

Geoart – Turning Rocks Into Art

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Abstract

Geoart is the study and appreciation of the beauty that is found in the landforms, rocks, minerals and fossils of the Earth. It exists on many scales from the whole planet captured on film from outer space to the pictures of atoms and molecules captured by cutting edge electron microscopes. Most geoart that is accessible to the general public are in between them, from images of landscapes and rock outcrops to collections of rocks, minerals and fossils. Geoart can be categorized into natural or modified, image or object depending on whether it is natural or had been artificially worked on and whether it has been captured on film and other media or is an actual three dimensional object or not. The most important tool for geoart is a keen eye for beauty in rocks. Three ways of popularising geoart is to be a geoartist, a geoart promoter or a geoart patron. Geoart is therapeutic as it brings us closer to nature. Rocks are not only there to be used but also to be loved.

Geoseni – Mengubah Batuan kepada Seni

Abstrak

Kajian geoseni merupakan satu penghargaan terhadap keindahan yang dapat dilihat pada mukabumi, batuan, mineral dan fosil di bumi. Ia wujud dalam pelbagai skala daripada seluruh bumi yang dirakamkan dari luar angkasa hingga ke saiz atom dan molekul di hujung mikroskop elektron. Kebanyakan geoseni yang boleh dihayati oleh orang awam terdiri daripada imej landskap dan singkapan batuan hingga ke koleksi batuan, mineral dan fosil. Geoseni boleh dibahagikan kepada tabii atau ubahsuaian, imej atau objek bergantung kepada samada ia wujud secara tabii atau telah diubahsuai dan samada ia telah dirakamkan dalam filem atau media ataupun objek dalam bentuk tiga dimensi atau bukan. Peralatan utama dalam geoseni adalah dengan mata yang peka yang terhadap keindahan batuan. Tiga cara bagi memperkenalkan geoseni adalah dengan menjadi geoartis, promoter geoseni atau penaung geoseni. Geoseni adalah penawan kerana ia membawa kita kepada tabii. Batuan berada di situ bukan sekadar untuk digunakan tetapi untuk dikasihi.

INTRODUCTION– WHAT IS GEOART?

Art, in a broad sense, *is* skill in making or doing. Since time immemorial, Man has learnt to not only exploit and use rocks and minerals as tools and weapons but also as decorations for either his body or his buildings and other creations. The variety of uses that rocks have been put through in the course of history has been ably documented by the archaeologist Myra Shackley in her book *Rocks and Man* (1977). Being durable and almost infinite in form, colour and texture, rocks and minerals are an ideal medium for turning into beautiful objects of art whether in their natural form or when modified by craftsmen to enhance some of their intrinsic qualities. Such beauty in rocks and minerals is all around us and it is the purpose of this paper to help us appreciate, collect, curate, preserve and exhibit them so that others too can enjoy such treasures of nature together with us geoscientists who have made it our vocation to study the Earth.

Geoart is the study and appreciation of the beauty that is found in the landforms, rocks, minerals and fossils of the Earth. Our mission is to help people appreciate, cherish and preserve this beauty in the rocks of our planet.

DIFFERENT SCALES OF GEOART

Geoart can exist on many scales from mega to micro. Pictures of the whole Earth from outer space such as those found in the book *The Home Planet* (Kelly, 1988) and many other publications help us to appreciate the beauty of Earth in all its entirety. As satellite photographs zoom in to the continents and their component parts, we see coastlines, rivers, deserts and mountains carving out beautiful patterns of varying magnitudes. Remote sensing has indeed opened up for us views of our planet which our forefathers never had the privilege of seeing.

Closer still to the ground, aerial photography takes over and we see mountains and valleys, rivers and lakes, and a host of other landforms in greater detail and breathtaking splendour. Flying has enabled us to look at landforms in hard to access places and from perspectives not available to the person on the ground.

When we finally walk around on solid ground, crawl into a cave or dive under the sea with our cameras, we capture the beauty of landscapes and rock outcrops at the down to earth scales which most of us are so familiar with. A lot of geoart exists at this level because landscape artists

have been painting away since time immemorial. Peering closer with our camera lenses we capture the patterns formed by the minerals, veins, bedding, folds and fractures in rocks on an even smaller scale.

What we cannot photograph in the field due to its small size, we collect and take back to the laboratory. With close-up and macro lenses we proceed to document the beauty of individual fossils or clusters of minerals arranged in bizarre patterns on the surfaces of rocks or within them when split. Some of those specimens are cut and made into thin sections and photomicrographs of these slides are taken, especially using polarized-light which give us beautiful pictures of rocks and minerals at a micro scale. This is not all for with the electron microscope, we are now able to take pictures of mineral surfaces and unicellular fossils of micron scale and in three dimensions too! Clusters of atoms and molecules on silicon chips and other materials have been photographed utilising cutting edge electron microscopy techniques such as scanning tunnelling microscopes to produce microscapes, the hidden art of high technology by scientists working for Lucent Technologies at Bell Labs. Their works were exhibited at PETROSAINS & GALERI PETRONAS from June 14 to July 4, 1999. Some of the most beautiful images produced using such technologies are not of naturally formed materials like rocks and minerals but of man-made materials like steel and thermo-plastics and thus are not geoart but material science art.

WHERE TO LOOK AND WHAT TO LOOK FOR

Geoart can be found wherever landforms, rocks, minerals and fossils are found but not all such items are suitable as objects of geoart. The element of beauty and perhaps rarity will play a part in the selection of an item of geoart. One can argue, of course, that beauty is subjective and lies in the eyes of the beholder but one also knows that not every stone or outcrop should be preserved as an object of art. What is it then that makes one chose a particular item over another to keep and to cherish as an object of geoart? The answer though easy in practice is difficult in theory. We can collectively recognize aesthetic beauty when we see it but it is most difficult to put into words what make us describe one object as beautiful and desirable and another is not. Form, symmetry, colour, texture? What is that magic combination that differentiates one from the other? Those trained in art may have some answers. Even so, the complexity of comparing something so diverse and different in scale and in nature is difficult. Of course, some standards of comparison are available in that one branch of geoart that has existed for centuries, that is in jewellery and particularly gemstones, but none exists for rocks in general.

How then can one know if he holds an object of geoart in his hand or whether it is just another ordinary piece of

rock? Tricky question. One just knows and not only you know but so do at least some others. There is some sort of collective agreement that this piece of rock is beautiful and worth keeping. It becomes more desirable and valuable when someone decides to buy it from you or trade your piece for some other that he has! That may be how rock collectors' clubs conduct their business.

The raw material for geoart is all around us. A beautiful rock outcrop or a magnificent landscape can be captured on film or in a painting to represent geoart. An odd shaped rock or pebble from the beach that is appealing in its beauty and mounted on a suitable base or arranged with other rocks and pebbles or even driftwood and other such natural materials for display, is also geoart. Such material can be modified using rock-carving and grinding tools and special lighting or polish can be employed to bring out the subtle beauty in a piece of rock. The jeweller who prepares and sets some carefully prepared precious stones in a bracelet or a ring or a pair of earrings is practising geoart. The combination is endless. It only requires an eye for beauty and as much effort as you care to put in to turn an existing landscape or a piece of it into an object of art.

CATEGORISING GEOART

Since there is no precedence, the following initial categories of geoart are proposed:- natural versus modified and image versus object.

Natural geoart is that which has been shaped by the hand of nature alone whether it is a natural landscape or a piece of rock that has been fashioned by natural processes like weathering and erosion. Selective weathering of jointed rocks especially sandstones along the coast often produces beautiful boxwork structures (Figure 1). Iron oxide banding that is so commonly seen in weathered light coloured sedimentary rocks such as sandstones and tuff often produce aesthetically appealing patterns on their surfaces. One only needs to enter a limestone cavern full of bizarre natural dripstone formations which has accumulated over hundreds and thousands of years to be filled with wonder and awe at the natural geoart sculptured by Mother Nature without any interfering touch of Man.

Modified geoart is that which has been shaped by the hand of Man such as polished rock pieces (Figure 2), thin-sections of rocks, rock carvings, jewellery fashioned from rocks, minerals, amber, fossils and precious metals. Artificial staining of banded agate slices or radioactive bombardment of quartz crystals and heat treatment of sapphires to alter their colours are examples of other ways to modify objects of geoart in addition to the traditional lapidary treatment of gemstones.

Geoart could also be classified as image geoart which is mostly two-dimensional and takes the form of a photograph, painting or their electronic equivalents and object geoart, which is three-dimensional and is an actual physical entity that can be handled.

Further categories would probably be erected in the future. For example, geoart need not be static and unchanging. Dynamic geoart already exists in Japanese Sekitei rock gardens where the gravel is periodically raked to produce new configurations to express the changing moods of the artists to enable them to cultivate peace of mind and tranquility of spirit. Indeed one of the chief benefits of geoart could well be its therapeutic effect on its practitioners and admirers as it brings one closer to nature, a relationship that is under severe threat in this modern world of concrete jungles that most of us work and live in.

THE TOOLS AND METHODS OF GEOART

The most important tool is a keen eye for beauty in rocks at whatever scale you chose to work at. Then there must be some way to record what you see. For outcrops and anything bigger you need a camera unless you are a good landscape painter as well.

Smaller objects can be collected. A geological hammer is almost not needed as most of the best rock specimens have been shaped by the forces of nature. You just need to pick them up from the beach or riverbed and protect them in some way by wrapping them in old newspapers and plastic or cloth bags to transport them home. Stubborn specimens attached to rocks might require some extraction using a hammer and chisel and the best fossils are often those still embedded within the host rock. Geoscientists (Hahnel, 1962; Voigt & Gittins, 1977; Hillmer, 1988) at Hamburg University in Germany have even developed a technique for extracting a thin film of loose sediments using lacquer-film peels which can be mounted like a painting (Figure 3) for decorative purposes as well as for sedimentological research.

Preparation of specimens after collection would depend on what you want the final product to be. It can be as simple as just scrubbing off the surficial dirt or algae and drying the specimen and giving it a thin coating of mineral oil to give it a shine or giving it a more complicated treatment if one needs to cut and polish or prepare thin sections or mount and coat specimens for electron microscopy.

Banded rocks with different coloured layers such as is commonly found in many marbles and other sedimentary and metamorphic rocks, when cut and polished at certain inclined angles to the banding would often produce very interesting patterns akin to landscape paintings in some instances (Figure 4). Naturally polished pebbles of such banded rocks have on rare occasions produced attractive patterns resembling animal figures and other themes. Enterprising craftsmen have picked up on this and now produce such pieces artificially by carving the layered rocks. This method of modifying layered rocks is not entirely new as busts and figures have long been produced in the Mediterranean region by carving layered material such as banded agate to produce cameos.

POPULARISING GEOART

How then can we fulfil our mission of popularizing the appreciation of beauty in the rocks of the Earth through geoart?

Be a geoartist

You do not have to be a geologist but you must have an eye for beauty in rocks. It helps tremendously if you are a competent photographer or painter and not just a rock collector. Bring the mysterious beauty that is found in the fascinating, but often hard to access, strange-shaped cave formations that is deep down in the belly of the Earth into the homes and halls of non-cavers in the form of photographs and slides taken with special lighting.

Some branches of geoart involving specialized techniques like photomicroscopy may require you to be working in a geological establishment or at least have assistance from someone who does. Cutting and polishing minerals and gemstones, slicing rocks and engraving or polishing some of them can be done with hobby kits or with some help from local stonecutters employed at making gravestones depending on the sizes of the specimens to be crafted. Other than that almost anyone interested in rocks can be a geoartist either for fun or for profit.

Be a geoart promoter

Explore avenues to expose the general public to the beauty of rocks through exhibitions, public lectures and publications. Museums, schools, art galleries and other institutions are possible venues for geoart exhibitions and talks. Geoart can also be promoted by making available and popularizing beautiful objects made from rocks as is already done in retail outlets selling cut geodes lined with beautiful amethyst crystals or tastefully displayed specimens of other crystals. These shops are also usually stocked with modified geoart such as quartz balls with embedded rutile crystals, marble balls and rock eggs, paper-weights made from cut and polished limestone and other rocks, fossil specimens and other rock or mineral artifacts right down to tumbled pebbles of multicoloured stones. If you cannot have the real thing, replicas of rare fossils are available and for the budget conscious picture postcards of these objects of geoart would do. The idea is to reach as many people as possible to let them know that there is beauty in rocks and minerals.

Be a geoart patron

For any branch of art to really develop, it needs financial support from appreciative patrons. Here is where those who have been intimately associated with rocks and minerals in industry should come to the forefront. The petroleum and mining companies and even the construction companies should take the lead and commission works of geoart to grace their premises.

Decorating the walls and floors of your building with slabs of Italian marble or imported granite or slate is a form

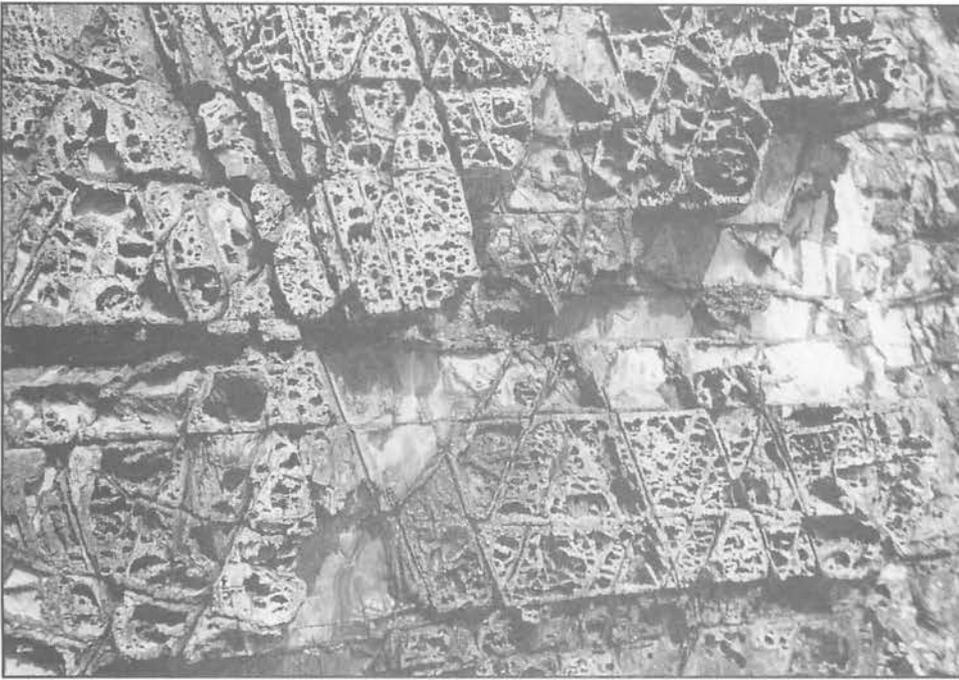


Figure 1: Iron oxide cemented boxwork joints in weathered sandstone from Pulau Langgun, Langkawi, Kedah. An example of natural image geart.

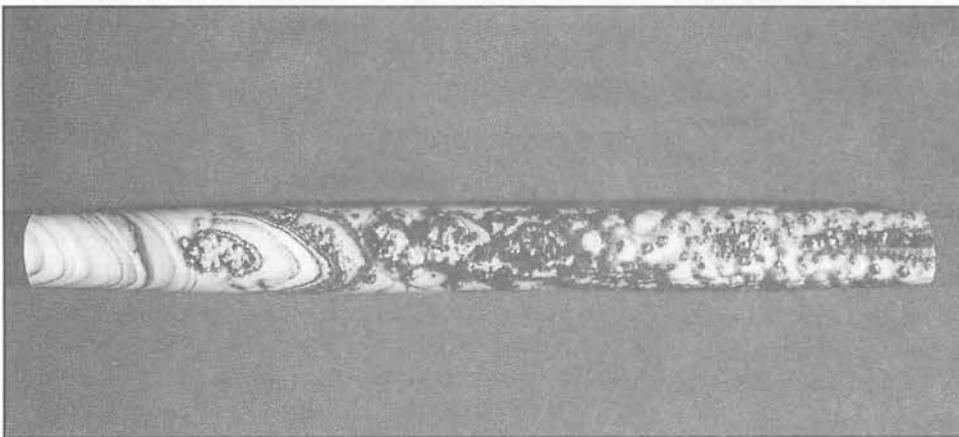


Figure 2: Polished 25 cm. long cylinder of orange sparry calcite with attractive irregular black laminae, probably from a drill core of cave deposits from the Three Gorges, Yichang, China. An example of modified object geart.

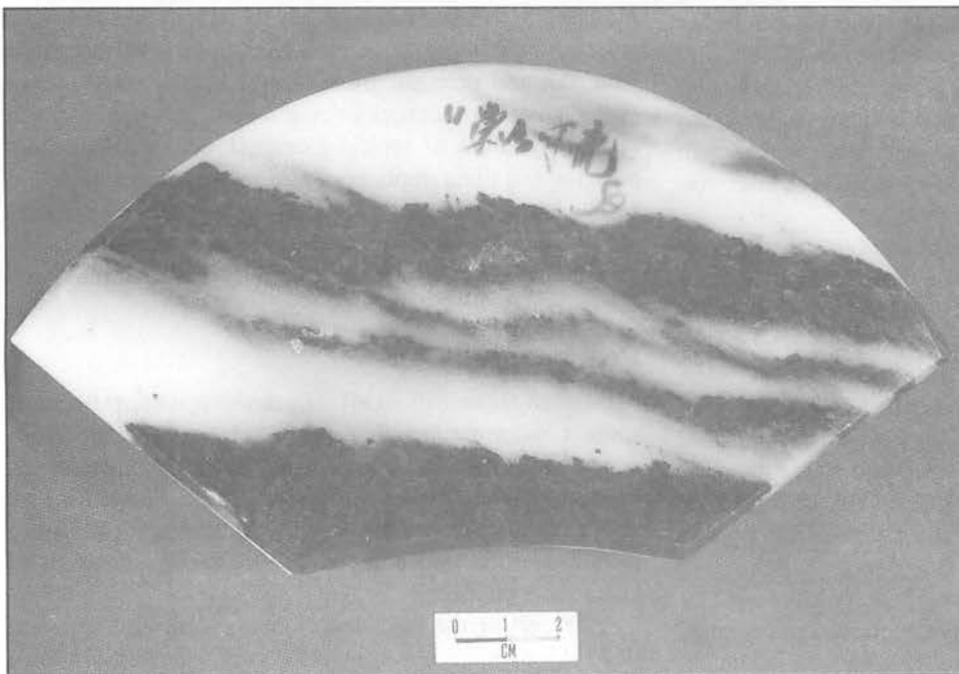


Figure 3: Framed lacquer-peel of Miocene iron-stained sediments from Dransfeld, Hoher Gottingen, Germany. An example of modified object geart although the patterns are formed by nature and the sediments are virtually two-dimensional.

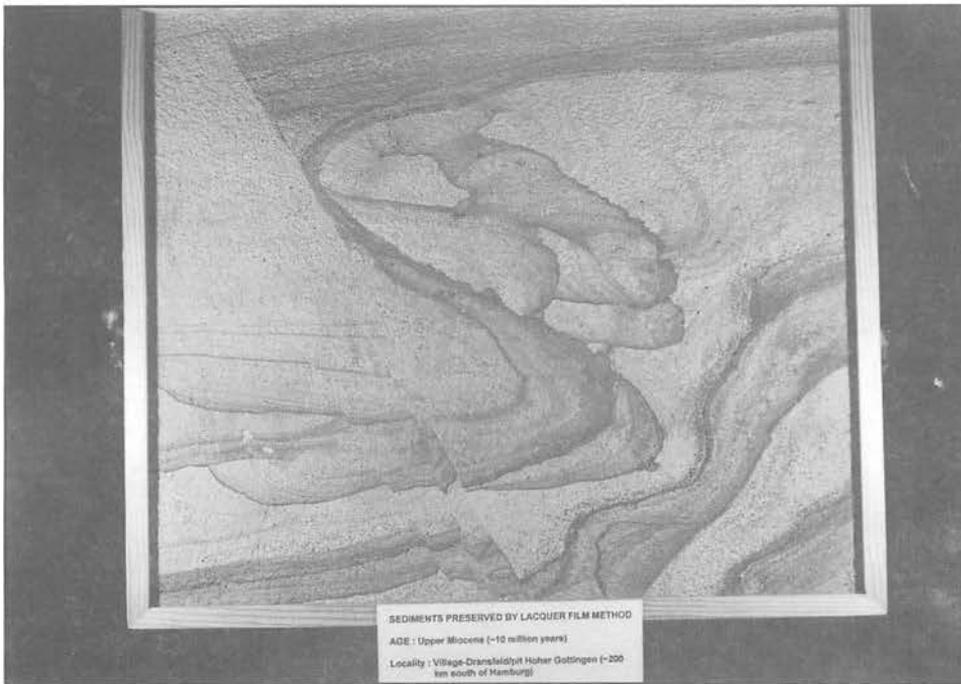


Figure 4: Misty mountain range produced by clever sectioning of dark greenish bands in whitish marble on the polished cover of a Chinese ink trough Yunnan, China. An example of modified geoart.

of geoart but we can do better than that. A very enterprising former geology student at Hamburg University did very well when he approached some corporations during the construction of their corporate headquarters to record for them a part of their foundation before it was cemented over using the lacquer-film method which then could be mounted as a decorative piece of grand art in the lobby of their building!

The possibilities are endless if only we put on our thinking caps and learn to utilize this immense resource that has been available to us all this while just waiting for someone to come up with a bright idea to tap its vast potential.

CONCLUSION

Welcome to the world of geoart. I wish you every success as you endeavour to capture the landscapes and turn the rocks of our planet into something of beauty that can be admired and cherished for generations to come. Rocks are not meant just to be used, they are also there to be loved!

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