

“Fossil Art”*

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In our days, fossil enjoy a higher appreciation than ever before. People esteem them for their antiquity, for their mystery or simply as collectible curiosities that one may not only buy, but discover oneself in the field. Traditionally, museums have also tended to treat fossils in the same way, but at a higher level. Here they came with labels, on which the scientific names, stratigraphic horizons and exact localities were meticulously noted. Sure, these informations are necessary for scientific evaluation; but what does a Latin name and a stage term mean for a lay person? Therefore modern museums have turned to provide more texts and graphic materials in which fossils are explained as remains of extinct kinds of organisms, as parts of ecosystems, or as stages in the history of life called evolution. In this sense, natural history museums fulfill their task as insitutions of public education—worlds away from the curiosity cabinets of half a century ago. The Chiba museum well illustrates this change and one see with joy how flocks of school children make use of this appealing source of information.

Yet, in the wake of this very positive development, something else is getting lost: aesthetic fascination. The home of Bob and Jean Soleman (Redding, Connecticut) is decorated by a slab of Cambrian sandstone—unprepared as they found it in the wilderness of British Columbia, with colorful lichens still attached to it. What it shows are large burrows of trilobites that inscribed their regular scratch patterns into sand more than half a

billion years ago. A cryptic message from deep time and a souvenir of happy holidays: it has acquired the role of a painting older than anything you can buy.

This reminds us that visual fascination is the first step also in many scientific studies and biographies. So why should we ban it from public exhibits? Art galleries can do with labels so small that one has to get close to the paintings to read them. And the information the tiny metal batches provide is only the name of the painter and often a cryptic title—just enough to place the object in history and to direct our phantasy. In art, viewers are expected to create their own world rather than being docile pupils.

The travelling exhibit “Fossil Art” tries to bridge the cultural divide between arts and sciences. It presents large rock surfaces with interesting patterns on black wooden panels and in the proper lightening, but with only a title—like in an art gallery. At the same time, there is an illustrated catalog, in which scientific explanations are given in all details.

“Fossil Art”? This title is provocative, because it challenges the definition that only man-made objects can claim such quality. But where is the difference between the fascinating design of a worm trace inscribed in ancient sediments and the carvings of early man on rock faces? The one is the accidental expression of a genetically fixed search behavior, the other reflects the mental translation of a momentary visual impression into a lasting picture. Yet the effect of the Cambrian worm trace and the stone age petroglyph

* This article is based on a contrilution by Prof. A. Seilacher to the special exhibition about biology of dinosaur and Pre-Cambrian life in 1996. He was a guest researcher of Natural History Museum and Institute Chiba in 1995.

on the viewer may be similar: both appeal to our sense for regularity and symmetry and both challenge us to repeat the motions of the maker thousands or millions of years ago.

Here I remember a museum in China, where visitors follow the curves of calligraphic rock inscriptions with their fingers rather than simply reading them. This is exactly what we scientists do when we analyze a fossil worm trace, retranslating the design into a process of motion.

In my mind, “art” should not only be defined by the intention of the producer. It also refers to the reactions evoked in a viewer—whether he perceives a design simply as “beautiful” (which is unsatisfactory because our mind tend to settle on the statements), or more generally as “fascinating” (which leads to further questioning).

Two other criteria need to be relativated in connection with the “Fossil Art” exhibit: Authenticity and biological origin. Visitors of art museums want to see the real “thing” rather than a reproduction—no matter how indistinguishable it is from the original. This has to do with the mystical relationship to the artist’s personality, but also with commercial considerations: a copy can claim only a small fraction of the price for the original. Yet, I remember the copy of Raffael’s madonna decorating the wall of our living room. It was made by the daughter of a famous Prussian 18th century architect (v. Knobelsdorff) who can claim her own fame for having been the first woman to gain an academic degree at the Berlin University. In the interest of our heirs I hope that this fact will raise the value of the copy, which was made without any fraudulent intention.

All objects in our exhibit are honest replicas. They were made by casting large rock surfaces in the field or in museums—first with flexible rubber materials and then transformed into rigid, but very light fiberglass positives. This procedure was chosen for logistic reasons: firstly, because fossils are increasingly considered as historical treasures that should not be removed from their home countries. Secondly, many of the exhibited slabs would have been difficult to remove without breakage and also too heavy for easy transport. On the other hand, epoxy

replicas are easy to transport, show all morphological details and look like the originals when properly colored. Their production also required the hands of an artist (in this case our Tübinger preparator Hans Luginsland) and expensive travels to adequate localities all over the world. Thus one might argue—particularly when it comes to mere bedding plane reliefs with limited possibilities for further preparation—what is more valuable: the original somewhere in the Australian bush or the handy replica?

The other point to be commented on is the inclusion of undoubted “pseudofossils” in our exhibit. Respectable paleontologists would have disregarded them as soon as their non-biological origin was established. On the other hand, they may visually be as fascinating as biologically induced structures and may tell just as interesting stories about the history of the rock. Physically induced pseudofossils gain particular significance in the Precambrian rock record—not only because they have frequently been misinterpreted as remains of early organisms, but also because their origin is connected with microbial biomats. Such mats were ubiquitous on Precambrian soft bottoms, but became restricted to non-bioturbational low-oxygen or high-salinity habitats in later times. Pseudofossils also remind us that merely physical “self-organization” can instantaneously produce seemingly complex structures. Since similar processes may happen in living materials, self-organization is important for providing the raw material for morphological innovations. Once the formation of self-organizational features is guaranteed by genomic adoption, Darwinian selection can proceed to modify and “tame” them for particular functions. On such a background, inorganic sedimentary structures are well worth to be considered in an exhibit dealing with evolution.

Aesthetic appeal alone would be too broad a theme for an exhibit of only a few dozens of objects. Here, the chosen method of reproduction (casting of large bedding surface) sets a limit. It excludes small objects like shells, because their features become evident only upon inspection from a closer distance, and larger surfaces provide only redundant

information. Therefore the exhibit, in its present state, is restricted to casts of Precambrian and Cambrian sandstone surfaces and to the great changes that took place in the Cambrian Revolution (see other article by author in this book) as a scientific theme.

For the expanded overseas version we plan to add another section, "Impressions". In it, emphasis will be on large-scale traces that ancient organisms from worms to early man have left on clastic sediments or lithic substrates. Here the dominating theme will be the evolution of behavior, whether in the form of instinct or artistic creativity, and the objects will come from all periods of the Phanerozoic.

So far, I have talked only about the "public relations" side of this enterprise. For a scientist, such motivation would hardly be sufficient. As our team travels to far away places, we do not simply want to make casts, but at the same time study processes and relationships that may not become evident from the small samples brought home in traditional fossil collecting or from merely photographic documentation. In this sense, the exhibit and the accompanying catalog are primarily meant to earn popularity for fossils other than dinosaurs; but it should also make fellow-paleontologists re-consider their role in modern society. Even if fossils will not be granted the status of art objects, this exhibit should make it clear that sedimentary structures are not only useful tools for field geolo-

gists. They also have a lot of entertaining stories to tell—and not exclusively for school children!

References

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化石芸術

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化石芸術とは、1992年、スウェーデン王立アカデミーより授賞したクラッフォード賞の賞金を基金として開始した巡回展の名前である。先カンブリア代からカンブリア紀にかけて、地層に残された生物の印象や生痕を、露頭ごとと写し取ったレプリカによって構成されている。そこでは、化石という貴重な歴史遺産を壊すことなく、正確なレプリカによって多くの情報を得ることができること、そして生命的造形と非生命的造形とに多くの共通点が存在すること、さらに、自然誌資料が引き起こす芸術的感応と、科学的探求心が調和可能であることなどが提起されている。自然誌博物館の従来の展示会の概念を超えた展示会である。