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Madagascar corundums (Sapphire & Ruby discovery)

By Alain Darbellay GGGems

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AL₂O₃

Sapphire found in a metamorphized limestone.

· Crystallographic properties of corundum:
Trigonal.c = 1,3630 pp 0 86°4' ; pa1 = 122°26'
Macle according to p (1011), often polysynthetic,
accompanied by plans of separation, similar plans are also
observed according to a1 (0001) unequal break to conchoidal.

Hardness 9. Density 3,95 to 4,1 Refractive index: 1.76 – 1.77

Uniaxial and optically négative.ng = 1,7675; Np = 1,7593

The faces a1 frequently show the phenomenon of asterism,
generally due to reflexions within separation p.

Strong polychromatism , with following maximum ng.

· Chemical properties: corundum is composed of pure
alumina; its colouring is due to metallic oxide traces or inclusions.

The color of sapphire, due to iron and titanium oxide, gives its best
effect under daylight. Electric light makes it often dark.

The color of the ruby, due to chromium oxide, on the contrary shows
its most luminous red under electric lighting.

The Corundum shows in Madagascar two different aspects:

1 stony and opaque crystals.

2 crystals of smaller size often transparent and usable as gem.

In Madagascar, stony corundum comes from mica schists metamorphized by granite, as well as
granitic veinules endomorphized and more or less deprived of quartz which injects those. Silimanite is

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a usual

satellite of corundum in this type of deposit. One also finds some in eruptive rocks, syenites. Gems are generally found in alluvium, but come either from basaltic slags, or from metamorphized limestones or endomorphous feldspatic rocks.

1 2 3 4 5

One distinguishes two principal types of corundum in Madagascar:

Type I : isocelodric, more or less acute accompanied or not by a small face a1 (0001) and more rarely by facets p

(1011). Represented by figures 1 to 11, but which often become complicated in consequence of the irregularity of the development of some of their faces and by stacking with parallel axes of a great

number

of individuals.

6 7 8 9 10

11 12

13

Scalenoedron Stacking with parallel axes, Crystal supporting on one of its bases gutters at contours of the face. a small rhombohedron p in parallel position.

Type 2: Characterized by the association of the prism d 1 (1120) at a broad base, with which can associate the

isosceles ones, among which e 3 is most frequent, as well as the rhombohedron p.

The base of Malagasy corundum crystals very frequently shows scratches or triangular figures in relief, limited by p.

Macle of blue corundum.

Translucent violet – pink sapphire

Ruby in amphibolite.

The crystals engaged in rocks, rich in mica have rough faces, encrusted of biotite or muscovite, minerals which

also exist at the state of inclusions, associated with magnetite and pyrite.

Because of its hardness, its inalterability and its density, corundum constitutes a standard mineral of alluvia.

Ruby Giant Sapphire in a metamorphic dolomitic limestone.

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Polychrome Sapphire Blue Sapphire (origin: Blue Sapphire (origin: Ilakaka 1999)
(origin: Iankaroka 1990) Andranondambo 1992) Found in the sandstones of Isalo in
This sapphire comes from a granit, The stone comes from alluvium, the shape is rounded.
its shape is intact. a metamorphized limestone. The origin of the stone is a limestone.

· The structure of crystals.

It is R.J.Haüy who put forth the first assumption, confirmed 200 years later, on the structure of the
crystallized
material. He lets drop accidentally a calcite crystal which broke into small rhomboedrons. He supposed
whereas
the crystals were consisted of stacking small rhomboedrons elementary (that he called the "integral
molecule"),
he could reconstitute all known shapes of calcite. In a crystal lattice, three atoms or groups of atoms
(nodes),
which is not on the same line, determine a plan called reticular plan. But there is a great number of

these

plans: it is enough to choose nodes not strictly nearby. As the network is infinite, there is even an
infinity of
possible plans. The dimension of the faces does not play of role. In the course of growth, a face can
develop
more quickly than another. The angle that the faces make between them remains constant, since it
depend on the network. This structure of the crystalline material explains the law of the constancy of the

dihedral angles.

Triangular figure on a Scratches on a rare Stacking in macle Triangles on a translucent
colorless corundum. colorless corundum. of a ruby. corundum.

Triangular figure on a Triangles in step on a blue Remarkable macle of
blue corundum. corundum from Maromby. red corundum.
Sapphire & Ruby Safari Gem ruby from Ambatovaravarana.

The alluvial ruby deposit of Ambatovaravarana in the high plateaus, is in the
left center on the picture, under the hill.

Macle of blue sapphire. Macle of ruby 60 grms.

Information | Cutting Styles | Characteristics | Crystalline Systems | Madagascar Sapphire

Andranondambo Sapphires | Blue Sapphire Crystal | Ruby Crystal | Sapphire Slice

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http://www.gggems.com/Madagascan_corundum.htm

Madagascar gem safari

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MADAGASCAR GEM SAFARI 2

Sapphire from Maromby in a metamorphic limestone. (Andranondambo area.)

Looking for sapphire on the ground in 1992.

Sapphires from Andranondambo, discovered in 1991. (South–East of Madagascar)

In 1658, Flacourt, the governor of Fort–Dauphin mentions sapphires in the south of Madagascar.

In 1808, Barthélemy Hugon writes that in the valley of Ambolo there is a so beautiful stone and so rare that lapidaries have not been able to recognize it and it was above of all that is not diamond. ... In 1991, at the time of the great dryness in the south, sapphire samples are found, several centuries after their first discovery. The son of Mrs. Dauphine, innkeeper in Tranomaro, main village of the valley, was among the prospectors.

Actually, one of the most beautiful quality in the world is just leaving ground.

The area of Tranomaro is characterized by an extreme calcic and magnesian paragneiss abundance: gneiss with diopside, plagioclases, pyroxenites, wernerites, wolastonite limestones, with varied leptynites, generally with garnet, kinzigites, quartzites. One finds there rather frequently syenitic gneisses or lamboanites. Gneisses of injection are very frequent. The typomorphic minerals

Madagascar corundums (Sapphire Ruby discovery)

are: basic diopside, scapolite, calcite, plagioclases, wollastonite, garnet, cordierite and corundum.

East of Tranomaro, arteritic and eyesys injections assign gneisses at leptynites. Cordierite gneiss bands are deeply injected bed by bed, the injection has introduced magnetite in abundance. Wollastonites form ptymatic lenses with

Marohotro, 18 km. south from Andanondambo. folds very tortured at the middle of the limestone. Note:

The sapphire on the left comes from Ambandanira, and aluminous anorthites or sakenites. that on right-hand side from Maromby

(area of Andranondambo)

Sapphire from Behataza plateau (Andranondambo area)

Sapphires from Ilakaka. One of the various holes in sandstone forming (South-West of Madagascar) the deposit of Ilakaka discovered in to 1998.

Blue sapphires , pink and violet, Ilakaka area.

SANDSTONES OF ISALO.

The white sandstones of Isalo present imposing stratifications intersected with gravel beds and small conglomerates.

These soft sandstones resisted to erosion and taken a ruiniform relief because the presence of braces siliceous veins.

The mineral-bearing deposits include : a deposit of generally classified gravels, the richest part and larger elements being at the base of the bed – rock.

MORE ABOUT ILAKAKA

The far-south of Madagascar, semi-desert, does not present Polychromatic sapphires from Iankaroka discovered in 1990. any asphalt road yet, dust and trepidations are the daily lot of any traveller. Sunsets and the natural life of its inhabitants offer an appreciable compensation.

Rubies from Ianavoha. (South of Madagascar.)

Ruby from Andranomilitsy (Vohitany) Syenitic-nephelinic vein of rubies in Andranomilitsy.

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In Soamiakatra, rubies were sold with sunglasses.
The Mayor of Soamiakatra in 1989, (East of Antsirabe.)

Rubies from Soamiakatra in the high plateaus.

Here, rubies are always found in alluvium.

MADAGASCAN CORUNDUMS

BLUE SAPPHIRE NATURAL COLOR

Sapphire from Analafady (Ambondromifehy) North.

The alluvial deposit of Ambondromifehy is exploited since

1996. It is located in a Jurassic limestone, but the origin of sapphires is in alkaline basalts from the close volcanic zone.

Mahatsara (Ambondromifehy)

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