Gems from Life
To Ban or not to Ban – that is the Question
來自生物的寶石：應否被禁止

Maggie Campbell Pedersen

President, The Gemmological Association of Great Britain

作者描述市場上多種取自生物體的寶石，例如象牙、犀牛角、玳瑁、珊瑚、鸚鵡螺殼等，並討論其捕捉和交易是否應被禁止。

Organic gem materials – or "biogenic gem materials" to give them the name preferred by CIBJO – have been used for as long as humans have walked the earth. They have had utilitarian uses, and been thought to have talismanic and medicinal properties, but most of all they have been used for decoration. We have adorned our houses, our furniture, our horses, our ships, indeed anything and everything – including ourselves – with these materials.

Organics have been status symbols signifying power or wealth; they have been fashion statements or exotic decoration, used with no thought of the consequences for the plants or animals involved. Today we see the picture very differently and in most parts of the world people are well aware of their cost to the animals and, indirectly, to our planet.

Conservation and animal welfare are relatively new. Many things we find abhorrent today were perfectly acceptable just fifty years ago. CITES (see P.20), only came into full force in 1975. International trade is covered by CITES, but every country must make its own laws for the domestic trade in the various materials.

An example of this can be seen in Singapore, which used to be a centre for ivory carving. Tourists frequently bought ivory items as souvenirs, but that ceased when the country became a signatory of CITES some years ago. Singapore still has a stockpile of old, legally purchased, raw ivory, complete with CITES certificates. It is still legal to buy the carved items in the country, but they cannot be exported. Nor can more raw ivory be imported into Singapore for carving, with the result that the trade has almost ceased to exist.

The various regulations and bans may seem draconian, and indeed they can destroy trade. But beautiful, living creatures are paying a hefty price for that trade, and – unless something is done to regulate it – there will soon be no more elephants, rhinos, and various other species – at which time the trade will have to stop anyhow. Surely it is better to stop it now, while we still have some animals left? The children of the world will not thank us if, in fifteen years, there are no elephants left.

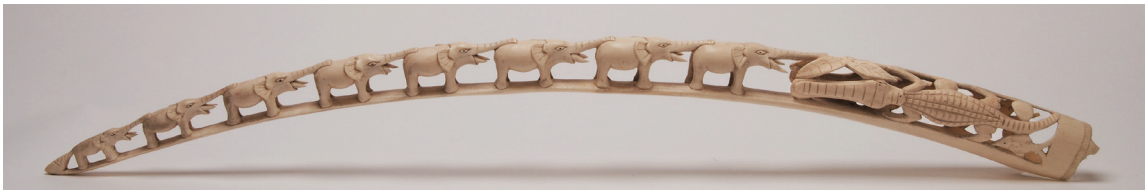

Fig. 1 Whole elephant tusk carved as an "Elephant bridge". Carvings of this style are today copied in poached ivory and sold as antiques. The carving measures 93cm along the outer curve.

In Europe we are still able to buy certain old ivory items in our own country, but – with very rare exceptions – they can no longer be sent to the USA, even on a temporary basis for exhibition in a museum. The laws in the US have recently changed and become much stricter, indeed varying from state to state, making the whole situation extremely complicated. As a result, an auction house such as Christie's in London will not send inlaid furniture to the US unless it is possible to guarantee that every single piece of inlay is not ivory – an almost impossible task – as it could be impounded or destroyed upon arrival.

Before new regulations are brought into force by CITES, all aspects of possible restrictions are researched and discussed. One problem facing conservation groups is lack of information about a species. Take the nautilus for example. Why are there far fewer for sale now than there were fifteen years ago? They are inexpensive, but fishing for them is costly, so that may be part of the reason. In areas around some Pacific Islands and Australia, stocks of nautilus had diminished greatly, but after a fishing ban was imposed the stocks apparently recovered – suggesting that over-fishing is the main culprit and that action is needed.

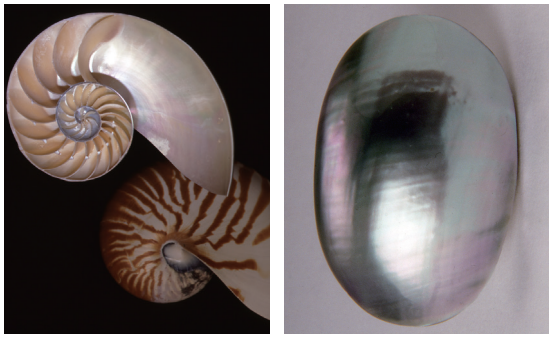

Fig. 2 (L) Nautilus shells. The one in front has been cut in half and shows the intricate spiralling septa that make up the shell.
(R) Coque-de-perle, taken from the centre of the nautilus shell. It is often incorrectly labelled a mabé pearl, but can be identified by its shape, colour, and the ridges that run cross it.

But until there is more scientific knowledge on these ancient creatures it is impossible to decide whether it is necessary to place them on CITES Appendix II.

Fig. 3 (L) Whole rhino horn, in its raw, unpolished state
(M) Detail of raw rhino horn showing the fibrous structure
(R) Detail of a horn slice, showing the structure which is laminated as opposed to the fibrous, hair-like structure of rhino horn.

Throughout history tortoiseshell from the hawksbill turtle was the most commonly crafted, though material from green turtles and from loggerheads was also used. In Europe tortoiseshell furniture became fashionable in the seventeenth century and its popularity in items for personal use continued well into the 1900s. For centuries, the people of the Pacific Islands also used tortoiseshell for decorative and ceremonial gear, often mixed with giant clam shell. They also ate the flesh and the eggs of the animal and used the skin for leather.

Fig. 4 (L-up) Green turtle
(L-down) Boxes carved in tortoiseshell from the hawksbill turtle
(R) Thinly sliced and polished carapacial scute from a hawksbill turtle, showing the typical mottled pattern.

Although new tortoiseshell items and whole stuffed turtles can still be found for sale in some parts of the Far East, they cannot be imported into any country that is a signatory of CITES. Marine turtles are, today, covered by the strictest trade bans and are listed by CITES on Appendix I.

Corals are a complicated subject. They are tiny, slow-growing animals called polyps, most of which grow with a communal "skeleton" of calcium carbonate. A few, such as the black and gold corals used in the jewellery trade (of the family Antipatharia), have a skeleton made of a horny, keratinous material. All corals are very sensitive to changes in their environment. So far only Antipatharian corals, and blue coral (*Heliopora coerulia*), are listed by CITES on Appendix II, which means that they can only be traded across borders with the appropriate import and export licences.

Fig. 5 (L) Coral necklaces, from left: black Antipatharia coral bleached to resemble golden coral; natural black Antipatharia coral; dyed bamboo coral; untreated Melithaea ocracea; natural blue coral *Heliopora coerulia*; natural *Corallium rubrum*.
The blue and black corals are listed under CITES Appendix II.
(R) Branch of natural, unpolished *Corallium rubrum*

Blue coral is the only reef-building coral regarded as a gem. It is endangered partly because of coral bleaching – a phenomenon caused by rising sea temperatures due to global warming. Other gem corals are solitary or grow in colonies at greater depths, where they are less vulnerable to ocean temperatures but are threatened by over-fishing and pollution. Extracting them from the oceans or damaging them with pollutants not only threatens the species as a whole, but also has an adverse effect on the fragile eco-system in which they live.

Red corals from the Mediterranean, of which *Corallium rubrum* is the best known, and other *Corallium* corals from the seas around such places as China, Japan, and the Philippines, have been sought after for thousands of years. Today we risk all these coral beds being fished out. There are moves to cover it by CITES regulations but there is a large trade dependent upon *Corallium* corals and a sudden ban would have the same effect as the ivory export ban had on the Singaporean ivory carving trade. In the Mediterranean they prefer to regulate themselves, by restricting fishing to certain areas in rotation and thus permitting the corals to regrow after harvesting. Other countries are also taking up this practice. It is a slow process as corals grow very slowly and the coral beds need between ten and twenty years to recover, but it is possible and so far is successful. Coral will never be as plentiful as it once was, but self-regulation is considered preferable to a total ban.

Coral can be cultured, but it is not economically viable for gem corals as they grow so slowly and at great depths. There is a market for small examples of cultured reef corals, grown to adorn tropical fish tanks.

Coral has become an emotive subject, but not nearly as emotive as some of the other organics, for example rhino horn. In the UK today all rhino horn carvings have been removed from view in museums because of fear of theft. On the black market a single rhino horn could be worth tens of thousands of pounds, yet legally it has no value as it is not permissible to sell it in its raw state – it can only be given away. Today rhinos are killed because in some Oriental medicine

they are thought to have healing qualities. Old rhino horn carvings are not being faked using fresh horn as the material is far too valuable as a medicine.

It is difficult to change old beliefs and ideas rooted in a culture. In the West we find it incomprehensible that modern medicine cannot be used instead of rhino horn, especially as research tells us that it is no better a cure than ground-up finger-nail clippings (both are made of keratin). Nor can we understand the concept that God can only truly be glorified by carvings made from the most precious of materials (ivory), as has been the case in the Philippines. These are cultural differences. However, unless these beliefs change, the rhino and the elephant face extinction in just a few years' time.

It is sad that we are at the stage now where we must contemplate a total ban on all trade in, or movement of, ivory and rhino horn – including old or even ancient artefacts – because many fear that allowing any trade at all exacerbates the problem and encourages the killing of the animals. Indeed some say that all such artefacts, including those in private collections, should be burned. But ivory, for example, has been carved by humans for 40,000 years and in its various forms (from mammoth, elephant, hippo, whale, walrus and tusked animals in the Suid or pig family), is part of the cultural history of most nations world-wide. Ideally a way should be found to implement and adhere to our strict laws as they stand today, allowing old items to be exhibited and sold, while banning all new items – so preventing the killing of the animals.

It is my personal belief that the magnificent medieval carvings, or those made in the sixteenth and seventeenth centuries, are not what is being copied today and thereby putting the animals at risk. Intricately inlaid furniture and old grand pianos with their ivory covered keys are not being copied and sold as antiques either, so there is a good argument for not making a ban total, but instead for tightening existing controls to ensure that new ivory or rhino horn is not used. This would entail stopping poaching, and stamping out corruption at the ports where the illegal material is exported or imported. It would not be an easy task.

It is gratifying to see that more and more countries are willing to act – and although many people think that the symbolic burning of stockpiles of elephant tusks only serves to make the politicians look good, while in fact it inflates the price of the poached raw material – at least it highlights the situation. It has been reckoned that 70 – 80% of the entire illegal ivory market is centred in southern China. Recently China announced a ban on all ivory trade and processing activities by the end of 2017, which will undoubtedly help to protect the elephants. The exact details of the ban and whether old items will be exempt is still unclear.

Presuming that we can find a way of avoiding a total ban, our next problem will be "What qualifies as an old item?" It can be very difficult to be certain about the age of a carving without some form of documentation. Age is usually judged by the style in which an item is made. The material can be tested by Carbon 14 Dating, but that only tells us when the animal died, not when the item was made. It is also expensive and slightly destructive as a tiny hole must be drilled into the object to recover a sample of uncontaminated material. Further, documentation can be forged – as is known to be the case in many parts of the world – and an ivory item can be stained to make it appear much older than it is.

There is much that needs to be decided when regulating the trade in any of the endangered species. While a complete and total ban would be popular in some quarters, and might be the simplest answer, it is not necessarily the correct answer.

This can be illustrated by the effect of the sudden cessation of logging in Thailand a few years ago. It was a wonderful decision for the preservation of the hardwood forests, but overnight about three thousand elephants and their mahouts (handlers) were made redundant, with no means of support. Most had no option but to become part of the tourist trade, where the animals had to walk for hours a day on hard roads. Elephants normally graze for up to eighteen hours a day, and the soles of their feet are soft pads, so while the hardwoods were saved the elephants suffered terribly.

Awareness is the first step, and education is extremely important. Not enough people understand the present situation, or how serious it is. As CITES demonstrates, we cannot try to solve a problem without fully understanding it. Education is the next step. School children are now being taught about threatened species – not just that they are animals in a zoo, but that they are under threat from poaching and loss of habitat.

Those of us in the gem or antiques trade have a further obligation as our education on the subject also covers identification. It is amazing how often restricted materials are incorrectly identified, even by "experts" such as auctioneers. A bowl sold at auction a few years ago as a "horn bowl" was much too big and solid to have come from any of the horn-bearing animals except a rhino, and simple logic should have been the first step in its identification. Today antique rhino horn cups are also being cleverly faked – not in fresh rhino horn but in plastic with embedded fibres. Examples of this turn up periodically at auction.

Ivories are also often misidentified, with walrus ivory labelled as "stained elephant ivory", or whole walrus tusks being mistaken for elephant tusks. While they are both subject to restrictions, the "experts" need be able to tell them apart, if only in order to fill out forms for licence applications.

Fig. 6 (L) Artificially "aged" elephant ivory disc. Note the accumulation of stain in the cracks.
(R) Cross-section of elephant tusk (top) and mammoth tusk (bottom), showing the difference in the angles of the intersecting arcs, or Schreger lines. Elephant ivory has the wider angles, at over 180˚, compared to those of mammoth ivory at less than 180˚.

Fig. 7 (L) Japanese okimono carving in walrus ivory, sold at auction as "discoloured elephant ivory".
(M) Base of the walrus ivory okimono, showing the typical cross section shape of a walrus tusk, and the secondary dentine masked by etching.
(R) Slice of walrus tusk, showing the cross-section which displays the smooth primary dentine and the bubbly appearance of the central area of secondary dentine. The slice also shows the typical, slightly uneven, oval profile of a walrus tusk.

Fig. 8 Imitation scimshawed sperm whale tooth, made from epoxy resin

Is a scrimshawed whale tooth real, or is it an epoxy resin imitation? The real tooth is banned, the imitation is not. And those pink beads: are they shell, dyed white coral, or pearls from the now-restricted queen conch? Restricted corals might seem easy to see as they are blue, black or golden. But

we must still be able to tell whether they are real or fake.

Fig. 9 (L) Black Antipatharian coral bleached in hydrogen peroxide to imitate golden coral. (R) Corallium rubrum beads with the typical structure of striations ¼ to ½ cm in width.

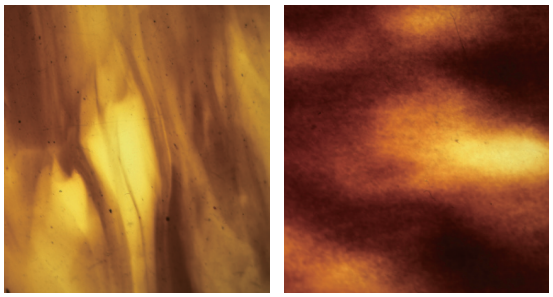

Fig. 10 (L) Detail of plastic imitating tortoiseshell, magnified. It is easily recognized by the swirls of colour as opposed the fuzzy mottling of tortoiseshell. (R) Detail of tortoiseshell slice, magnified, showing the typical pattern of minute particles of colour that make up the fuzzy mottled pattern.

Gemmologists tend to regard organics as inferior to minerals. Nevertheless it is perhaps more important today than ever before to learn about them and to be able to identify them. The subject can be emotive, and the laws are varied, often muddling, and constantly changing. But anyone asked to identify an object, or wishing to sell, must abide by the laws, and ensure that they know what those laws are. Information is available from the relative government department in each country.

Finally, for those materials not yet subject to CITES regulations and trade laws, it is important to source material from renewable stocks and reputable sources. Failure to do so can result in irreparable damage to the chances of survival of the species concerned.

The views expressed above are the author's own and do not necessarily reflect those of all members of Gem-A.

CITES, the Convention on International Trade of Endangered Species of Flora and Fauna (the name covers both the governing body and the international agreement), is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Any state can join CITES by making a formal declaration to adhere to and be bound by the Convention. Today there are 183 members, and it is still growing.

CITES members meet every three years to agree how to classify the various species. They are listed under three appendices as follows:

• **Appendix I** Species threatened with extinction. It provides the greatest level of protection, and includes bans on international trade. Rare exceptions can be made when the purpose of import is not commercial, but is for scientific research.

• **Appendix II** Species that are currently not threatened with extinction, but that may become so unless trade is controlled. International trade may be authorised for specimens in this category by the granting of export and import licences.

• **Appendix III** Species which are being "watched", or for which a member country has sought help from other members in controlling the trade. International trade in these species is allowed but only with the appropriate documentation and permits.