Four Corners Gem and Mineral Club

November 2024 Newsletter

Message from your President

Hello ROCKSTARS! As this is my first newsletter, I want to take a moment to say 'thank you' for allowing me to serve this club and take the reins on the next chapter. I see this club as an invaluable asset to this community and I'm looing forward to showing them more of what we have to offer. It's my hope we can resume demonstrations and teaching for the community – in and out of the classroom. We have a deep well of knowledge and we should be sharing that knowledge at every opportunity.

I'm also very aware that this building will not last for much longer! David passed along all the important information on this endeavor, that has been collected so far and I will pick up that baton and run with it. We will need to do some aggressive fundraising and set ourselves up to keep this club alive and well – and well housed in the future. More to come on this in the new year!

We've had an amazing donation of Ventifact rocks that will be on display and available to purchase at the Silent Auction, during our Christmas Social Hour. We've had a very generous donation of several Ventifact specimens. Please take the time to read **Bob Chutney's** write up, below, as we will be auctioning these off to Club members during our Christmas gathering.

There is A LOT of information in this newsletter, so read it all and reach out if you have questions.

Again, I thank all of you for giving me an opportunity to serve this club…it is my happy place.

Angela

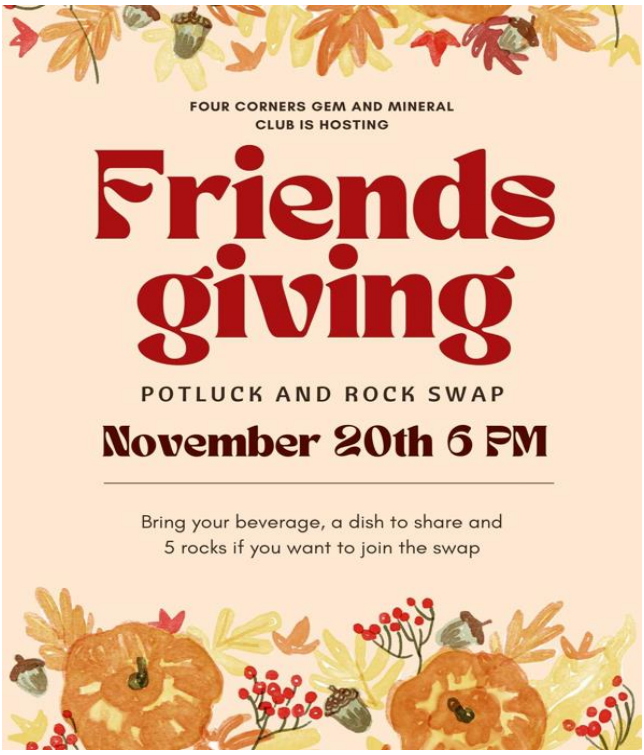
Reminder about Membership Dues

It is easy to forget to pay your membership dues, but they are particularly important to support the activities and events that we offer, as well as tools and equipment. You can renew with a Steward at the Club during Open Shop or online at https://www.durangorocks.org/join-clubrenew.html

Social Hours:

> November 20th – Friendsgiving!!

The Events Committee has organized a social hour from 6:00-7:30 pm on November 20th, at the Club. Bring a dish (finger foods) to share, as well as 5 rocks if you would like to participate in the ROCK SWAP!



> December 9th –Christmas Party -Ventifact Silent Auction & White Elephant Exchange!!

The Christmas Social Event will be December 9th, from 6:00-7:30 pm at the Club. Bring a small gift (maybe lapidary or rock related) for the White Elephant Exchange.

We will also be having a very special Silent Auction on the Ventifacts donated to the club. Be there and grab a Ventifact of your own!! ***Again – thank you, Bob Chutney for this wonderful education, and amazing donation.*** Be sure to read his full article below.

Classes in December

Classes offered in December include:

- Dec 8th – Cutting and Polishing Cabochons
- Dec 13-14th- Introduction to Silversmithing and Statement Ring
- Dec 15th – Holiday Gift making-silver wire link bracelet with semi-precious gems

Check out these classes here http://www.durangorocks.org/events.html for the times, cost, and other information.

Open Shop & Events Around the Region

- A full schedule of Open Shop is listed at http://www.durangorocks.org/events.html.
- If you are interested in finding shows and other events in the area, you can find them at https://www.rockandmineralshows.com/

Field Trips

As we head into the holidays, and not to mention it's very chilly burr outside, field trips will resume in the spring! There is sooooo very much to see, to dig and to collect in this part of the world, and I'm looking forward to trekking around the rocks will all you Rockstars! Anyone can lead a fieldtrip – you just need:

- A description of what/where for the field trip
- It can be posted online with the help of The Board – just reach out!
- Cost is usually $20 per person.
- Limited availability is suggested to keep the groups manageable.
- Every participant will need to sign a waiver of liability to attend.

Ventifacts Silent Auction! – attend the Christmas Party to participate!

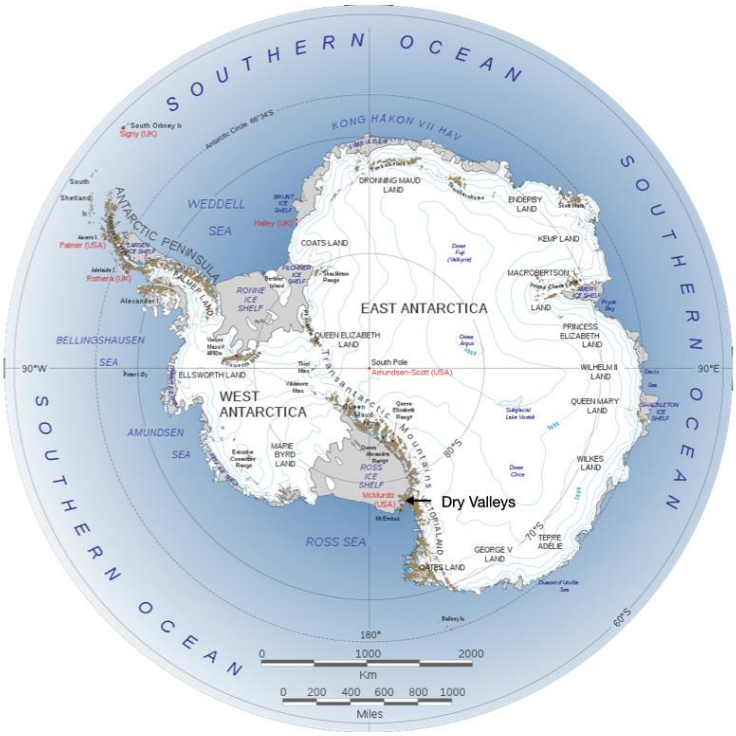
Antarctica Ventifacts

By Bob Chutney

Ventifacts are simply wind-shaped rocks. They are formed by strong winds carrying particles of dust, silt, and sand at high speeds. Dust grains are suspended in the air, and can be carried from ground level to extreme heights; larger silt and sand grains slide, roll, or bounce along the surface (a process called saltation). The particles collide with rocks on the surface of the ground abrading them in a process much like sand blasting.

Ventifacts are typically found in arid areas where there is little or no vegetation to cover the rocks or hold soil in place, and where periodic high winds occur. The winds abrade the ground surface, removing and transporting grains, causing deflation of the surface and leaving mostly rocks behind. The result is desert pavement, where closely packed rocks of pebble to large cobble size cover the ground with little intervening sand or gravel. A few classic examples of desert pavement where ventifacts occur are the Atacama Desert of Chile and Argentina, the Gobi Desert in Mongolia, the Mojave Desert, CA, (especially Death Valley), the Skeleton Coast of Namibia, and Rocky Flats between Golden and Boulder, CO, where seasonal Chinook winds have been recorded at up to 147 mph.

Antarctica, a continent covered in ice, would seem an unlikely place for ventifacts. But, although only 2% of the continent is ice-free, parts of that are very favorable for the formation of ventifacts. Antarctica is technically a desert, with an average of 6.5 inches of precipitation per year. It has no vegetation. It has extremely high winds and a large supply of dust and fine sand derived from grinding of bedrock by the glaciers. The cold temperatures reduce chemical weathering. There are also very fine-grained lithologies suitable for formation of ventifacts.



The Dry Valleys on the west side of McMurdo Sound, east of the Ross Ice Shelf

The ventifacts in the FCGMC collection were collected from the McMurdo Dry Valleys, on the west side of McMurdo Sound in southern Antarctica. The Dry Valleys are one of the most arid places on earth, almost never seeing precipitation. Some studies suggest there has been no significant precipitation there in more than two million years. Intense katabatic winds funnel down the valleys from the cold, high mountains, often reaching speeds of 200 mph. Sand, dust, and even snow and ice crystals blast the rocks lying on the surface and shape and polish them.

Most of the Antarctica ventifacts were formed from pieces of dolerite (Jurassic Ferrar Dolomite), an intrusive form of basalt. The dense, aphanitic to very fine-grained texture of the dolerite aids in the formation of ventifacts by being easily shaped and polished, but homogenous and hard enough that it doesn't disintegrate during the wind sandblasting.

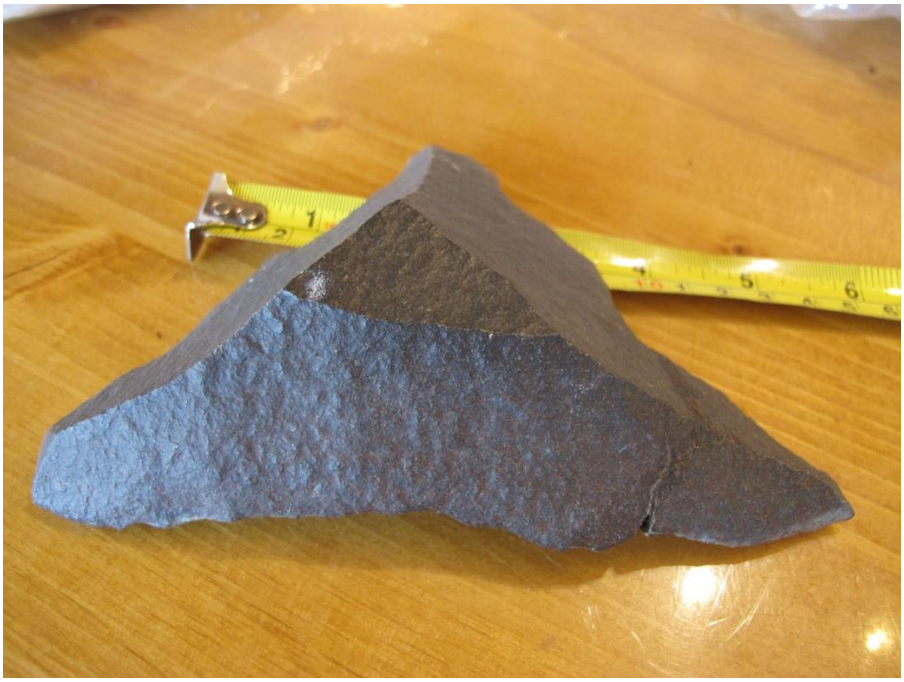
Ventifacts take several forms including faceted, etched, grooved, pitted, and polished. The FCGMC specimens exhibit all these forms; many of them have several forms, suggesting movement of the ventifact or changes in wind direction during the eons it took to shape the ventifacts. One of the unique features of these ventifacts is that many of them are polished on both top and bottom and some are pitted or grooved on both sides. That suggests the rocks were tipped over at some point, allowing sandblasting on what used to be the bottom. Frost heave is likely responsible for most of the rotation of the ventifacts, although extreme winds may also play a role by flipping over thinner rocks, especially ones that have been become unbalanced due to deflation of the ground surface under the ventifact or erosion of a large part of the ventifact itself.

The most common characteristic of ventifacts in the collection is polish. Almost all the specimens are highly polished.

The classic ventifact is faceted with from one to four planar to sub-planar facets carved by the wind, often forming a keel or flat surface on the top, at the intersection of the facets. German scientists studying ventifacts created a system of

nomenclature based on the number of facets or edges (“kanter” in German): einkanters, sweikanters, dreikanters, and vierkanters. I think they gave up counting after four, since I not seen reference to funfkanters.

V-33: A perfect four-sided ventifact (vierkanter) with a well-developed keel, note minor polish



V-4: A 3-faceted ventifact (dreikanter) with a flat top; a youthful ventifact in which the facets had not progressed to meet and produce a keel, note only minor polish.

Pits form when the wind blows at a high angle to the surface of the rock, carrying sand to form a dimple. Once the pits begin to form and deepen on a faceted plane, sand becomes trapped in them and swirls around with the wind, further grinding, deepening and widening the pits.

Specimen V-35 displaying abundant deep pits; note fine sand in bottom of pits.

Grooves or flutes are also common. They develop parallel to the wind direction when wind- transported grains impact the rock and slide or bounce along it, creating long narrow depressions in the rock.

Long grooves/flutes on the polished surface of ventifact V-34.

Complex ventifacts combine several forms, which appear to be superimposed on each other. From studying the FCGMC Antarctic ventifacts, I believe there is a progression which starts with faceted faces, developed on a rock surface with a constant orientation to the wind. After primary facets are created, secondary facets may form across the original ones when either the rock is rotated or the prevailing wind direction changes. When facets are oriented at a high angle to the wind, small pits begin to form on the face, then grow into large pits. The pits often develop into grooves. This is evident in several specimens, where small pits and grooves can be seen developing on facets. Other specimens exhibit deep pitting on one or more facets. The most mature ventifacts have facets which are partially rounded or curved by extensive wind erosion. As erosion continues, ventifacts lose their upper parts and become fairly flat ones with only the lower parts of the original facets remaining. In extreme cases ventifacts have been almost completely obliterated by pitting and grooving. Some of them take on odd shapes with no resemblance to the original faceted ventifact. Another line of evidence which supports this evolution in shape is that ventifacts with distinct (well preserved) facets have much less polishing than ones with pitted or grooved facets, suggesting they have spent less time exposed to the wind, although polishing can also be a function of grain size of the rock and size of the wind-driven grains (we all know the 80-120-240-400 … mesh routine).

V-3: a high domed ventifact on which secondary facets have been superimposed on the primary ones as the rock rotated relative to the prevailing wind. The smaller facets produced an oval shape that looks similar to paleolithic flaked tools. This stage of development has moderate polish.

V-25: Pits and grooves have eaten away at the top and sides of this four-faceted ventifact, leaving only remnants of the lower parts of the facets.

As wind erosion continues, pits and grooves eat into the rock, eventually destroying nearly all the primary and secondary facets.

Most of specimen V-31 has been eroded, leaving only a small portion of two facets.

Here is an example of a large, highly polished, very highly pitted and grooved ventifact (V-15). The rock has been eaten away and the original shape has been obliterated with no sign of planar facets left.

Another type of ventifact in the FCGMC collection is formed from sandstone (Permian-Triassic Beacon Sandstone). The sandstone is coarser grained than the dolerite and the grains are not as densely packed as those of dolerite, making a softer rock. It is also not as homogenous, having distinct bedding planes. These characteristics lead to the creation of very unique ventifacts – bowls.

What probably starts as a pit on the face of a sandstone cobble enlarges to the point that sand becomes trapped in the pit and swirls around with centrifugal force, abrading the sides of the pit as it preferentially erodes a softer bedding plane and eventually forms a giant pit – a bowl. The center of the bowl often remains as a "core" that the windblown sand swirled around and didn't erode into. Some cores survive as odd conical ventifacts.

The start of a bowl – erosion of the center of a sandstone pebble.

A developing bowl with an intact core.

Completed bowl.

The core eroded from a deep sandstone bowl.

Ain’t Nature wonderful?!?

Thank you, Bob! This is absolutely fascinating!! It will be exciting to see these at the Christmas party/Silent Auction!

A final, thank you, from the Board, for making this club an amazing place!

President: Angela Folk

Vice President: Carl Lindeman

Treasure: Cindy Pugsley

Secretary: Emelie Frojen

The Directors are:

Heather Bates, Shauna Dooley, Denise Galley, Charlotte Jenssen, Carlos Mañón, and Toby Mourning.

See you at the club!

Angela