will present a detailed Niagaran time scale with correlation” under the heading “Silurian and Devonian Stratigraphy” in the SAG Section, verifying that his efforts were common knowledge. However, when he later submitted the paper for review, a major uproar ensued. Claims were made that the paper was in direct competition with work being done in the SAG Section, that the section was unaware of Raasch’s work on the subject (even though it had been listed in the section head’s last report), and that much of the paper was inaccurate and could not be recommended for publication (memo from SAG Section head H.B. Willman to Morris M. Leighton, March 26, 1953). An undated memo from Willman to A.C. Beaven provides additional insight into claims against Raasch and reveals the territorial nature of research topics at the time. It reads, in part: “[Raasch’s paper] borrows much from our Silurian study, which is not mentioned... It skims the cream off of some of the obvious correlations we had planned to make... Such situations can only be avoided by having all the stratigraphic research of the Survey under central direction.”

Because most of his Silurian research had been conducted in Wisconsin before he arrived in Illinois, Raasch was incensed at the accusations that he was stealing the information and ideas of others at the ISGS, trying to preempt their work, and that he would be publishing substandard work. On May 8, 1953, Raasch presented his paper at the annual meeting of the Illinois Academy of Science and later sent out copies for comment. In an attempt to resolve the controversy, he met with Morris M. Leighton, Chief of the Survey, on June 2. Again, Raasch was accused of stealing the information that provided the basis for his ideas, told that his paper would preempt ISGS work, and subjected to other erroneous claims. In a June 3 memo to Leighton, Raasch again emphasized that his paper focused primarily on Wisconsin Silurian rocks and that the work was not done on Survey time. Leighton responded on June 9, telling Raasch that he could not publish his paper outside of the Survey and that he could no longer work on the Silurian until the SAG Section had finished its Silurian study. Specifically, Leighton stated, “The Silurian studies of the Survey are assigned to Dr. Willman. His prosecution

of those studies must be protected on behalf of the Survey’s objectives. Any other staff member who has a contribution to make should make it to Dr. Willman for the Survey’s benefit.” In addition, Leighton directly accused Raasch of using information unethically, “Acceptance by a staff member of confidential information for his own use and which he may use in conflict with the Survey’s organized program is untenable.” Moreover, Leighton suggested that Raasch’s information was being withheld unjustly from the Wisconsin Survey (who had no interest in it), and observed that, if the work was published by a non-Wisconsin Survey employee working for the ISGS (even if done independently), interstate trouble could ensue.

Justifiably, Raasch became enraged at being accused of unethical research practices, forbidden to publish his paper even as a private individual, and directed to stop any further work on the Silurian even on his own time. As a result, on July 16, 1953, Raasch handed in his resignation to the Survey, having accepted a job offer from Lew Workman to work for Canadian Stratigraphic Service in Calgary, Alberta. Ironically, Workman, who had left the ISGS the year before, was one of the co-authors of the ISGS Silurian project from which Raasch was being accused of stealing. Although he revised his paper many times over the next twenty years, Raasch would never find time to conduct the field work needed to finish his Silurian work. Willman’s paper was not published until 1972, and he later expressed regret over the episode, stating, “I should have handled it differently” (H.B. Willman, 1980, verbal communication).

CANADA

In the late 1940s and early 1950s there was extensive exploration for hydrocarbons in western and Arctic Canada. Raasch was hired by Canadian Stratigraphic Service (CSS) specifically to use his extensive paleontological background to date and correlate Paleozoic rock units as part of this exploration. His skills of fossil identification and ability to establish biostratigraphic frameworks was well known, and he was given the task of working with collections from not only the Paleozoic but from younger rocks as well. He quickly became an expert on new parts of the stratigraphic column in which he had little previous experience. For example, when he arrived in Calgary, he had a copy of Stuart Weller’s monograph *The Mississippian Brachiopoda of the Mississippi Valley*, published

by the ISGS in 1914. Apparently, no one else there had a copy and, as the Mississippian rocks were an important part of regional exploration, he became the expert on them. His extensive background in Devonian correlation was especially important as much of the oil discoveries in Alberta were in rocks of that age. In 1956, he was hired by Shell Oil as a consultant and worked there until 1967. Shell would not hire him as a regular employee, however, because he was over the age of fifty. One of his most important research projects with Shell was a comprehensive study of the biostratigraphic correlation of the North American Ordovician. Because this work was done for Shell, it remains unpublished.

After 1967, Raasch ran his own consulting firm, Raasch and Associates, with the valued assistance of Patricia Alexander. A detailed account of this part of his career is beyond the scope of this paper, but he was very successful and well respected for his skills in biostratigraphy. He fully enjoyed his Canadian geological work, especially when in the Rockies or the Arctic, because it fulfilled his boyhood dreams of being a great wilderness explorer (Avis Worthington, 2000, verbal communication). Gil wrote many papers on the Paleozoic of western Canada and the Canadian Arctic during that time, and he was still writing papers until the time of his death. Among other notable accomplishments during his years in Canada, he was co-organizer and the editor of a symposium on polar wandering and continental drift (long before they were popular subjects), the proceedings of which were published in the *Journal of the Alberta Society of Petroleum Geologists* in 1958. He was also one of the organizers of the very successful First International Symposium on Arctic Geology, held in Calgary in 1960, and was editor of the two proceedings volumes published in 1961. His lifelong contributions to Devonian research were recognized when the three-volume proceedings of the Second International Symposium on the Devonian System was dedicated to him in 1988 (McMillan and others, 1988). He contributed a paper to these volumes, summarizing his Devonian biostratigraphic work.

As much as he had accomplished in Canada, Raasch was able to achieve little concerning his old research interests in the Midwest. He did publish an innovative paper on Cambrian wind direction at Baraboo as part of his Polar Wandering and Continental Drift Symposium (Raasch, 1958), a subject he first

mentioned in his 1935 article (Raasch, 1935a) on the Baraboo Paleozoic. In 1966, he published a paper on transgressive-regressive cycles in Croixan sediments (Raasch and Unfer, 1966), which was to be his last paper on Midwestern geology and paleontology. He “retired” as a consultant in 1988, when he was 85, but continued writing papers well into his 90s. Gil passed away at the age of 95 on January 20, 1999. He was preceded in death by his wife Polly and daughter Elaine.

RAASCH’S LEGACY AND UNFULFILLED PROMISE

What kind of legacy did Raasch leave after a career of almost 80 years? Gil was an exceptionally gifted and hardworking individual who had a very productive career. He is recognized as one of the most innovative and accomplished scientists ever to have worked on the Paleozoic geology and paleontology of the Midwest. He is also highly thought of among his former colleagues in western Canada. His scientific legacy will be invaluable to future research, especially in the Midwestern United States. This already became clear long before he died because during the past two decades, a new generation of scientists have found the collections, papers, and ideas of Gilbert O. Raasch critical for their thesis work and research.

As Midwesterners, however, we feel that his departure from this area was not only unnecessary and undesired, but also caused an irreplaceable loss to the geologic community here. The drive, ambition, and accomplishments of his early career promised much more for the future. His inability to get the kind of research job that he needed in the 1930s and 1940s, however, resulted not only in the loss of the research he never completed but also in the decline of the institutions and programs that he could have helped the most. Gil left many unfinished manuscripts from his early career that could not be completed because he could no longer undertake extensive Midwestern field work, and he had to work in jobs that offered little opportunity or time to publish his research. Likewise, many new research topics he had been interested in for a long time were never begun for the same reasons. In areas where rock exposures are always plentiful, Raasch’s departure might not have had a long-term impact. In outcrop-poor southeastern Wisconsin, however, temporary exposures and quarries are the major source of geological and paleontological infor-

mation. After Raasch left the region, little of this information was documented for nearly thirty years. Research interests dramatically declined after he left, and for decades little work was done by anyone.

The institutions with which Raasch was associated also had problems related to his departure. For example, the UW Geology Museum suffered almost thirty years of decline, causing significant damage to the collection. It was not until Klaus Westphal became its curator and Lewis Weeks provided the necessary funding that the Museum was able to become the institution that Raasch had worked hard to create. Likewise, the MPM Geology Department experienced a similar decline as exhibit renovation became its main focus and as a result, the collections were neglected.

If Raasch had left the area on his own to further his career, the loss would be more acceptable; however, for all intents and purposes, he was excluded for less than noble reasons. At the UW and the ISGS, he was virtually driven out by extremely poor treatment. At the MPM in the early 1940s, for unknown reasons he was denied a position for which he was best suited. Even after moving to Canada, Raasch always wanted to return to the Midwest, not only to complete some of his lifelong research interests, but also to find employment. At various times, he inquired about or applied for jobs in the area, including state geologist of Wisconsin, director of the MPM, and curator of the MPM Geology Department. Others were chosen to fill these positions and, as a result, Raasch never had the opportunity to finish his work here. Although he never expressed bitterness about the turn of events that his career had suffered, it was clear to us that Gil was very disappointed because he would have chosen to remain in or return to Wisconsin, if he had had the chance.

Does Raasch's career hold any lessons for scientists just starting their careers? More than anything, it demonstrates the impact that "office" politics can have within the scientific community. Even though Gil, as a student, had what would appear to have been some winning traits for a scientific career, they frequently caused him trouble, despite his hard work and demonstrated accomplishments. Starting out as a young expert with clearly defined research interests created problems, first in the conflict between his schoolwork and research and later in the lack of acceptance by his older scientific peers. Neither did his drive, well defined goals, and serious nature always win him friends

among his colleagues, some of whom had more relaxed attitudes toward scientific research. Gil also discovered that knowing what he wanted to do and working toward that goal without the proper credentials was not always a successful career strategy.

Everyone who has an interest in Midwestern Paleozoic rocks and fossils is inspired by all that Raasch accomplished, but we will never know how much more he would have produced had he been able to continue his work in the region.

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