

Mineralien im brasilianischen Juwelierswesen

Minerals in Brazilian Jewellery: Inherited and Coveted Art and Culture

Минералы и ювелирные изделия в Бразилии

Von / by

Maria S. ADUSUMILLI^{2, 3}

mit /with 4 fig., 6 tab.

Schlüsselworte

Brasilien
Edelstein
Gold
Juwelen
Juwelierswesen
Mineralien
Platin
Silber

Abstract

Jewellery, known from centuries, has been of decorative value principally as ornaments worn by people of all social status, as part of charms or as amulets. The symbols and the stones embedded in them, influence the faiths of ancient to present civilizations. As riches of a country they were targets of conquerors building empires. With the dwindling of the old colonial system, the art of jewellery evolved in many nations on the basis of traditions and culture. Today jewels are coveted as pieces of art and ornament. They are produced in a rich variety and yet are accessible.

Brazil with its nearly 500 years of life, has shown its creative capacity of art and harmony in its jewels. With gold and precious stones known in large quantities in the country, and with highly talented enterprises taking account of the commodity, Brazil has amalgamated the old and inherited art into new and living culture. Perhaps this is the secret behind the high receptivity of Brazilian jewellery.

Introduction

Geosciences have been responsible for the industrial growth and the industrial era with the advances in mining and metallurgy, extraction and utilization of metals and minerals available in the earth's crust. Noble metals like gold, silver and platinum had their parcel in the growth of nations, yet the former two have been coveted by all civilizations. Nations have been pillaged and plundered due to these riches. Diamonds and gems have made histories. Conquerors robbed them and carried them from one country to another, and today they occupy the crowns of queens and kings. Even today, they are considered as fortune or misfortune carriers. Besides several fantastic stories, they left legacies and continue taking effective part in the history of civilization.

Gold embedded with colourful stones and gems is not only coveted by kings and queens, but by all human beings. The beauty behind this fascinating association that form precious jewellery is defined from one country to another. The old Egyptian, Iranian, Erythrian, Mughal, Indian, Chinese and Greek times have left legacies of art and beauty in the artesian jewellery fabrication. From the Oriental to Occidental styles, from Roman to present times, this art has changed enhancing beauty and adding charm. This art is inherited by generations and their descendants have adopted and/or transformed this talent into styles attending to modern civilisation's needs and living habits.

Jewels: Gods, Kings and Queens

Both jewels and precious metals have been cited in the Bible, where they are considered as a celebration of beauty.

The following expression is attributed to King SALOMON: "What a beauty in your face between the ear rings, your neck with necklaces, I'll give you pendants of silver and gold" (Cântico dos Cânticos). Also SALOMON wanted to illuminate the face of his beloved with the shine of precious stones.

God himself ordered men to prepare a large robe containing ornaments of topaz, emerald, diamond, sapphire, agate, amethyst, jasper and gold. Man was asked to pursue the soil and search the river water to obtain the lightning grain of diamond, the precious illuminating topaz, and the splendent tourmaline, the same way as he should know his insight and could find, in the darkness of his ignorance the brilliance of knowledge.

Religion is also depicted in a famous painting, of the Renaissance period, of Saint ELOI with fifty jewels and precious objects. It was painted by the artist Petrus CHRISTUS, in 1449. Saint ELOI is considered the patron of ourives.*2)

² Anschrift der Verfasserin:

ADUSUMILLI, Prof. Maria S., Senior CNPq Scientist, Dept. of Mineralogy, Inst. of Geosciences, University of Brasilia, 70910-900 Brasilia, Brasilien

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Gods in India have always been decorated with jewels, specially gold embedded with rubies, and sapphires. Even today the tradition forces the preservation of these golden crowns and jewels of gods and goddesses in India, with utmost care and propriety. In old murals, as in 600 AD in Ajanta Caves in India, paintings of gods and kings like ADJANTHA show crowns, necklaces, bracelets, shoulder wears, waist wears etc. all in delicate patterns. (*3)

Locality/Period (Century)	Type of Jewel	Components
Etruscan, 17 BC	Minoan Nature God	Gold pendent, God flanked by birds and serpents.
Egypt, Middle Kingdom	Diadem of Princess	Gold, lapis lazuli, carnelian and amazonite
Head-dress, 14 BC	Lady of the Court	Gold, carnelian and turquoise
Egypt, Treasure of Tutankhamen 14 BC	Nebti's Collar	Gold with 166 plaques.
Ziweye, 7 BC	Bracelet	Gold
Greece, 7 BC	Pectoral ornaments	Gold
Etruscan, 6 BC	Ear Stud	Gold with coloured glass
Oxus Treasure, 6 - 4 BC	Armlet	Gold
Italy, 6 or 7 AD	Castellani Brooch	Gold., enamel, pearl
Suffolk, England, 7 AD	Belt Buckle	Gold
France, 14 AD	Brooch, with cameo of Lion	Gold, rubies
German, 16 AD	Pendant, figure of Justice	Gold, enamel, pearls, diamonds, emeralds
Mughal, 17 AD	Thumb Ring	Enamelled gold set with rubies and sapphires
Rajputana, 18 AD	Turban ornament	Gold enamelled
Mughal, 18 AD	Necklace	Gold set with jargons, emeralds and pearls; and enamelled.
Delhi, 19 AD	Ear ornament	Gold enamelled, pearls, turquoise and jargons.

Tab. 1: Some Jewels From Ancient Periods to Last Century⁴

Jewellery has a long history behind, which includes decoration pieces and ornaments of Gods, Kings and Queens. Some examples are mentioned in Table 1. It starts from those recorded times as early as 17th century BC where a gold pendant representing Minoan Nature God, shows a magnificent piece of style, art, symmetry and

skilled fabrication. Two birds flank the crowned God, with serpents protecting them. Flying to the 17th century AD with the Mughal Empire in India, the thumb ring used shows enamelled gold set with rubies and emeralds.

Green coloured stones have been respected and used for life-giving in Arabia, Persia and China. Thus jade is used to relieve heart pain; turquoise to avoid impending danger. It was also believed that those who wear gold live long time in the abode of gods (*1).

Diamonds, singular in their beauty and charm, have entered in the history of Man from India in 800 BC. In the Andhra Pradesh State of today, the place Golconda was said to have inspired the sultans to engage about 100 000 people including men, women and children to pan the river sands to mine the gems and diamonds. They were not only for personal ornaments, but also as investments and treasures. Later Hindus discovered that diamond alone could cut a diamond, and that revealed the reflectivity of the stone and its beauty. In 1739 NADIR, Shah of Persia, who invaded Delhi to conquer the treasures of the Mughal Emperors, was flabbergast at the oval shaped diamond of 186 carats and shouted KOH-I-NOOR signifying MOUNTAIN OF LIGHT. Queen VICTORIA of England obtained it in 1850, and got it cut to its present 108.93 carats. It stays since then in the Royal Crown of England. (*3.)

Jewels: Ancient and Modern

Jewels always represented riches and social position. They are coveted because of their rarity and beauty. They are mainly ornaments and are worn to involve charms or as amulets, ever since ancient times.

In old times attractive metals were used in ornaments. Sometimes they even symbolized power. This is due to the need to acquire these metals and prepare the ornaments, in fashions that could please each and every one. The old time metals in all countries have been brass, silver and gold. Stones, glass, carnelian, turquoise, amazonite, jade and lapis lazuli were embedded in them, to add beauty or charm. Devotees used to offer gifts, and when they were jewels they represented the level of friendliness and social position. The enamelling of gold has entered into jewel production already by 17th century as an artesian art.

Today basically nothing has changed. The metals are gold and silver, with periodic and intermittent domination, depending on the country. A country which produces silver avails it for the jewellery; one which produces gold does the same; and those who produce gems avail them in all manners.

A comparison of the motifs of ancient and modern jewellery shows that it is an inherited art, naturally evolving through ages (Table 2).

Old indeed was Gold

The traditional old time wears "perhaps" always been showy, gaudy, rustic, heavy, and massive. Since they

⁴ Source: Encyclopaedia Britannica, illustrations

were aimed to show the riches, they had to be like that. Till recently in India ladies wore gold from top to waist. The waist belt, the bracelets (bangles), necklaces, the nose rings, finger rings etc. all are made of massive 22 - 24 ct gold. Due to the wars that they had to face, gold was donated to the country's needs. Even today tons of gold is imported to attend to the jewellery of the Indian people. The same is seen in Nigeria, some years back. Ladies show their possessions with extensive bracelets, rings, necklaces etc. all heavy with massive gold. In Afghanistan, maintaining the traditions, the jewellery is heavy, massive white silver with stones like lazurite etc. The old time female traditions in all less developed and several developing countries continue flourishing to a very high grade. Sometimes superstition is also a decisive factor. *This is specially applicable to countries where the religion is still very powerful in forcing to maintain the customs and traditions.*

MOTIFS	ANCIENT	MODERN
Religious	Nature God Gods Masks	Cross Madonna Gods
Ecological	<u>Fauna:</u> Birds, Snakes, Reptiles etc. <u>Flora:</u> Leaves, Flowers, Tree Trunks.	<u>Fauna:</u> Birds, Snakes, Reptiles, Tortoise, etc. <u>Flora:</u> Leaves, Buds, Flowers, Tree Trunks
Indigenous	Large variety	Feathers Gods Devils Masks Artefacts
Ornaments	Head wear Chest wear Pulse wear Shoulder wear Royal Crowns Chains Neck Laces Hair Laces etc.	Oriental female wears for head, hair, ear, nose, waist Pulse wear (Bangles) Neck lace (Pendants) Royal Crowns Ear wear etc.
Formats	Circular Chains Enamelled (last centuries) Interconnected (idem) Overlapping (idem)	Circular Chains Rectangular, Square Linear Tabular Enamelled Interconnected Overlapping etc.
Polishing of Stones	Globular Oval Cabochon (last centuries)	Globular Oval Cabochon Emerald Spindle Diamond etc.

Tab. 2: Comparison of Ancient to Modern Motifs in Jewellery Fabrication

Modern in fact is Liberal

The skills and art of the developed world and also some industrialized developing countries with European traditions, is often shown in transformations that appeals to the market. This is directly resultant of the facility of trade and commerce, improvement in standard of living and higher purchasing power, stability of currency etc. Thus in place of luxury, wealth, prestige, and social representation as factors, jewellery is now to satisfy one's ego, to use it as an ornament and to frequently change it. This mentality and outlook permitted the increase in the design and art as also the fabrication with constant change in product.

Thus modern jewellery has to attend to the following requisites:

Modern Jewellery a. Requisites

- 1) Light
- 2) Discrete
- 3) Artistic
- 4) Luxurious
 - a) With discretion
 - b) Exhibitive
- 5) Design and Form
 - a) Fashion
 - b) Variability
 - c) Acceptability
 - d) Geometry
 - e) Style
 - f) Appeal
- 6) Unique
- 7) Elegant
- 8) Charming
- 9) Attractive
- 10) Beautiful
- 11) Harmonious
 - a) Sensational
 - b) Pleasing
 - c) Soothing
- 12) Equilibrium
- 13) Versatile

There is no doubt that either antique or modern, jewellery has one single objective: please the user. Thus modern art includes the traditional, with small or revolutionary changes, as any other evolution in mankind existed and could occur. The following are the probable stages of evolution in the jewellery fabrication:

Modern Jewellery by Stages of Evolution

- a) Traditional
- b) Neo-traditional
- c) Experimental
 - 1) Liberal
 - 2) Innovative

d) Accessibility and Creativity

- 1) Craft and art dominated
- 2) Sophistication and handicraft skills
- 3) Massive and heavy versus Light and delicate

e) Gem/ metal equilibrium

Au /Ag/ Au cycles in jewellery

If observed within a critical prism, modern jewellery should attend to certain *qualifications, which could be occasionally synonyms for requisites*. They are the following.

Modern Jewellery. c. Qualifications

A) VISUAL

- Day and Night Pleasure
- Precious and Rustic
- Luxury and Informality
- Polished and Coarse
- Yellow, White all Gold
- Enamel Covers over Gold
- Thread- Gold-Stone Assemblages
- Religious Motifs
- Ecological (flowers, leaves) Inspirations
- Indigenous art (discs, caps, feathers) Inspirations
- Amulets

B) CONCEPTUAL

- Modern in concept, yet conventional but
- Conventional up-dated

C) OPERATIONAL

- Light, free and lovely

Within these specifications and qualifications, it may be true that modern jewellery is very attractive, has many options to offer, much more accessible, quite popular and is liked by many to use casually, on occasions, and as ornaments.

The styles, art and craft varies from the orient to occident, from the conservative SE Asia and Arab lands to innovative American countries. Both European and African styles do not seem to maintain strictly either forms of traditions, bargaining always with what is visually pleasant.

Brazil: The Land of Gold and Gems

Brazil: The Country

Dominating scenario of the entire Latin America, this continental sized country is blessed with a versatile geographical and geological conditioning. The extensive coast line is warm with sun, while the world's huge Amazon jungle calls the attention of all ecological minded world. With one language, and a neo-industrial structure, Brazil has inherited Portuguese culture amalgamated with African religions. The outcome is a great variety of people with abundant imagination, improvisation and

megalomaniac. They have to be this way because of a big country, big problems to solve and big solutions to find.

Gold and Gem Domains

With recent intense geological studies, the Brazilian geological environments for the occurrences of gold have multiplied and thus the production also increased leading the country to the fifth rank, even in official records. Great part of the gold production from Amazon, extensive region which is not of any easy control, often doesn't take part in statistics. The important regions of gold production are in the following States: Minas Gerais, Pará, Goiás, Bahia and Mato Grosso.

Brazilian gems are very versatile. It is difficult to say which of the gems is not found in the country. Even old workings of pegmatites, when sought for, show gem minerals. Brazilian gem production also suffers from untrue statistical data. Since gemstones are precious and are weighed in carats (200 mg) their value and related problems are very high.

Much availed gemstones come from the following States: Minas Gerais, Rio Grande do Sul, Bahia, Rio Grande do Norte, Ceara, Paraíba, Goiás, Espírito Santo, Mato Grosso and Rondonia. The most availed types are: emerald, diamond, aquamarine, tourmalines, chrysoberyl, spodumenes, topaz, opal, agates and varieties of quartz like amethyst, citrine, rose quartz and morion. A resume is given (Table 3).

GEM	STATE	LOCALITIES
EMERALD	Bahia Goiás Minas Gerais	Carnaíba Santa Terezinha. Porangatu Itabira
AQUAMARINE	Rio Grande do Norte Paraíba Bahia Minas Gerais Espírito Santo	Equador, Parcelhas, São Tomé Tenente Ananias Tenente Ananias Region Macarani Medina, Coronel Murta, Três Barros, Marambaia Rio Novo, Pau Grande
TOURMALINE S(GREEN and BLUE)	Ceará Paraíba Rio Grande do Norte Goiás Minas Gerais	Quixeramobim São José da Batalha Parcelhas Xambioá Cruzeiro, Malacacheta, Minas Novas, Santa Rosa, Teófilo Otoni, Governador Valadares
RUBELLITE	Rio Grande do Norte Minas Gerais	Parcelhas Conselheiro Pena, Santa Maria da Lapa
IMPERIAL TOPAZ	Minas Gerais	Ouro Preto
BLUE TOPAZ	Minas Gerais Rondonia	Araçuaí, Barra de Salinas, Virgem da Lapa Quixadá
OPAL	Piau Rio Grande do Sul	Pedro II Lageado

AMETHYST	Bahia Goiás Mato Grosso Do Sul Rio Grande do Sul	Jacobina, Brejinho Xambioá Bela Vista Lageado
CITRINE	Bahia Minas Gerais Mato Grosso do Sul Rio Grande do Sul	Coefité, Xique-Xique Campo Belo, Sete Lagoas Bela Vista Iraí
CHRYSO-BERYL	Minas Gerais	Malacacheta, Hematita, Padre Paraíso
SAPPHIRE	Minas Gerais Goiás	Malacacheta, Dantas Peixe
GARNET	Espírito Santo	Santa Tereza, Colatina
DIAMOND	Bahia Goiás Minas Gerais Mato Grosso do Sul Mato Grosso Roraima	Lençóis Gemeleira Jequitinhonha, Diamantina Caxim, Aquidauana Alto Araguaia, Barra das Garças Rio Branco

Tab. 3: Pricipal Gem Localities in Brazil

The country was also famous for the production of diamonds. Their importance carried the fame of Brazil all the world over. Among the largest diamonds found, Brazil is among the five together with South Africa, Sierra Leone, India and Lesotho. (Table 4). The table also includes as an important aspect the colours of diamonds. Though white predominates, with polishing the diamonds reveal other colours like yellow, pink, blue etc. Even then they are not to be confused with any other gemstone because of their resplendence.

A) ROUGH (48)		
WEIGHT RANGE in carats	COUNTRY OF ORIGIN	COLOUR CATEGORIES
3106 to 400	South Africa (34) Brazil (5) Sierra Leone (4) India (3) Lesotho (2)	White (38) Yellowish (3) Yellow (1) Brown (2) Brownish (1) Unknown 3)
B) POLISHED (40)		
530 to 31	India (31) South Africa (16) Brazil (1) Lesotho (1) Sierra Leone (1)	White (23) Yellow (4) Pink (3) Blue (3) Black (1) Bronze (1) Canary (1) Cape (1) Champagne (1) Green (1) Yellowish (1)

Tab. 4: Largest Diamonds
Source: Extracted from
HURLBUT & SCHWARTZ (1982)

It is important to mention here that still the country produces diamonds. The highly priced and coveted jewels are often of traditional styles with modern touches where diamonds dominate.

Brazilian Jewellery

The combined production of gold and gem has led the country to jewel art and culture. Thus the country during its colonial period had the European influence in the fabrication of massive chains of gold with globular and cabochon polished gemstones embedded in them. They were heavy and represented the riches.

The modern Brazilian jewellery started dominating with some enterprising men who invested in the ideas and artesian talent of the men and their art. This led to a revolutionary approach of "simplification" without losing the art, beauty and charm of the national gemstones in the jewels. Both have succeeded to reach international reputation in their art and creativity. Often a light Italian or a visible Germanic trend in the art of Brazilian jewel fabrication is noted.

Brazilians pay their homage to Hans STERN, the untiring giant of modern Brazilian jewellery, whose name knows no frontiers. The other is Jules Roger SAUER. More than fifty years back who started unravelling the marvels of gems from Minas Gerais State and today has flying colours in his hat.

Most used Gems

As anywhere else, in Brazil the most popular stones are those that have a beautiful and pleasing colour and have a good price. An idea of the prices of the stones is better given by those who produce them and sell them, viz. H. STERN & J.R.SAUER (Table 5).

GEM	MINERAL	COLOUR	PRICE PER CARAT US\$
Emerald	Beryl	Green	100 - 15,000 100 - 10,000
Aquamarine	Beryl	Water Blue	50 - 1,500 20 - 1,000
Imperial Topaz Precious Topaz	Topaz	GoldenYellow, Salmon Rose	20 - 1,500
Blue Topaz	Topaz	Blue	2 - 20
Verdelite	Tourmaline	Green	20 - 450 10 - 350
Rubellite	Tourmaline	Ruby Pigeon Blood	20 - 400 1,007
Indicolite	Tourmaline cupriferosus	Blue	20 - 1,000
Amethyst	Quartz	Violet	2 - 35 2 - 35
Citrine	Quartz	Yellow	2 - 30
Ruby	Corundum	Red	100 - 20,000

Sapphire	Corundum	Blue	70 - 14,00
Opal	Opal	Cream; Play of colours	10 - 350 10 - 350
Diamond	Diamond		?

Tab. 5: Prices of gemstones:
Source: SAUER, J.R. *4;
STERN, H., Italics *5

Gemstone market is very attractive but also very special. The price of carat of a stone is something highly variable. It all depends on the liking and the jewel in which it is placed. Thus table 5 informs the range of the price. And the price of gems varies with the colour, its hue, the size of the stone and the absence of inclusions.

The most popular of all Brazilian gems is the aquamarine, with its lovely water blue colour. With sizes varying from mm. to cm. these beryls occur at various localities, and have conquered the heart of foreigners. Then come the tourmalines. Their variation in coloration is extraordinary. They range in rose-red-green and blue. The green is easily confused with that of emeralds. It is deep and very pleasant when embedded among other colourful stones or diamonds. Recent discovery of cupriferous tourmalines with an electric blue coloration and a brilliant shine is attracting the attention of jewellers. The amethyst is a popular stone which occupies some international markets due to excellent popular purple-violet colour and exceptional sizes. The expensive and colourful emerald, traditionally known but only recently discovered in large quantities, has gone into the world market competing with the Colombian similars.

Gems also carry their superstitious values, including the influence they have on the date of birth, viz. birth stones (Table 6).

Month	Stone
January	Garnet, Rubellite, Amethyst
February	Amethyst, Aquamarine, Morganite
March	Blue tourmaline, Beryl, Aquamarine
April	Diamond, Beryl, Aquamarine
May	Green Tourmaline, Beryl
June	Topaz, Pearl, Opal
July	Red Tourmaline, Zircon, Rubellite
August	Black Tourmaline, Onyx, Garnet
September	Aquamarine, Amethyst, Blue Tourmaline
October	Pink Tourmaline, Opal, Zircon
November	Topaz, Beryl
December	Aquamarine, Topaz, Tourmaline

Tab. 6: Birth Stones

Conclusion

Brazil being the fifth to sixth gold producer in the world, avails these gems and manufactures jewellery. The art of fabrication with styles, design and types is both traditional, experimental and modern. The conventional design represents the heavy and massive jewellery of old European style, perhaps following the Portuguese and Spanish traditions that influenced their fabrication. The modern styles show a light and impressively artistic trend which is a renewal of Italian mode, but essentially Brazilian in art and design. It is creative, charming and jovial. Some of the architects of Brazil, have taken up jewellery design as a hobby and landed abroad transforming it into profession and business. It is a prelude for a new tradition and is being inherited by the youth. However, the old styles also dominate in all new fashion parades. This is the encounter of generations and the wedding of the old and the new.

The art of Brazilian jewellery is shown everywhere in the world, from Tokyo in the East to San Francisco in the West. Their manufacturers are to be praised for the creativity and genius. They are bringing the world to look with curious eyes at Brazilian art and creativity. This is the prevailing art, and it is coveted by all. It has paved way for new avenues in Geosciences heritage and culture, where gold and gems dominate. Brazil has assimilated the old and inherited art and transformed it to new and living culture.

Fig. 1: Natural aquamarines from Rio Grande do Norte State and baguette cut embeded in golden bracelet and pendant with aquamarine (18.5 ct).

Fig. 2: A variety of uncut gemstones (tourmalines: rubellites, indicolites and verdelites; beryls: aquamarines and heliodors) from Rio Grande do Norte State. In the center, a camapheo of enamel and pearl as a pendant in a golden necklace.

Fig. 3: Deep blue topaz in bracelet (right above, and over the watch) and necklace.

A variety of gemstones in earrings (center top). Other ornaments (watch and necklaces) in gold.

Fig. 4: Cabochons of red garnets in golden bracelet and necklace.

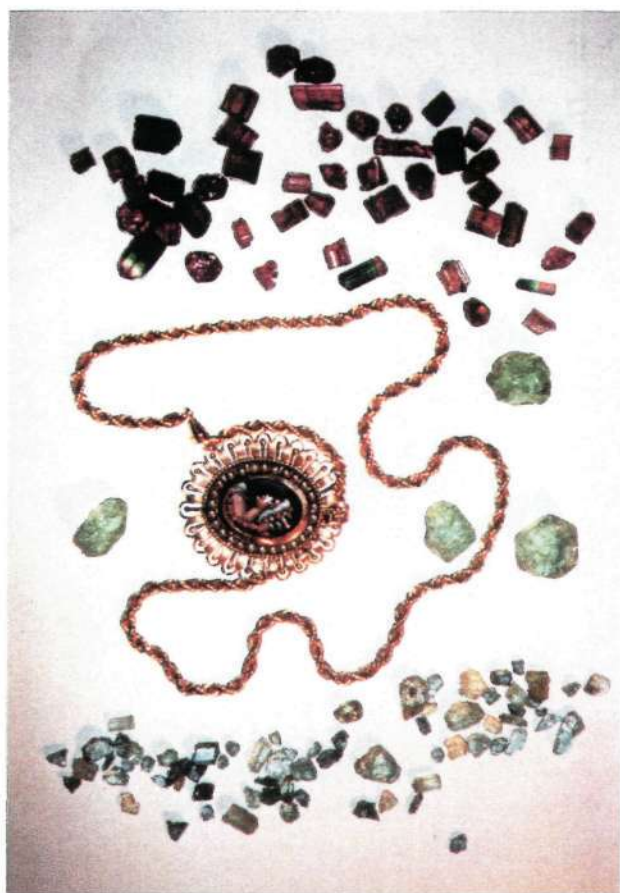


Fig. 2

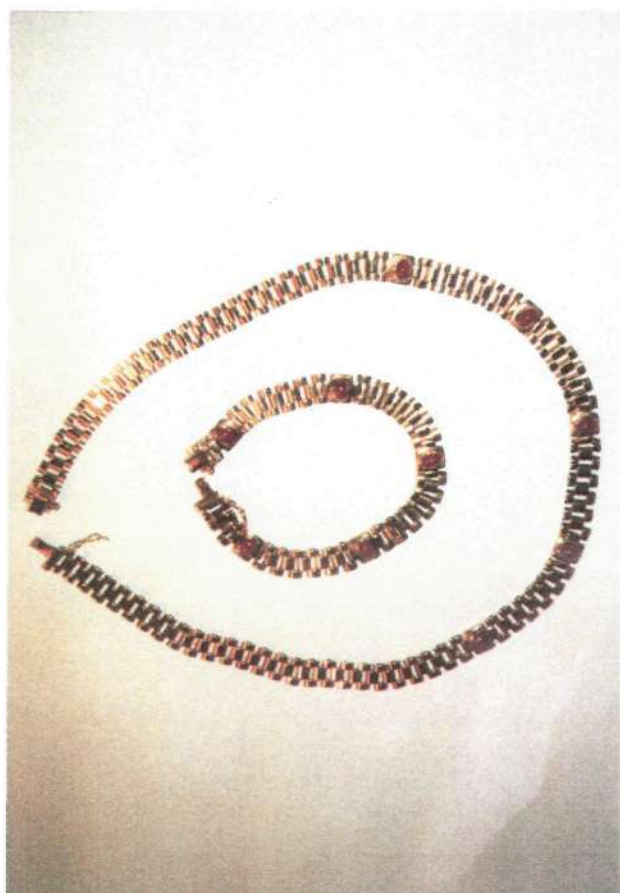


Fig. 4



Fig. 1



Fig. 3

Acknowledgements

Homage

This work with all its simplicity is a true homage to the Brazilian talent in Jewellery, and a tribute to the inherited and adopted art of creativity of such nice ornaments coveted all over the world, where nature plays a leading role.

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