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Cover Story

The Davis Mountains Meteorite

Eighty-four years and 2700 miles after its discovery in Jeff Davis County, Texas, the Davis Mountains Meteorite came home. It survived being dragged for miles across the rugged West Texas terrain, repeated assaults by hacksaw-wielding souvenir seekers and more than nine years of mistaken identity as a chunk of platinum.

The 1530-pound meteorite is now on display at the W. L. Moody, Jr., Visitors' Information Center at McDonald Observatory. It is on loan from the Field Museum of Natural History in Chicago where it has been displayed for the past 74 years.

The Fort Davis stop is the latest chapter in a history filled with travel and intrigue since the meteorite's discovery by seven-year-old George Duncan in 1903. He must have been attracted to the large unusual object of nickel and iron near the small town of Toyah, Texas, some 80 miles north of McDonald Observatory, because he convinced his father to take the large boulder home. For a while it sat on a hill behind the farmhouse.

Two men tried to steal the boulder from the Duncan property, but it must have been too heavy. Shortly after, it wound up in a mercantile store in Toyah where it stayed for about a year. As a curiosity, the meteorite proved a boon for the storekeeper. In addition to increased sales of common wares brought on by large numbers of visitors, a quick profit was made from the sale of hacksaw blades with the promise that purchasers could keep whatever they managed to slice off of the mysterious rock.

The sheer density of the meteorite, however, prevented souvenir seekers from taking many samples. The heavy weight of the meteorite soon weakened the floor of the store and had to be removed according to the store owner's daughter-in-law Helen Humphries, now mayor of Balmorhea. Many felt that the object's apparent indestructibility and its damage to the store was an ill omen.

For the next nine years, the mysterious rock was displayed in Fort Worth as an example of platinum because of its steel gray color. Its true identity was revealed in 1913 when Professor G. M. Butler recognized the object as a meteorite and made arrangements for its acquisition by the Field Museum of Natural History in Chicago. There it was part of a large meteorite collection for almost 75 years.

In 1987, the building housing the meteorite collection was scheduled for destruction, and museum officials contemplated long-term storage for the Fort Davis meteorite along with the rest of the collection. The quick thinking of museum curator Dr. Edward Olsen made the stone available to McDonald Observatory where it could be seen and enjoyed at the Visitors' Center.

Despite the 84 years that have passed since its discovery, the Davis Mountains Meteorite remains somewhat of a mystery. Measuring 78 by 68 by 38 centimeters, its value has been estimated at $60,000, based on the rate of 10 cents per gram. The meteorite, which has striations and furrows on the upper surface, shows the erosive action of the air currents during its fall to earth. It is cone-shaped with a flat base, and is estimated to be about 4.5 billion years old.

Much scientific speculation has concentrated on the small triangular section missing from the surface of the object. Scientists have estimated that the missing piece is about 10 cm thick and became dislodged during the meteorite's fall to Earth. A search party may visit the area where they believe the meteorite landed in 1907 to look for the piece./*Danny Ewald*

If you know of any meteorite, please drop us a line with a description and photo, if possible, to Meteorites: Star Date, RLM 15.308, The University of Texas at Austin, Austin, TX 78712.

Cover: *Four-year-old Jerod Kendrick of Houston, sits beside the 1,530 pound Davis Mountains Meteorite now on exhibit at the W. L. Moody, Jr. Visitors' Information Center at McDonald Observatory, just 80 miles from where it was discovered in 1903. Photo by Diana Hadley; cover story above. Also see the feature on meteorites,* ***He Touched Unearthly Stones!*** *on pages 3, 4 and 5.*

He Touched Unearthly Stones!

By John O. Williams

This essay won Fourth Prize in the 1986 Astronomy Essay Contest sponsored by Friends of McDonald.

Using a selection of meteorites from his collection, Oscar Monnig, center, explains some of the variations between the types of stones to author John Williams, left, and another interested observer.

October 10, 1926 was a cold night on a vacant lot in suburban Fort Worth, Texas. Two young men were drinking hot coffee and waiting. Not wishing to cause any alarm, they informed neighbors of the nature of their mission. Strange as it might seem, they were waiting to witness a "meteor shower."

One of these men was Oscar Monnig and his fascination with these darting lights in the night sky continued for a lifetime. From that time on, whenever he smelled hot coffee he always thought of the experience of watching this meteor shower, called the Orionids. Their vigil was modestly rewarded. But at dawn, as they prepared to leave, one early-rising neighbor was heard to remark that "the water department has some nerve, keeping those young men out there all night just to check the meters."

An Early Interest

Oscar Monnig was born in 1902 and demonstrated an early interest in astronomy. He can still remember his curiosity about the bright red object in the sky in 1909 (it was Mars at opposition) and his frustration with the fact that no one else seemed to take any interest. In his college years, various aspects of astronomy — eclipses, novae, meteors, variable stars — attracted his attention even though he was pursuing a degree in law. The University of Texas granted his degree in 1925.

After Oscar entered law practice in Fort Worth a friend, James H. Logan of Dallas, loaned him two telescopes and encouraged him to become an observer of variable stars. He took this hobby up in earnest. In the company of such men as Logan, Sterling Bunch, and Robert Brown, Oscar also began to spend long nights observing meteor showers.

He found one property of meteors particularly intriguing. It was the fact that, in rare instances, a remnant of the object that produced the meteor could reach the surface of the earth, where it was called a meteorite. Here was the only subject in astronomy where it might be possible to actually touch the object of your interest! (This was many years before man landed on the moon.) It was a fascinating thought. He began to focus his attention on the study of meteorites.

Meteorite Information Scarce

By 1932 Oscar had settled into a position in the family business, a department store chain in Fort Worth, and had decided that he wanted to spend his spare time searching for meteorites. But it was difficult to find out just what to look for, since he had seen no meteorites and had found little information in print about them.

He and several others were planning to go to Canada to witness a solar eclipse in August, so they seized on the opportunity to visit several major museum collections of meteorites along the way. To see the many and varied types of these rocks from space was a great thrill, but unsatisfying in one sense: they were all locked up in glass cases. Many of the specimens were cut, polished, and etched and it was not always clear what was crust and what was not. The peculiar densities of the meteorites was also something that they wanted to experience through handling.

However, attempts to see and learn more were gently but firmly turned away.

As Bob Brown would later say, the curators "took no interest in anyone who took interest." One notable exception was the Field Museum in Chicago, who provided them with a number of reprints on the subject of meteorites. Oscar read them avidly.

Borrowed Meteorites

After returning to Fort Worth, Oscar learned of a noted meteorite collector by the name of H. H. Nininger. He wrote to him and asked if he might obtain some samples of meteorites for study. Nininger responded by sending him two small specimens on loan, an iron and a stone. As it turned out, they would be put to very good use.

Oscar reasoned that if he was going to find any meteorites, he would need a lot of cooperation from many people. This meant he had to inform them of his interest and stimulate their interest as well.

His first opportunity to do this came when he noted that a large downtown bank had a window in which, with permission, one could display something for a week. He applied and was given the space. He put the two small meteorites in there, along with some general information and a sign that said, "if you know of any meteorites, please call Oscar Monnig," and gave his phone number.

Within a week, a man who had worked for him at his wholesale store came in and said, "My aunt has a meteorite." "Where is it?" Oscar replied. "Down at Kirbyville, in East Texas. The next time I go down I'll bring it up here and show it to you."

A few weeks later he called and said he had the meteorite. Oscar hurried over to the man's house and, when the door was opened, he saw the most beautiful meteorite he would ever see. It was a rare 97-gram stone with a glazed black crust that looked like pottery. Visits with the family, who had owned it since it fell in 1906, eventually led to its acquisition. Oscar's passion for collecting meteorites was greatly kindled by this early success.

One in Every County

Oscar's next venture grew out of a conversation with H. H. Nininger, in which Nininger expressed his belief that there was a "meteorite in every county." Oscar decided to visit some nearby small towns on weekends and just talk about meteorites to the people he met there. He would make a special effort to meet people who might be more likely to have knowledge of a local meteorite, such as the school principal or science teacher.

One of his earliest visits, in 1934, was to the town of Cleburne in Johnson County, Texas. Oscar learned that there was a local gentleman who had a rock collection. He paid him a visit and asked if he had any meteorites in his collection.

"Of course," the man proudly replied, and brought out some heavy, brownish rocks. One look assured Oscar that these were not meteorites, but a relatively common, naturally-occurring rock called hematite. Often mistaken for meteorites because of their color and density, these objects usually display a rounded, knobby form that is just the opposite of the so-called "thumbprint" depression features that characterize many meteorites.

The gentleman was so proud of his horde that Oscar couldn't bring himself to spoil his illusion. Instead he simply asked if there were any "other meteorites" in town. Perhaps disappointed that Oscar didn't seem impressed with his "meteorites", the man rather brusquely responded, "No."

Two great pioneers of meteoritics, Oscar Monnig (left) and H. H. Nininger chat at a conference in 1984.

But Oscar sensed that his host was holding something back and so continued to chat until, finally he was told that, indeed, there was another meteorite that belonged to a local resident.

Oscar followed this lead to a nearby house and asked the resident if he happened to have a meteorite. The man stepped away from the door for a moment and came back with a beautiful old iron meteorite that weighed nearly fifteen pounds. He and his son had found it on their property in 1907 and, suspecting it was meteoritic, they had preserved it in their home - as a doorstop! Oscar subsequently obtained it for his collection.

An Informal Approach

It was not much later that this informal approach paid further dividends. An acquaintance of Oscar's by the name of E.L. Neill of Cleburne called him to say that there was a meteorite cemented into the bandstand at nearby Glen Rose. Monnig and his friend, Robert Brown, headed down there right away, and sure enough, the story was true. This meteorite was of the stony iron type called a pallasite.

After Oscar made arrangements with the band director to remove the meteorite and replace it with an ordinary stone, he and Robert went back to Fort Worth to pick up the necessary tools. Robert returned to do the job and, while he was chiseling away, a fellow came up and said, "Why, I've got one of those built into a column of my house, And there's still another piece out in the country where I got it." And if that wasn't enough, yet another man came up before Robert could finish his work and said, "So that's a meteorite? You should see the one Old Man English has."

Following up on these leads, Monnig and Brown obtained two more pieces of the Somervell County pallasite, totalling about 26 pounds, and then visited Mr. English, where they uncovered a completely different meteorite, an iron of more than 24 pounds. Five specimens from three different meteorites had been found within a radius of a few miles!

Searching out old meteorites is one thing; chasing down reports of fireballs in hopes of finding freshly-fallen meteorites is another. Oscar and Robert tackled the latter challenge with the same enthusiasm and dedication they had employed on their earlier forays. One morning in May of 1939, as they were preparing to go to the Davis Mountains in West Texas for the dedication of the 82-inch telescope at McDonald Observatory, the newspaper reported that a big fireball had been seen just west of Houston,Texas.

Chasing Fireballs

Oscar was tempted to head right down there to investigate, but finally elected to go on to the dedication with Joe King from Houston. King had been fortunate enough to have seen the fireball and a smoky train that it had left, as well. He said that he was going to search for the meteorite. Oscar suggested that they

cooperate and keep each other informed. King agreed.

After returning to Fort Worth, Oscar called to find out when King might begin his search, only to hear him say, "Oh, we went out there and found one, already. It was a three-pounder lying right in the middle of the road."

Oscar excitedly inquired, "Joe, are you going out and hunt some more?"

"No, we don't want anymore," Joe replied.

"Well, now, I don't want to be greedy or anything," said Oscar, "but if you think there are some more out there, I'd like to come down."

"Come ahead," he said. Oscar promptly flew down in an old prop plane and went to the site where King had found his meteorite. He began a door-to-door inquiry of the farmhouses in the area and found that virtually all of the farmers had meteorites! A number were purchased that day for Oscar's collection and, subsequently, he arranged with a local store owner to buy any more that turned up in his absence. The final count was over fifty specimens of the Kendleton stony meteorite, so-named for the small town near which it fell.

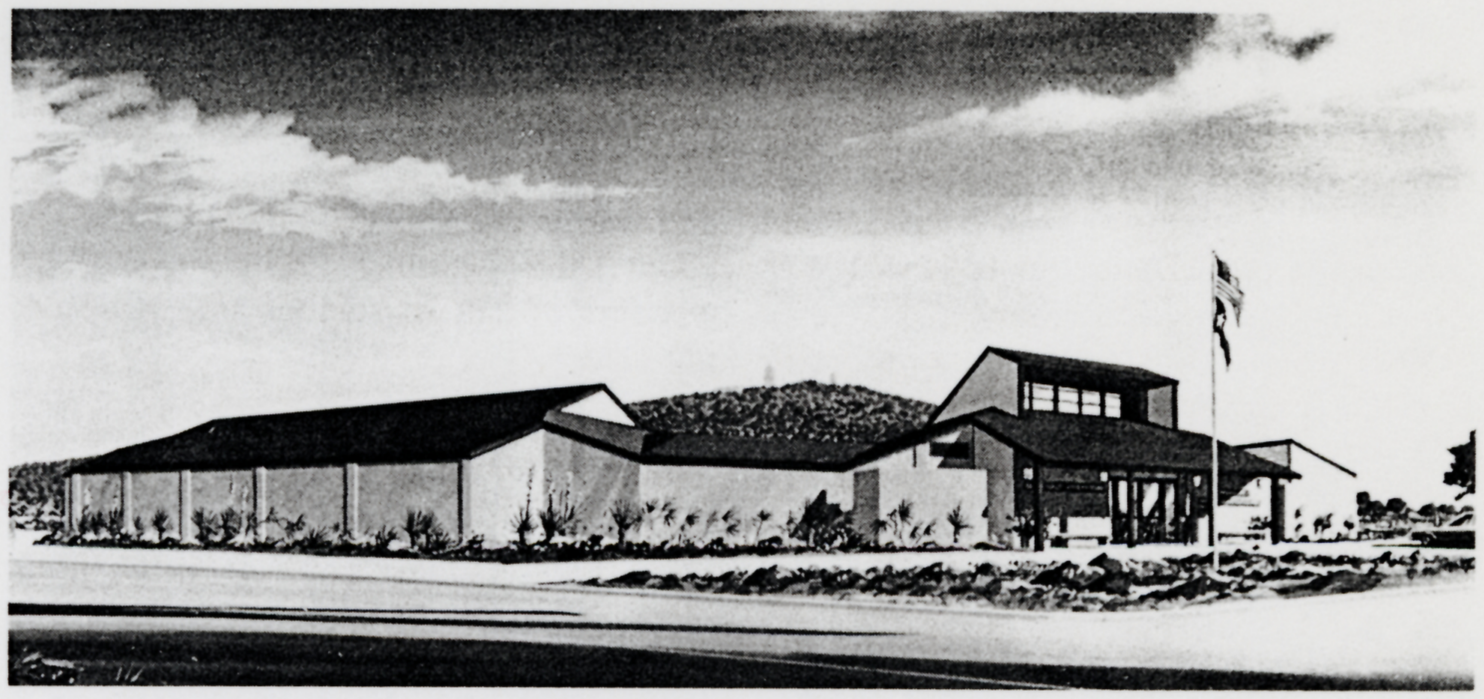
Collection of Meteorites

These anecdotes characterize the early years of a career which would go on to span half a century and would culminate in one of the world's largest and finest collections of meteorites.

Oscar Monnig's curiosity, dedication, patience, sincerity, and friendliness are traits evident in these early episodes and are the secrets of his success throughout the years that followed. An asteroid was named for him in 1983 as an honor for his achievements.

His famed collection is now housed at Texas Christian University in Fort Worth although parts of it have been loaned to science centers and museums for displays. A small portion of the Monnig collection is on loan to McDonald Observatory and is on display at the W. L. Moody, Jr., Visitors' Information Center. The meteorites that fascinated Oscar Monnig will serve to educate inquisitive minds and will be accessible for scientific research.

John Williams is a consultant on planetarium programming and IMAX/OMNIMAX theaters and his favorite hobby is investigating fireballs. His last article in ***Star Date*** *ran in October 1985 and was entitled, "A "Star" Fell on Texas."*



Artist's drawing of planned Visitors' Center at McDonald Observatory

Visitors' Center Expanding

For most people who visit McDonald Observatory, their stop at the W. L. Moody, Jr., Visitors' Information Center is where astronomy comes to life. There movies, displays, and exhibits are among the ways that visitors learn about astronomy. Looking at the large telescope and astronomers' working quarters is part of the McDonald tour, but many visitors value the opportunity to actually look through a telescope at the Visitors' Center as much. Bi-weekly star parties and daily solar viewing sessions are just two activities that have been added to the visitors' program.

The program has grown as the numbers of visitors have dramatically increased perhaps due to media coverage of space programs, greater emphasis on science in educational programs or the explosion of astronomy information that accompanied the visit of Comet Halley in 1985-86. Whatever the reasons, visitors now come to McDonald with more questions and greater interest than they did even five years ago.

Now the program has expanded so much that the Visitors' Center itself has reached capacity. The 2500-square-foot building dedicated only seven years ago is often brimming with visitors waiting for tours, films or star parties.

The good news is that the McDonald Observatory and Department of Astronomy Board of Visitors have planned to expand the Visitors' Center. Pictured above, the new center will have several additions. The present building (with the main entrance) will be expanded to have more displays, a separate audio-visual area and great gift shop and office space. At left, the new auditorium will house about 100 people for meetings, films, and group activities. Behind the center, an observatory will house the telescopes used for solar viewing and starparties. The expansion is expected to be completed in June 1989, in time for the Observatory's 50th anniversary celebration.

In his bequest to the University of Texas, W. J. McDonald mandated that his estate should be used "to erect and equip an astronomical observatory for the study and promotion of astronomy." In 1938, even before the first telescope was dedicated visitors began coming to Mount Locke. In 1981, the present Visitors' Center building was opened to the public, and, in spite of its remote location, McDonald was visited by some 20,000 people that year.

In the last few years, the number of visitors to the Observatory has increased dramatically. By 1983 about 45,000 visited the Observatory, and the number reached 60,000 in 1985. Then, Comet Halley mania struck, and over 100,000 visitors came from everywhere in the United States and many foreign countries to look at the famous comet in the superbly dark skies of West Texas — one of the best locations in the country for Halley enthusiasts during the winter of 1985-86.

With the increasing popularity of West Texas and the Big Bend area as vacation destinations, and with the public's growing interest in astronomy, we expect and hope that people will visit the Observatory. High in the beautiful Davis Mountains, McDonald Observatory offers an astronomy education to visitors that is unique: a tour of one of the world's renown telescope complexes, many educational exhibits, displays and video programs, and best of all the opportunity to see the vast display of stars, galaxies and celestial objects in one of North America's darkest skies. Come and see for yourself!