



# Facet Talk

September - October 2018

Official organ of the Australian Facetors' Guild Limited

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## Meet the AFG Board Members

At the AGM this year four new members were elected to the Australian Faceters' Guild Limited Board. Congratulations to the new team!

Top row from left:

- Vice President** Henk Prins
- SA Director** Carol van der Pennen
- WA Director** Lisa Han

Centre row from left:

- Qld Director** Noel Warrell
- Vic Director** Reg Hall
- Tas Director** Paul Carey

Bottom row:

- NSW Director** Bruce Copper

**Special Officers** are pictured with reports.

Please make yourself known to your representatives. They will be more than happy to discuss Guild matters and ideas for the future of the Guild, Muster, workshops, etc.



## Front cover theme is Topaz.

*All photographs of topaz and campsites are by John Broadfoot. Faceting group photograph by Glenys Prins. All topaz except the blue ones are from Nigeria (Courtesy BR Gemstones).*

**Top row:** 35 carat orange and 16 carat yellow topaz; 73 carat light pink crystal topaz; 135 carat salmon orange/pink topaz.

**Centre row:** Spectacular 80 carat crystal specimen of campagne/brownish topaz; Three untreated blue topaz from Victoria (largest piece is 2800 carat blue/clear/pinkish); Another view of the 135 carat piece showing multiphase inclusion.

**Bottom:** Isuzus ONLY country - campsites on the Dumaresq River near Texas where some AFG members relaxed after the Muster. Great peaceful site. Barry was fishing of course!

**Class of 2018:** 15 students and 6 tutors pictured after the Faceting Courses. We all had a great week!





## Scratchings from the Editor

John Broadfoot

*Welcome to Facet Talk 223.*

Another successful Muster has come and gone at Casino NSW. It was great to see so many old and new facetors at the seminar. Fifteen students joined us in the AFG courses in the first week. Big thanks to the tutors who assisted. The Seminar featured two guest speakers who were very well received and have been asked to return next year!

We welcome our new Vice-President Henk Prins and three new Directors (Noel Warrell, Lisa Han and Carol van der Pennen) on board. They are pictured elsewhere in this issue. Please make yourself known to these Directors who look forward to representing you and welcome your suggestions and input into our Guild. Many of us (oldies but goldies) are starting to tire and need to retire! Your help with the program and running of the Guild and the Muster would be welcome.

Hazel and I only returned home on 2 October after our post-seminar break. We spent one week camping, with Guild members, on the Dumeresq River west of Texas and two weeks in Texas. We ventured into Malley Hills near Glenarboon to check out wildflowers and try to find some *Jet*, which we did. The *Jet* occurs in sandstone and conglomerate which is highly mineralized (iron oxides) and is the intake for the Great Artesian Basin. I managed to find the scrub ticks while lying on the ground to photograph plants and flowers!

The last week included the Texas Country Music Muster (CMM) which was a great four days with a variety of entertainment for a \$60 pass – walk ups, three days of entertainers and three nights of billed shows! I recommend it post-Seminar next year. Nice small crowd not like other CMMs with 700+ vans and costing \$100s! One of the singers turned out to be a keen fossicker so you never know who you will meet at one of these.

I have decided to hold some articles from the Seminar for the November – December issue. There are some older articles from exchange magazines and hopefully these are informative.

**Next Issue: Seminar highlights and presentations.**

### Designs

This issue features more designs from the late Alexandre Wolkonsky, life member of the AFG. These include the 4 and 5 petal flowers and a chevron cut. There are some extra chevron cuts, some quite challenging! Especially Henry Larson's Chevron Design with a dodecahedral outline. The original was handed to me at Willunga by John Sellars.

Henk Prins has produced another Leaf design inspired by Nancy Attaway's *Aspen Leaf* and George Lennig's leaf design from issue 222.

I have also included a new challenge. It is a proposed cut for an AFG Faceting Competition - Section O.10.3 *Ferris Checked Top*. I believe all Master facetors and Open Facetors should be able to cut this without instructions! Maybe this could also be a new challenge in Section O.11 for a competition?



## President's Report

Paul Sabolta

Welcome to Facet Talk 223. My report is in the Minutes of the Annual general meeting. See the Insert.

## Secretary's Report

Keiran Simpson



Thank you to all the members who made the effort to attend the AGM on 31 August at Casino. The meeting saw the election of four new faces; Henk Prins as Vice-President, Noel Warrell as Director of Queensland, Carol van der Pennen as Director of South Australia, and Lisa Han as Director of Western Australia. The other state directors were returned unopposed. All the Special Officers were also returned unopposed. This gives the Guild a solid base for the next twelve months of operation.

It was especially pleasing to see two women elected as Directors. I am sure that they will bring a youthful perspective to meetings and lots of energy into their roles as Directors. Henk Prins brings a wealth of knowledge to the role of Vice-President.

Congratulations to John Broadfoot for organizing a very interesting program. There were several hands-on sessions. Sally Lyon's Gemmology sessions, the Photography Workshop and Reg Poirier's workshop on Gem Cut Studio. The rest of the program for the Seminar and the following week offered plenty for those who attended. Try to make the Seminar a "Must Attend" for 2019. You will enjoy it.

One point that was raised by Henk Prins, Noel Warrell and John Broadfoot, was the need for members to step up and volunteer your time either to assist or to take a position in the Guild. The same members who have already given so much do need to have members willing to step up, as they look to stepping down from their roles.

Noel Warrell and Les Sinclair are looking for members to learn with them next year in organizing the Seminar then take over for 2020. John Broadfoot will need someone to be willing to organize the program for the Seminar and the following week of activities for 2019 as he and his good lady expect to be overseas. Taking on these roles can be a steep learning curve but the rewards in giving back your time and efforts to the Guild will take us into the next decade. Have a think about it and if you decide to offer your time and skills let John, Les or Noel know. Your assistance will be appreciated.

**Editor.** *We are pleased to announce that Barry and Dawn Chapman from the Wide Bay Group have put their hands up to become understudies for Les and his Muster Committee. Good on you! Now we need someone to organize the Seminar program for 2019. That involves engaging presenters and organising the program for the two day Seminar – not the whole muster.*

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### DISCLAIMER

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### Contributions to Facet Talk

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If you need assistance to submit articles by email or electronically do not hesitate to give me a call 0429 692 904 or email me on [editor@facetorsguild.com.au](mailto:editor@facetorsguild.com.au). Please refer to instructions above when submitting articles.

**Please leave the formatting to the editor** – plain text as Arial or Helvetica size 10 font is fine.

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## Topaz: Purchase and Cutting Considerations

Peter L. Herschman, MD, FCGMA

In: NYFG Newsletter No. 149, May 2018

### Checking Out Topaz

In this article, I will pay attention to those aspects of topaz which one might benefit from knowing when shopping for this lovely gemstone. Due to its high surface energy, Mohs hardness of 8 and ion polarizability, topaz has a slippery surface. With practice one can often support the identification of a piece of topaz by touch. It can be distinguished by its smooth faces from those of say, citrine or synthetic corundum. .

Topaz is conventionally viewed as belonging to the *Orthorhombic* crystal system; prismatic faces are terminated by di-pyramids and basal pinacoids. Doubly terminated crystals occur infrequently - usually only one end is terminated and the other is a basal cleavage plane. The faces of prismatic crystals are often striated parallel to their length. In effect, simple examination of a crystal may confirm that it is genuine.



Pure fluor-topaz is orthorhombic. As the hydroxyl radical is substituted, a lower degree of symmetry evolves. One study assigns stones with increased hydroxyl to the *Triclinic* group.

Based upon neutron-diffraction studies, the ordering of the hydroxyl radical on specific fluoride sites in the structure of the crystal led to the consequence of decreased symmetry, in fact, that of the triclinic group. This discovery explained the pyroelectric and piezoelectric properties of some topaz. Pyro- and piezo-electricity cannot occur in crystals having orthorhombic symmetry. Further work is needed to elaborate this perspective.

Hoover<sup>2</sup> indicates that decreased proportions of fluoride, and increased hydroxyl radicals tend to be associated with higher temperatures of formation. These are more general than certain predictors of crystal origins; considerable overlap exists.

Topaz is often found with few inclusions.

### Cleavage

Facetors should be familiar with the brittleness of topaz and the readily developed perfect basal cleavage. It requires cutting a crystal at 5 - 15 degrees<sup>4</sup> from the basal cleavage plane. Hence it is important to be able to identify the direction of cleavage. Sometimes it is revealed in an internal crack, at other times a small area on the stone has the lustre of what Bill Orlovski once described as "shiny pants," i.e., well-worn jeans, which may serve to identify the cleavage face.

Topaz fractures with a sub-conchoidal or uneven fracture. The lustre of these surfaces is vitreous, less brilliant than the cleavage surfaces.

Trichroism is generally distinct particularly in darker coloured stones. Orientation may be at 90° to the C-axis of the stone<sup>3,4</sup> but in general, the gem cutter uses his eye to select what he feels is the most pleasing colour. Hoover<sup>2</sup> has provided the accompanying list to assist us. Note that different coloured stones may require orientations which vary from the C-axis.

Of interest is the fact that heat-treated orange stones have an altered pleochroism. The untreated stone has three colours, yellow, yellowish-orange and purple-pink. Treatment changes this (by removing the yellow colour centre) to shades of pink in two directions and colourless in the third<sup>5</sup>. I provide this information for those of you who have dichroscopes available.

During the 2000s blue-green as well as a range of red, pink, "champagne" and bicoloured topaz were marketed as "diffusion treated." Questions persist as to whether these are actually diffusion treated or the result of a coating or chemical process.<sup>6,7</sup> Generally these can be distinguished by an uneven surface colour and cracks revealing the white topaz below.

Ultraviolet fluorescence is of limited use in the identification of topaz.

### Topaz colours of significance to gemmologists and facetors

- It is significant that topaz hues tend to be distinctive; once seen they are readily recalled for members of this family.
- Most of the commercially available topaz in all colours come from Brazil.

#### a) Colourless Topaz

Colourless Topaz, at times labelled "Pingos d'agoa" or "Goutte d'eau" (Drops of water), is readily available from Brazil and Nigeria as well as from other sources<sup>3,8</sup>. Natural topaz tends to be colourless. (*Ed. Kilakrankie topaz from Tasmania can be water clear and colourless and cuts very bright stones.*)

Treatment accounts for many of the different hues seen.

### b) Pink and Red to Purple Topaz

In general purple is regarded as the rarest, most valuable hue. Its colour is due to trivalent chromium ( $\text{Cr}^{3+}$ ) substituting for aluminium. On the basis of the Refractive Index these tend to be high in OH. As noted earlier, most "Imperial" topaz comes from Brazil, but Russia and Pakistan also provide topaz in this colour range. *Right: Pink topaz. Photograph John Broadfoot.*



At what point these can be described as purplish, purplish-red, red or pink is highly individual. In one mine, the Capao<sup>5</sup> located in Ouro Preto, Brazil the rarest colour is purple, with "sherry" red being rare as well.

### c) Orange-brown, or Sherry-coloured "Imperial" Topaz

The colour derives from a combination of pink due to  $\text{Cr}^{3+}$  and a stable brown colour centre. The majority of such stones are from the Ouro Preto region of Brazil. The sine qua non of the "Imperial" colour is a pinkish, reddish, peach hue. At what point a particular stone can be labelled "Imperial" Topaz is unclear. Sinkankas and Miller<sup>8</sup> specify strong reddish-orange stones as "Imperial," a distinction. The Guide supports indicating the yellow or orange-yellow stone must have overtones of red or pink (light tones of red) to carry that appellation. Dealers describe these stones with little consistency, calling golden-yellow, apricot, or golden-orange stones all "Imperial." However, in an article in *Gems & Gemology*<sup>5</sup> the authors describe a range of "Imperial" topaz from the Ouro Preto region as comprising not only the intense orange-yellow to orange but also the "sherry" red and saturated pink stones. Their description tends to add to the already confused nomenclature of these stones. The motive behind this broadening of definition appears twofold. On one hand, they recognize the rarity of these hues, on the other the cost differential is considerable. *Right: 27 carat dichroic Imperial Topaz. J. Broadfoot.*



*Note:* "Imperial" topaz can be created using irradiation, but the colour is unstable in direct sunlight. If buying large quantities, it may be helpful to use the technique of Rio dealers who test colour fastness by placing the stones in a window in direct sunlight for a day or two<sup>9</sup>.

When a yellow, or a yellow-brown topaz becomes "Imperial" is also unclear, although the term "Precious" topaz is applied to deep hued yellow or orange-yellow stones without the red-pink overtones. Taking a tablet of vitamin B2 (riboflavin) along with a few glasses of water may later give an impression of the saturated yellow hue generally known as "Precious" topaz.

Sherry- coloured or Guererro topaz appear to be brown, as sherry or root beer. These may be included in the appellation, "Precious" topaz.<sup>4</sup>

Citrine may be sold as topaz. There is no Canadian legislation protecting customers from this form of dishonesty.

### d) Other Colours

All other topaz derive their hues from colour centres induced by radiation, either natural or created. The treatment process cannot be detected using normal gemmological instruments. Hoover<sup>2</sup> provides the list of colour centres. All colour varieties occur as a result of combinations of these chromophores.

Blue stones are described with confusing terms<sup>4,10</sup>.

- "Cobalt blue" - a steely grey-blue stone created by gamma radiation after heating to remove the brown component.
- "Sky blue" - a pale, medium blue; aquamarine-like shades may be found. These are created by high-energy electrons in a linear accelerator followed by heating. Naturally irradiated stones with this hue have been found in Brazil. "Medium sky blue" contain a tinge of grey.
- "Swiss blue," "American blue," "California blue," "Super blue" or "Maxi blue" - a medium-hued brighter blue is created by neutron, followed by electron radiation plus or minus heat.<sup>4</sup>
- "London blue" - a deep-hued, inky or steely tinted blue produced by neutrons in a nuclear reactor. Radioactivity induced in the stones by this process may take varying lengths of time to fade; some localities release stones possessing higher radioactivity. In the past, "London blue" or other irradiated topaz were known to remain radioactive for varying periods of time, a practice which is rare to-day.<sup>4</sup>
- "Summer Blue" – a medium to deep sky-blue hued tint is created by a diffusion process.<sup>6</sup>
- "Ice Blue" – a green-blue tint also created by a diffusion process.<sup>7</sup>



In blue topaz, depth of colour and the absence of a steely or green tint is considered desirable. A green stone has been marketed as "Ocean green" topaz. It is created by neutron irradiation in a nuclear reactor at higher temperatures than the "London blue" type, residual radioactivity may remain. The green colour is unstable in direct sunlight.<sup>11</sup> Bicoloured stones are also available but are quite rare<sup>5</sup>. One group are pink and orange-yellow. Some are treated.

## Selecting Topaz Rough

In general the price of topaz rough tends to be reasonable but quite variable. With unclear descriptions of the material it is best to ensure that the dealer sells on approval. In more expensive coloured rough, where conserving weight is important, visible inclusions are uncommon. Treated topaz may be clean as inclusions tend to result in destruction of the stone during the process. Yet some heat-treated stones contain unchanged inclusions, though the authors<sup>13</sup> who examined these stones caution against the treatment of included gems.

Large crystals, particularly of "Imperial" topaz, may have fractures parallel to the C-axis radiating inwards. Where they fail to meet at the centre, clean areas may be found suitable for cutting. These may often be seen through the cleavage surface, which provides visual access to the interior of the stone.

Occasional veil-like inclusions are found. These are best preformed using a 260 lap rather than a grinding wheel<sup>12</sup>.

Incipient cleavage may show interference colours due to an air film occupying space within a crystal. When examining crystal rough, it is wise to look for such areas. A pearly lustre indicates numerous incipient cleavages. The surface of a fresh cleavage has a bright, sub-adamantine structure.

## Faceting Topaz

*Shapes:* Because topaz crystals are elongated, they tend to be cut as oval or pear shapes to augment their yield. Cutting though, depends on the favoured colour. Since the pink-peach hue is often best seen along the C-axis, one may cut a round, square or other shape depending on the crystal form.

*Orienting topaz rough:* Basal cleavage can be a hazard during cutting so it is important to orient the crystal 5-15°<sup>4</sup> away from the cleavage plane to avoid cutting parallel to it and thereby having to struggle with a cleavage face. Facets should not coincide with any cleavage plane. Bill Deasley described a more elegant method of orienting crystals for cutting in which he lists all the cutting angles of the facets and calculates a clear zone.

In alluvial topaz, micro-cleavages account for the surface structure. On close examination, these prove not to be abrasions but rather oriented micro-cleavages normal to the C-axis. They cause a marked reflection when the stone is oriented properly, a phenomenon which can be used to orient the rough for dopping. Hoover<sup>2</sup> has described these observations clearly.

The table may shred even when it is 5-15° off the cleavage plane due to polishing against the grain. To guard against this recurring, turn the dop stick half-way around in the 45° adapter so you cut with the cleavage grain.<sup>13</sup>

Topaz is not a tough stone. A blow may break it or cause cleavage. It also tends to be pressure-sensitive and may cleave as a consequence. Be gentle. To clean the stone, use warm, soapy water, not a steam or ultrasound method.<sup>4</sup>

For the various members of the topaz family the critical angle varies between 37.6° and 38.4°. Since pavilions are usually cut at greater than the critical angle, the range is narrow enough so that one can calculate cutting angles safely.

Robert Strickland<sup>14</sup> using his computer, calculated optimal angles for cutting the standard round brilliant in topaz (usually light-coloured for this cut). He favours a pavilion main angle of 41° and a crown main angle of 32°. His article mentions optimum angles for pavilions at 39°, 40°, 41° and 42° coinciding with maximum crown angles at 44°, 41°, 33° and 29° respectively, each pair leading to particularly bright stones as measured using his RayTrace program.

Gemking<sup>15</sup> on its angles alpha webpage (no longer available) lists the pavilion and crown main angles from several writers for topaz. They range from 39° to 42.6° for the former and 35° to 43° for the crown main angles.

In Amsterdam, Sauer<sup>5</sup> topaz cutters use a 360-grit grinding wheel, a 600-grit faceting lap, and polish their stones using Aluminium oxide on a lead/tin lap. I've cut several pieces of topaz, mainly pale blue in colour using a new 1200 grit faceting lap and Aluminium oxide (Raybrite B) on a tin lap. Robert Kelly<sup>16</sup> recommends Linde A (Aluminium oxide) on a tin, tin-lead or type metal lap, the latter two being slower to polish. He also suggests 0-1/2 mesh diamond (100,000 grit) on a tin or tin-lead lap. Recently, I have had success with 50,000 diamond and pure paraffin oil lubricant on a Raytech Last Lap. My trial with diamond polish was quite successful. I don't think there is a definitive method of cutting and polishing topaz; experimentation is welcome. Topaz polishes readily producing a beautiful, bright stone. *Editor. I have had great success using 50000 De Beers diamond on a type metal lap with baby oil as a carrier/lubricant.*

Although colour zoning is not prominent in topaz it tends to occur in specific crystal planes and may be observed on occasion.

Leiper<sup>17</sup> found a luminescent reaction in certain blue topaz stones of value in orienting the stone for cutting. His article classifies colour zoning observable using short-wave ultraviolet light and suggests orientations for cutting.

## Treatments of Topaz

Nassau<sup>10</sup> summarizes treatment methods as follows, with my own additions appended:

*Irradiation:*

- A. Colourless or pink to yellow-brown (BSCC) (Brown stable colour centre).
- B. Colourless or pink to yellow- or orange-brown "Imperial" (BFCC) (Brown fading colour centre).

C. Colourless to brown, green or blue (s = Stable).

D. Colourless (?) To green (u = Unstable).

*Heat:*

E. Brown or orange to pink (s).

F. Yellow, green or brown to colourless or blue (s).

G. Well-saturated yellow or red-brown to pink colour (s) (only if Chromium is present in the lattice).<sup>4</sup>

H. Blue to colourless or purer pink (s).

I. Turn inclusions dark red-brown (s).

*Other:*

J. Surface coatings: Aqua aura, "rainbow;" (u) (heating in a metallic oxide compound; blue to green-blue colour (heating in a cobalt-rich powder) or pink (s),<sup>4</sup>

K. Diffusion Treatment (s) blue, green<sup>6,7</sup>. Generally, these can be distinguished by an uneven surface colour and cracks revealing the white topaz beneath the surface.

*Combination approaches:*

Irradiated stones (C above) may be heat treated to remove the brown component leaving a blue colour.

Heat treatment<sup>5</sup> may enable some brown-yellow or orange topaz to be transformed to "peach" or pink crystals. These are stable to both heat and light. The method involves placing the cut stones in a small clay tray which is then placed in an oven slowly heated to 1050°F over about forty minutes. After the oven is turned off, the stones are permitted to cool to room temperature before they are removed. Again, inclusions may make this process risky for those of you who may want to try it.

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**See cover and page 35 for more photographs of topaz.**



## Gemmology for Facetors

Presentation and Practical Session at AFG Casino 2018

By Sally Lyon

*Editor: The lecture/presentation was very informative and presented in a facetor-friendly manner! The workshop certainly had a large following and I can certainly speak for all facetors present in saying that Sally did great job. The following is a summary of the points covered during the Power Point presentation and the workshop. Future issues of Facet Talk will contain a more detailed and illustrated articles by Sally Lyon.*

### Presentation/Lecture

Gemmology is the scientific study of gemstones.

*Why does it matter to Facetors?*

Sally covered a selected range of gemstones and the properties important to facetors:

- Identity of your material
- Physical Properties
- Optical Properties
- Hardness
- Crystal structure

### Practical Session

Sally spoke about and demonstrated the following instruments/tools:

- Polariscope
- Refractometer with Monochromatic light source.
- Longwave UV torch – Shortwave was also mentioned.
- Neodymium Magnets – demonstration on some well-known gemstones such as peridot and garnet.
- Specific Gravity Scales – how to build your own using cheap materials.

The GAA book *Values of the Refractive Index and Specific Gravity of Commercially Known Gemstones* was available for perusal.

During the course of this session participants identified some commonly encountered stones used by facetors, e.g., Quartz, Topaz, Garnet, etc.

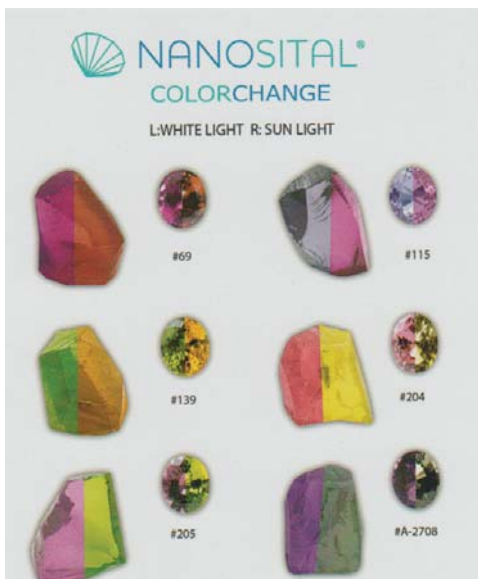
Participants were encouraged to bring along their own instruments and stones.

### Glass Filled Ruby

Sally was fortunate to visit the factory last year and put together a short PowerPoint Presentation showing the process (viewed at lunch).

Samples were on display and able to be viewed under a microscope.

*Right: Glass-filled rough and faceted ruby.*



### Nanosital Rough

Sally also spoke about and displayed this new synthetic gem material with a fantastic range of colour change material. This synthetic is easy to facet and the properties are similar to gemstones from Peridot to Spinel. Hardness is 7 and easily polished with diamond. Stable to heat.

*See full article in Facet Talk 220, page 35.*

## How to Cut Soft and Cleavable Material

Alec Wolkonsky (Reprint)

This is the technique I used to cut blue apatite from Madagascar. Blue and blue-green apatite from a new find in Madagascar will make gorgeous gems, but unfortunately, the conventional hardness of 5 Mohs does not seem to apply to this type of apatite which seems softer, especially so on certain planes of the crystal. This type of apatite is also both heat sensitive and quite cleavable. Many stones already have numerous, flat round lily pad inclusions inside them which are really the start of cleavages ready to move on or split the stone into two. You cannot see these in the rough!

### Preforming and dopping

Preform on a 15-20 micron (200) diamond wheel at slow speed. Cold dop with epoxy. Any attempt at dopping with even a low melting point wax and pre-heating the stone is playing *Russian Roulette!*

### Cutting

Cut with a 15-20 micron (1200) lap at slow speeds with plenty of water. This is because cutting is very fast even with very little hand pressure and debris accumulates and clogs your lap. Cut a little and look frequently to avoid over-cutting. Bring the stone gently to the lap every time. The slightest bump on the lap by the stone will start a cleavage you will not see immediately.

### Polishing

I use a six-inch 'Last Lap' with 50,000 grit in oil at low speed and very little pressure. This lap I keep for soft stones only. I wash the lap with water and soap, with the lap on a piece of clean plywood in a sink previously cleaned with water. I scrub the lap with a special new nail brush I keep for that lap and for cleaning my ceramic lap. The brush is kept clean in a zip bag. The lap is scrubbed north-south-east-west, clockwise and anticlockwise. Rinse with tap water and do same with the brush. Dry with tissue paper. Charge the lap with the diamond and oil with a small pad of tissue paper-not your fingers!

Every time you start polishing wash your hands and brush your nails. Generally speaking work cleanly to avoid contamination which is all the more frequent as stone hardness gets lower. This is valid for any soft stone beside apatite. Some are a lot worse! I am sure a tin lap with 1/4 or 1/2 micron aluminium oxide (Linde A or B) or micronised cerium oxide will do just as well with water or oil. I would recommend against a scored lap because the rough ride may open a cleavage. When polishing I use scarcely any hand pressure and run the stone to and fro the whole width of the polishing lap to reduce scratches. My speed on a six-inch lap is approximately 150 rpm.

### Transferring and re-dopping

Have a small glass jar ready with a tight fitting lid. In France some hotels sometimes serve jam at breakfast in such small jars with quarter-turn caps with a lining. They are just right. Cut a piece of tissue paper to fit the bottom of the jar with a little extra to curl up the sides a little to avoid direct contact between stone and glass. Fill to one-third with a solvent such as acetone. Gently place stone with cut and polished pavilion and dop in jar and close cap. Leave to soak overnight. Next day remove stone by hand and place on tissue and remove dop with metal tweezers.

Re-dop stone with epoxy using hollow dop. Level by eye at 90 degree intervals. You will be surprised how accurate your eyes are but use an Optivisor or hand lens if unsure. Do not press stone too much inside hollow dop or you will crush the culet.

Cut and polish the crown as you did with the pavilion. Get your stone off the second dop as you did with the first and you will get a gorgeous blue to blue-green stone, very bright - R.I. is 1.63. The idea is to work cleanly.

### Handling finished stones

This applies to any of the softer 3 - 5 Mohs hardness stone group beside apatite and all soft cleavable stones: fluorite, blende-sphalerite, calcite, rhodochrosite, etc.

Anything that can happen to your stone after coming off the dop is detrimental to it! This is the time scratches, crushed culets and corners viciously sneak in. This is because we are surrounded by grains of quartz, harder than your stone and likely to scratch it. Quartz is in sand, in the streets, on the floors of your home, in the dust on your fingers and what about your fingernails?

To handle your stone, wash your hands first in soap and water and dry with a clean towel. Take your stone with your fingers or with tweezers you have previously dipped in a solution of plasticised PVC in cyclohexanone or an elastomeric material in proper solvent. The solution should be as fluid as honey. Dip 15mm of tweezer tips in solution and place tweezers upside down in a glass to dry overnight with touching anything. This will give you tweezers with better grip that will not damage your girdles.

If you have a hard table top like formica, place tissue paper over it on a cloth so if the stone falls it will not cleave. Avoid looking at the stones in a room with a tiled floor and preferably in a carpeted room. After touching your stone with your fingers, oil (seborrhoea) will stick to the facets. With the finger oil comes the inevitable tiny grains of quartz. Avoid wiping your stone dry.

I suggest two other ways:

Take a new Kleenex (do not use kitchen tissue paper which is recycled and contains chalk as a filler which is harder than your stone and may scratch). Kleenex is made from cellulose. Dip a corner in 95 per cent proof alcohol (isopropyl) which you can get from hardware stores (in Australia). Clean the stone with wet part of Kleenex and gentle finger pressure. Switch to the dry part and place stone back in box or gem paper. The other way is to wash hands first with soap and water then wash the tap stone under the tap with your fingers and rinse before you dry with Kleenex and replace in box or gem paper.

### Cutting diagrams

This type of apatite is so easily cleavable that it is better to choose a round or roundish design. I tried the cushion lozenge mini barion (see *Cutting Gemstones: A Beginner's Guide to Faceting* available from AFG supplies officer) and one sharp end fell off. Marquise and the more elongated ovals should be avoided as should pear designs.

Good luck-you will end up with quite a beautiful stone and not that difficult to cut but really, some stones are hell.

## Computer Generated Cutting Diagrams

By Grover Sparkman

From: *Facets*, Newsletter of the Columbia-Willamette Guild  
(Reprinted by Ultratec 2009)

The information that appears after the cutting instruction is made up of letters and ratios like L/W=1.3. It was Robert Strickland, who developed the program *GemCad*, who called all these letters "Alphabet Soup". Well, it may look like Alphabet Soup but the information is meaningful, and useful for the faceter. To effectively use the information takes a little understanding. Don't be intimidated. It's logical, and the arithmetic is simple. Each letter (L, W, V, etc) represents a dimension of the stone such as "L" representing "length", "W" representing "width" or a physical characteristic such as "V" representing "volume". The designation "L/W" indicates a ratio between L and W (L/W is another way of writing L÷W. If in the design L (length) is 10 mm and the W (width) is 5 mm, then L/W=2.

See the dimension lines in the diagram. These dimension lines will always be parallel to the edges of the page. Each dimension line has an identifying letter. They are L = Length and W = Width. On stones other than rounds and squares (for which L/W always equals 1) the length L will always be greater than width W, so the ratio L/W is always greater than 1. GemCad automatically picks the larger dimension for L. P = Pavilion height. P is measured from the highest point on the pavilion, at the girdle, to the tip of the culet. C = Crown height -- C` is measured from the table down to the lowest point on the crown facet, at the girdle. T = Table dimension. GemCad picks the larger of the two table dimensions and calls it T. H = Height is the total height overall, Table to Culet.

### Using the information

The main use of all the ratio information is that it allows you to plan the use of your gem rough and to know with reasonable accuracy what would be the largest stone of any particular design that your rough material will yield. To show how it works, it's easiest to use an example and for that purpose let's use the "Lucky Stars Pear" design and an imaginary piece of gem rough **that you have preformed and looks like it will match this design.**

In the diagram (below) you will see a series of ratios which work as formulae for later calculations. In the "Lucky Stars Pear" design, the first ratio shown is the L/W = 1.334--and after that there are a number of other ratios shown. You can use those ratios to determine the largest "Lucky Star Pear" that you can get out of your particular piece of rough. And after you calculate that, you can use the Volume formula to estimate the gem's final weight.

Working first with the dimensional ratios, use vernier calipers to do some measuring. You measure the long direction on your **preformed** rough and find it will allow a stone 10 mm long. Do you have enough width to cut the design?

**The L/W ratio** will tell you how much material you'll need:

$$L \div W = 1.334 \text{ (substituting the measured 10 mm for L)}$$

$$10 \div W = 1.334 \text{ (a simple formula to solve as follows)}$$

$$W = 10 \div 1.334$$

$$W = 7.496, \text{ or more practically, } W = 7.5 \text{ mm.}$$

Now measure the available width. Is there enough material to get the 7.5 mm? Yes? OK. No?

Well, how much material do you have? Let's say you see that the maximum width is 6.5 mm. Let's

Revisit the L/W ratio formula to determine the length you will get for a width of 6.5 mm.

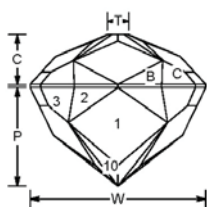
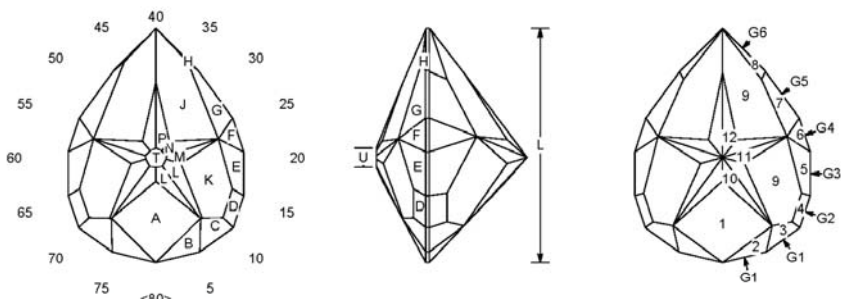
$$L \div W = 1.334 \text{ (substituting the 6.5 mm width)}$$

$$L \div 6.5 = 1.334$$

$$L = 8.674 \text{ mm, or more practically,}$$

$$L = 8.7 \text{ mm}$$

So we've determined that we can get a stone that measures approximately 8.7 mm long by 6.5 mm wide.



### PC 05.097 Lucky Stars Pear

Mathewson, Ralph: *FACETS*, Jan 96, p4  
Outline from preform shown in footnote  
Angles for R.I. = 1.540  
59 + 14 girdles = 73 facets  
1-fold, mirror-image symmetry  
80 index  
L/W = 1.334 T/W = 0.121 U/W = 0.110  
P/W = 0.558 C/W = 0.284  
Vol./W<sup>3</sup> = 0.354

**Editor:** All faceters should preform their piece of rough, removing all unwanted material, fractures and noticeable inclusions, before considering the design that suits the shape. As always I recommend that all faceters shape the rough by hand before even trying to dop it!

### Calculating the height needed

Whoops! Don't forget the height. We've got to look at that too (we live in a 3-dimensional world).

A H/W ratio is not given along with a formula but here's what's going on! The overall height (H) is the sum of the Pavilion (P) + the Crown (C) + the Girdle (0.02 of the Width). GemCad assumes a girdle thickness of 2% of the width W. The ratio  $H/W = P/W + C/W + 0.02$ , simplifies to  $H/W = (P+C)/W + 0.02$  (that's not much of a "simplification" in the common use of the word). Anyhow, it's worth mentioning since that formula appears on the page (perhaps just to remind you of the 0.02W Girdle thickness factor). Substituting in the formula:

In this example  $H/W = 0.558 + 0.284 + 0.020 = 0.862$ .

So, back to the formulae:

$$\begin{aligned} H \div W &= 0.862 \\ H \div 6.5 &= 0.862 \\ H &= 5.6 \text{ mm} \end{aligned}$$

Check the available material for the height with the calipers. Got enough? OK. It looks like you've got about 8 mm? That means about 2.4 mm will come off. Keep in mind, when you measure the Height direction of the rough, that you will lose some material before you attach the stone to the dop when you grind the preliminary Table. You need to allow for that (on this particular design you need to be extra careful. The finished Table is very small (notice that  $T/W = 0.121$ , which, if you do the arithmetic will show the table on our 8.7 mm long stone will be only 1 mm and you have to consider that you will need to grind away enough material to obtain a preliminary table that's wide enough to attach a flat dop. It doesn't mean you can't do the design if the rough has barely the 5.6 mm depth, but it would take some dopping "inventiveness". So, you see how the ratios are used. Here are some questions that arise and some observations:

The rough in our example measured 10 mm long, but only 6.5 mm wide, which meant that the finished length became 8.7 mm. To obtain a better yield, wouldn't it be better to use a design where L/W ratio is larger? The answer to that is yes, (but if we used a perfectly proportioned stone as our imagined example, it wouldn't have been as educational) and anyhow, more often than not, you will start out wanting to cut some particular design. In the first step of the example (determining the required width), expressing the ratio as L/W made the calculation a step or two longer than if it were given as W/L. Right, but L/W has become the custom. If you prefer using the W/L ratio, it's the reciprocal of the L/W (in the example  $W/L = 0.75$  ( $W/L = 1 \div 1.334$ )).

The P/W or C/W ratio (the P/H or C/H as well), lets you calculate the dimensional position of the girdle from the top or bottom (culet) of the stone. That number can be used to mark the girdle position on the rough, as an aid during faceting.

### Estimating the weight return

Now, if you want to estimate the carat weight of the finished stone, the Alphabet Soup provides a value given that makes this possible shown on the diagram as  $\text{Vol.}/W^3 = 0.354$ . The formula to get carat weight uses that value, as shown below:

$$\text{Carat weight} = V \times W^3 \times d \times 5$$

Where V = volume factor from the diagram, that is, 0.354.

W = width measured in centimetres (cm).

d = density (specific gravity) of material in  $\text{gram}/\text{cm}^3$ .

5 is to convert grams to carats.

Using our example for "Lucky Star Pear". Let's say our material is Amethyst. Here's a list of values that are used for the formula:

V = 0.354 (given in the diagram)

W = 6.5 mm. We need to convert that to cm which is 0.65 cm.

D = 2.66  $\text{g}/\text{cm}^3$  for quartz.

Entering these values into the formula:

$$\text{Weight} = 0.354 \times 0.65^3 \times 2.66 \times 5 = 1.3 \text{ carats.}$$

Keep in mind that the volume factor used reflects that GemCad applies a girdle thickness of 2% $\times$ W. A thicker girdle will make for a heavier stone (and larger volume factor).

### AFG Faceting Competition Results for 2018

<b>Open Champion</b>	
Ian Gutzke	287.87
<b>Open Runner Up</b>	
Lex Winkelman	192.62
<b>Intermediate Champion</b>	
Lynne Webb	380.35
<b>Intermediate Runner Up</b>	
Ross Beattie	373.42
<b>Novice Champion</b>	
Alexandra Sundell	322.43
<b>Novice Runner Up</b>	
Peter Bennett	321.84
<b>Highest Score</b>	
Lex Winkelman	99.03
O.10.3 Modified Standard Cut	
Individual Section Results are in the INSERT	

### Champion State/Country

<b>Queensland</b>	<b>2627.37</b>
QLD	2627.37
NSW	1343.45
Switzerland	509.41
VIC	495.12
Sweden	322.44
Taiwan	180.36
United Kingdom	136.83
WA	96.63

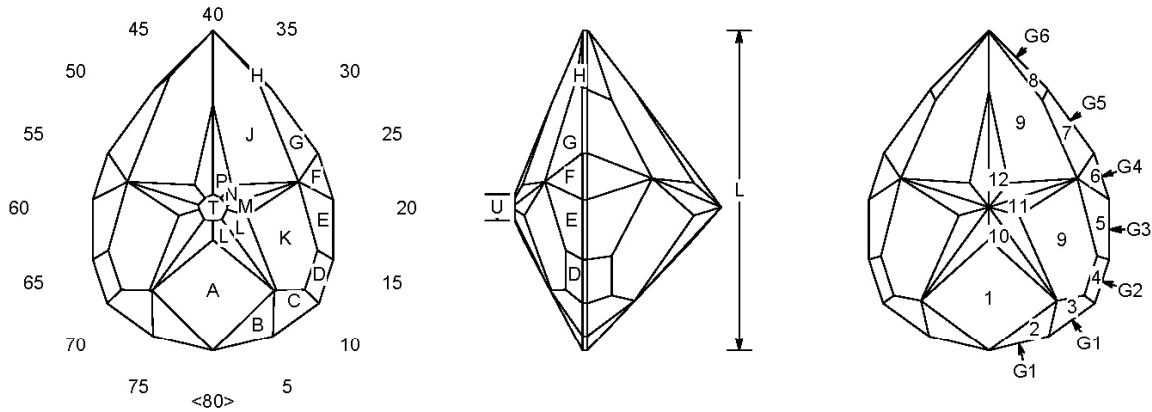
# LUCKY STARS PEAR

Ralph Mathewson

See article on page 11 in this issue of Facet Talk.

Computer Generated Cutting Diagrams by Grover Sparkman

Original from *Facets*, Jan, 1996. Newsletter of the Columbia-Willamette Guild



## PC 05.097 Lucky Stars Pear

Mathewson, Ralph: FACETS, Jan 96, p4

Outline from preform shown in footnote

Angles for R.I. = 1.540

59 + 14 girdles = 73 facets

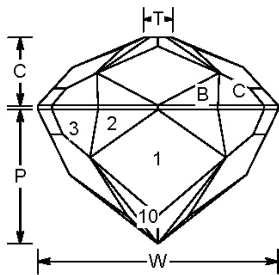
1-fold, mirror-image symmetry

80 index

L/W = 1.334 T/W = 0.121 U/W = 0.110

P/W = 0.558 C/W = 0.284

Vol./W<sup>3</sup> = 0.354



### PAVILION

G1	90.00°	03-77
G1	90.00°	08-72 All girdle facets from preform.
G2	90.00°	16-64
G3	90.00°	20-60
G4	90.00°	24-56
G5	90.00°	28-52
G6	90.00°	30-50
1	43.50°	80 Locate girdle on preform
2	55.30°	03-77 Meet (P1-girdle)
3	63.00°	08-72 Meet (P2-girdle)
4	63.00°	16-64 Meet (P3-girdle) Level girdle
5	64.00°	20-60 Meet (P4-girdle) Level girdle
6	70.00°	24-56 Meet (P5-girdle). Level girdle
7	66.40°	28-52 Meet (P6-girdle). Level girdle
8	65.00°	30-50 Meet (P7-girdle). Level girdle
9	43.50°	16-64
9	43.50°	32-48 Meet (P5-P6-P7)
10	41.20°	01-79
	41.20°	15-65 Meet (P1-P2-P3-P9)
11	41.00°	17-63
	41.00°	31-49 Meet (P5-P6-P7-P9)
12	41.20°	33-47 Meet (P10-P11-P11-P10)

### CROWN

A	28.00°	80	Fix girdle width
B	35.80°	03-77	Meet (A-girdle). Level upper girdle.
C	41.30°	08-72	Meet (B-girdle). Level upper girdle.
D	43.80°	16-64	Meet (C-girdle) Level upper girdle.
E	47.49°	20-60	Meet (D-girdle). Level upper girdle.
F	54.00°	24-56	Meet (E-girdle). Level upper girdle.
G	49.09°	28-52	Meet (F-girdle). Level upper girdle.
H	74.00°	30-50	Meet (G-girdle). Level upper girdle.
J	28.00°	32-48	Meet (G-F-E)
K	28.00°	16-64	Meet (J-G-F-E)
L	24.30°	02-78	
L	24.30°	14-66	Meet (A-B-C-K)
M	24.20°	18-62	Meet (J-G-F-E-K)
N	24.20°	30-50	Meet (J-G-F-E-K-M)
P	24.50°	34-46	Meet (L-L-M-M)
T	0.00°		Table

PREFORM: PF1 35.0 (03-08-72-77)

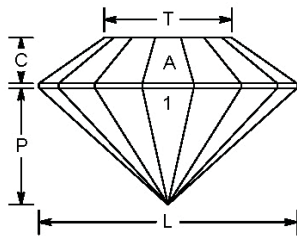
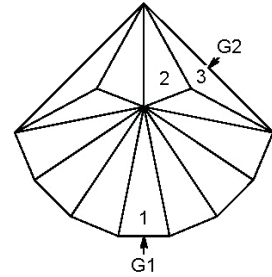
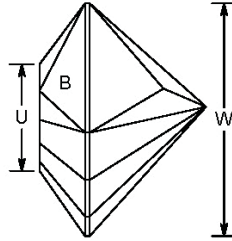
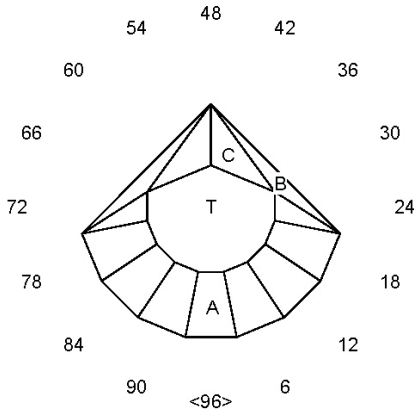
PF2 36.91 (16-64) : PF3 39.20 (20-60)

PF4 40.04 (24-56) : PF5 39.99 (28-52)

PF6 38.12 (30-50) : G1-G6 90.0 (Level false girdle)

## 4 Petal Flower

Alexandre Wolkonsky, St Cloud, France



### 90 Degree Fan Cut

Alec Wolkonsky & Piet van Zanten, Jan 1996

GemCad revision John Broadfoot, Oct 2018

Angles for R.I. = 1.540

27 + 9 girdles = 36 facets

1-fold, mirror-image symmetry

96 index

$L/W = 1.110$   $T/W = 0.550$   $U/W = 0.458$

$P/W = 0.500$   $C/W = 0.196$

$Vol./W^3 = 0.220$

#### PAVILION

1	42.00°	96-06-12-18- 24-72-78-84- 90	PMP
2	50.58°	42-54	Meet PMP
G1	90.00°	96-06-12-18- 78-84-90	Establish width and level girdle
3	70.00°	36-60	Meet 1 and G1
G2	90.00°	36-60	Meet G1 and 3 and level girdle

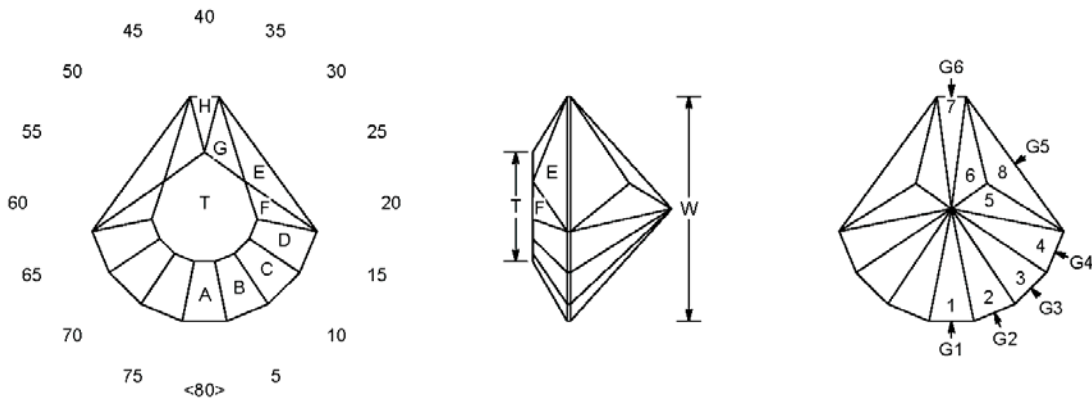
#### CROWN

A	35.00°	96-06-12-18- 24-72-78-84- 90	Establish girdle thickness and level girdle
B	70.00°	36-60	Meet A and G2 - level girdle
C	39.02°	42-54	Meet B and G2
T	0.00°	Table	Meet A, B and C

## 5 Petal Flower

Alexandre Wolkonsky and Jim Finlayson (2006)

GemCad Revision John Broadfoot Oct 2018



### Fan 72

Jim Finlayson (March 2006) for A. Wolkonsky

GemCad Revision John Broadfoot, Oct 2018

Angles for R.I. = 1.540

29 + 10 girdles = 39 facets

1-fold, mirror-image symmetry

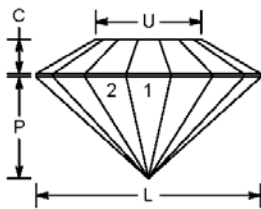
80 index

$L/W = 1.000$   $T/W = 0.488$   $U/W = 0.470$

$P/W = 0.450$   $C/W = 0.153$

$(G1\ G6)/W = 1.000$

$Vol./W^3 = 0.169$



#### PAVILION

1	42.00°	80	Cut steps 1 - 4 at same mast height to PMP
2	42.00°	05-75	
3	42.00°	10-70	
4	42.00°	15-65	
5	45.35°	24-56	Meet PMP
6	45.50°	32-48	Meet PMP
7	42.00°	40	Meet PMP
G1	90.00°	80	Establish width and level girdle for steps G1 to G4
G2	90.00°	05-75	
G3	90.00°	10-70	
G4	90.00°	15-65	
8	60.00°	28-52	Meet 4, 5 and G4
G5	90.00°	28-52	Level girdle
G6	90.00°	40	Level girdle

#### CROWN

A	30.00°	80	Establish girdle thickness
B	30.00°	05-75	Level girdle
C	30.00°	10-70	Level girdle
D	30.00°	15-65	Level girdle
E	50.00°	28-52	Level girdle
F	33.00°	24-56	Meet D,E and G4, G5
G	32.80°	32-48	Meet E and G5, G6
H	31.80°	40	Meet G, E and G5, G6
T	0.00°	Table	Meet F, E, G and H

This is one segment for 5-petal flower from the paper design by Alec Wolkonsky (France) and original GemCad by Jim Finlayson (UK)

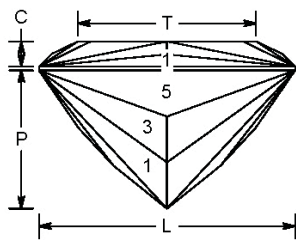
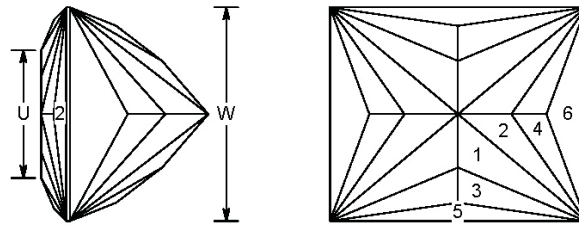
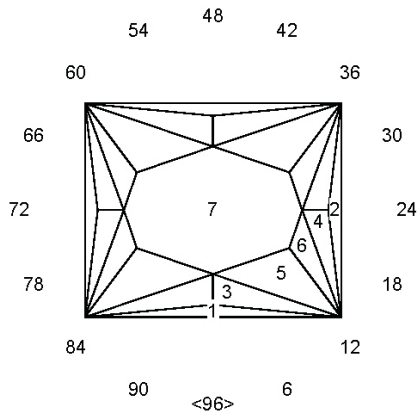
# Chevron Rectangle

Alexandre Wolkonsky, April 1992.

Wolkonsky Faceting Designs

Computer design first published by Piet van Zanten.

GemCad version was published as PC06.024 in Long & Steele Designs.



## PC 06.024 Chevrone Rectangle AW-16

Wolkonsky, Alexandre: Wolkonsky Faceting Designs, Jun 95, p16

Angles for R.I. = 1.540

41 + 4 girdles = 45 facets

2-fold, mirror-image symmetry

96 index

L/W = 1.200 T/W = 0.836 U/W = 0.597

P/W = 0.648 C/W = 0.118

Vol./W<sup>3</sup> = 0.422

### PAVILION

1	43.15°	06-42-54-90
2	41.00°	18-30-66-78
	90.00°	24-72
	90.00°	96-48
3	52.93°	02-46-50-94
4	47.34°	22-26-70-74
5	68.37°	96-48
6	55.55°	24-72

### CROWN

1	45.00°	96-48
3	23.00°	02-46-50-94
2	45.00°	24-72
4	25.63°	22-26-70-74
5	17.10°	05-43-53-91
6	19.50°	19-29-67-77
7	0.00°	Table

Designed Apr 92 by Wolkonsky

Computed by Piet van Zanten

Pavilion indexing modified by Fred Van Sant Jun 95



## Chevron Brilliant Cushion

*John Broadfoot (2010)*

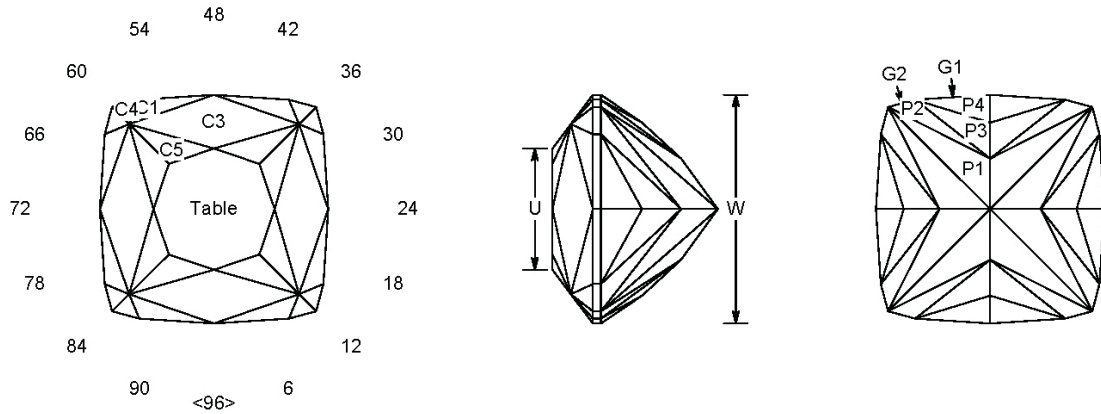
Modified from *Kokomo Cushion* by Paul Smith.

First published in *Stonecutter*, Sept 1983.

GemCad version was published in *Long & Steele Designs* PC09.028

This design was modified for sapphire and works very well on parti-colours.

P1 can be lowered to 38° to reduce depth for medium-dark shallow material.



### Chevron Brilliant

Broadfoot (2010) Modified from PC 09.028

Angles for R.I. = 1.760

61 + 16 girdles = 77 facets

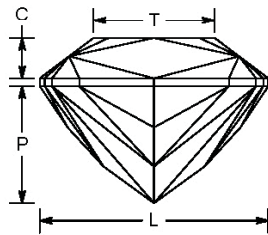
4-fold, mirror-image symmetry

96 index

$L/W = 1.000$   $T/W = 0.531$   $U/W = 0.531$

$P/W = 0.512$   $C/W = 0.177$

$Vol./W^3 = 0.314$



#### PAVILION

G1	90.00°	01-23-25-47- 49-71-73-95	Cut to establish sufficient width and crown ht
P1	40.00°	08-16-32-40- 56-64-80-88	Cut to CP
G2	90.00°	04-20-28-44- 52-68-76-92	Cut girdle and adjust to suit G1
P2	46.50°	04-20-28-44- 52-68-76-92	Cut to meet at G2 and form level girdle
P3	48.00°	03-21-27-45- 51-69-75-93	Cut to meet G2 and P2 and P1
P4	56.00°	01-23-25-47- 49-71-73-95	Adjust G1 while cutting P4 to meet G2, P2 and P3

#### CROWN

C1	43.00°	01-23-25-47- 49-71-73-95
C3	37.00°	96-24-48-72
C4	46.53°	04-20-28-44- 52-68-76-92
C5	20.00°	05-19-29-43- 53-67-77-91
Table	0.00°	Table

Leave the corners on the crown until the breaks and mains are cut. Adjust if need be.

# Chevron Rectangle Cushion

Evan Williams

In Evan Williams (2018). *Australian Facet Designs*. Ed. Henk Prins, p.49.

This book of these designs is available from the AFG Supplies Officer.

See advertisement in this issue of Facet Talk on page 33.

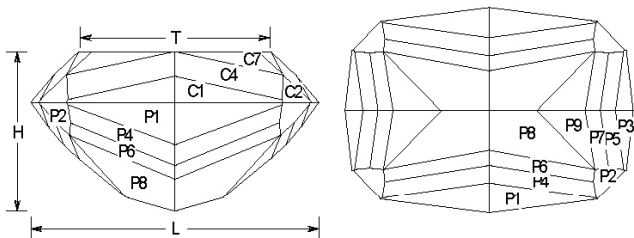
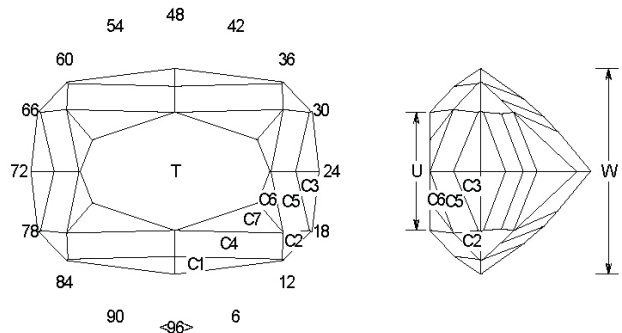
By Evan A Williams

Angles for R.I. = 1.760  
53 + 12 girdle = 65 facets

2-fold, mirror-image symmetry  
96 index

L/W = 1.403 T/W = 0.921  
U/W = 0.577  
H/W = 0.777

Vol/W<sup>3</sup> = 0.458



**PREFORM**

PF1	45.41°	22-26-70-74
PF2	46.22°	12-36-60-84
PF3	55.00°	02-46-50-94
G1	90.00°	02-46-50-94
G2	90.00°	12-36-60-84
G3	90.00°	22-26-70-74

Cut to TCP  
Cut to TCP  
Cut to TCP  
Establish width  
Level girdle  
Level girdle

**PAVILION**

P1	55.00°	02-46-50-94
P2	55.00°	12-36-60-84
P3	55.00°	22-26-70-74
P4	49.00°	03-45-51-93
P5	49.00°	21-27-69-75
P6	44.30°	04-44-52-92
P7	44.30°	20-28-68-76
P8	40.60°	05-43-53-91
P9	40.60°	19-29-67-77

Establish girdle position  
Level girdle  
Level girdle  
Cut to meet girdle  
Cut to meet girdle  
Cut by eye  
Cut by eye  
Meet P2-P6-P7  
Meet P2-P6-P7-P8

**CROWN**

C1	55.00°	02-46-50-94
C2	55.00°	12-36-60-84
C3	48.10°	22-26-70-74
C4	45.10°	03-45-51-93
C5	43.70°	21-27-69-75
C6	33.40°	18-30-66-78
C7	32.47°	05-43-53-91
T	0.00°	Table

Establish girdle width  
level girdle  
level girdle  
Cut to meet girdle  
Cut to meet girdle  
Meet C4-C2-C5  
Meet C4-C2-C5-C6  
Meet C4-C7 & C5-C6

Pavilion angles are the same for all L/W ratios.

# Australian Facetors' Guild Limited

**Facet Talk 223 INSERT**

**Minutes of the AGM**  
**Minutes of the Board Meeting**  
**2018 AFG Competition Results**  
**Group Reports**  
**Membership Report**  
**Supplies Order Form**



## Minutes of Annual General Meeting

**Casino, NSW, Friday, 31 August 2018 at 4:00 pm**

**Meeting opened:** 4.05pm Chaired by Ed Allison.

**Apologies:** Paul and Teresa Sabolta, Peter and Moya Stringfellow, Ian East, Paul Clacher, Deborah Ensel, Steve Prostring, Ian and Katherine Rogers, Ray Maunder, Lex and Heather Winkleman, and Ross and Wanda Richards.

**Meeting Attendance:** 63 active members attended the meeting and signed the Attendance Register.

1. **Confirmation of Minutes of General Meeting, Casino 1 September 2017:** Distributed to Branches, Directors and other interested members and published on the AFG web site and printed in FT 217. Moved Keiran Simpson seconded Noel Warrell. Motion Carried
2. **President's Report:** Read by Vice President. Refer to Reports at end of Minutes.
3. **Annual Balance Sheet, Financial Statement & Verifying Accountant's Report:** These were printed in FT 222. Accepted on the Motion of the Treasurer, Neville Smith seconded Henk Prins (Copy filed in Minute Book.)
4. **Treasurer's Report:** Financial position as shown in FT222 as at 31 May 2018, is correct and audited. This to be accepted, moved Neville Smith seconded Allan Rose. Motion Carried.
5. **Director's Report & Director's Statement to Members:** The Directors have determined that the company is not a reporting entity and that this special purpose financial statement is a verifying report only. In the opinion of the Directors the Income and Expenditure Statement, Statement of Financial Position:
  - a. Presents fairly the financial position of Australian Facetors Guild Limited as at 31 May 2018 and its performance for the year ended on that date.
  - b. At the date of this statement, there are reasonable grounds to believe that the company will be able to pay its debts as and when they fall due.

Moved Neville Smith Seconded Noel Warrell that the above report be accepted. Motion Carried

**Verifying Accountant:** BNW Accountants will carry out this work as well as continuing to be the Registered Office for the Guild. Moved Neville Smith, seconded Reg Hall that BNW continue as the AFG accountants and the Registered Office. Motion Carried

### 6. Reports:

- (a) President
- (b) Membership
- (c) Judging and Rules
- (d) Website
- (e) Supplies
- (f) Education
- (g) Facet Talk
- (h) 2018 Annual Competition

The 2019 Annual Competition will be conducted by the South Australian Group.

These Reports are shown in detail in the Reports section at the end of these minutes.

### 7. Election of Office Bearers and Directors

- a. Vice President: **Henk Prins** nominated: J. Broadfoot seconded K. Simpson - elected unopposed.
- b. Qld Director: **Noel Warrell** nominated: R. Boddington seconded J. Broadfoot - elected unopposed.
- c. NSW Director: **Bruce Copper** nominated: I. Rodgers seconded C. Comber - elected unopposed.
- d. Victorian Director: **Reg Hall** nominated: E. Allison seconded L. Allison - elected unopposed.
- e. Tasmanian Director: **Paul Carey** nominated: R. Gattenby seconded R. Carey - elected unopposed.
- f. SA Director:  
**Carol van der Pennen** nominated B. Bartholomaeus seconded I. East. Elected 46 votes to 11.  
This includes all proxy votes submitted.  
Bob Kay: nominated A. Mosshammer seconded J. Sellars.
- g. WA Director: **Lisa Han** nominated R. Dunn seconded J. Broadfoot elected unopposed.

The Chairman presented the badges of office to the successful candidates who were present.

### 8. Appointment of Officers:

The following are available for reappointment:

- a. Membership Secretary: Robert Boddington
- b. Judging and Rules: Paul Sabolta (voting) & R. Jones (non-voting)

- c. Website Officer: Ed Allison
- d. Supplies Officer: Pam Kinsela
- e. Education Officer: John Broadfoot
- f. Facet Talk Editor: John Broadfoot
- g. GemCad Officer: Henk Prins

**All the above were reappointed and approved by the meeting.**

9. **Special Business** – Nil

10. **General Business** - Nil

11. **Presentation of 20-year club Badges**

Henk Prins from Bargara QLD,  
Peter Cook from Ranceby VIC,  
Brian Bartholomaeus from Hunterfield SA,  
Tony Spencer from Crows Nest QLD, and  
Keiran Simpson from Dulong QLD.

For those not present, their State Director, if present was given their badge to present to them.

12. **Presentation of Annual Competition Trophies:**

The following trophies were presented:-

OPEN:	Winner – Ian Gutzke	Runner-up – Lex Winkleman
INTERMEDIATE:	Winner – Lynne Web	Runner-up – Ross Beattie
NOVICE:	Winner - Alexandra Sundell	Runner-up – Peter Bennett

13. **Draw for Voucher:**

This was held, and the lucky winner presented with their \$100.00 voucher.

14. **Appeal for Volunteers:**

Noel Warrell spoke on the need for interested members to approach either himself or Les Sinclair to discuss assisting and eventually taking over the organising and conducting of the Seminar as both he and Les were ready to begin handing over the reins, after many years doing the job. Both he and Les were prepared to guide the interested members through the task over the next year. He appealed to members to step up and be more involved in various positions in the Guild such as a State Director, etc. He moved that a vote of thanks for Les and Ann Sinclair for their long and sterling efforts as part of the Seminar committee. He asked that a certificate be presented to them at a later date.

15. **Presentation of Faceting Course Certificates:**

John Broadfoot presented the certificates of completion for the members who attended the 2018 Faceting Course. This included a humorous one on Lisa Han, one of the students. He then advised the meeting that he was planning to be overseas at Seminar time next year and would be looking for members to take over and conduct the 2019 program for the Seminar and the Faceting Course. He echoed Noel Warrell's sentiments about members stepping up and volunteering their time and effort in the Guild.

**Closure:**

There being no further Business the meeting closed at 4.55pm.

Signed:..... Date: .....

## REPORTS

### President's Report 2018

*Paul Sabolta*

Welcome to the 2018 Seminar & Muster.

I'm sorry I can't be there this year at the Muster. Work commitments and leave entitlements have coincided with a pre-planned overseas holiday touring Europe. We will be returning in mid-October.

From all accounts the Guild is bouncing along without any great issues of concern. Our membership is reasonably stable and our Membership Secretary, Bob Boddington, will give more detail in his report.

On the financial side we remain strong and is totally reliant on your annual subscription to maintain our funds.

I wish to thank all members of the Board and others that play a major role in the running of the Guild and to you the members for your continual commitment and support for the Guild.

We will see a few new faces take up positions from retiring directors, so please support them in their new roles.

Facet Talk is the major means of communication for news, reports, articles, faceting designs, and the like, this is why we have invested in its full colourisation to provide a better-quality magazine to give you the best we can. I'm sure John Broadfoot, our editor, will elaborate more in his report.

Till next time we meet, enjoy the Muster.

### Membership Report

*Robert Boddington*

Welcome to the 2018 Seminar/Muster. It was good to see some much-needed rain over the weekend. Our membership numbers are heading towards the 800 mark, reaching 783 at the moment. There have been eight new members in the last week. Two of which have just completed the Level 1 faceting course with John Broadfoot and his helpers.

Facet talk 222 has started to arrive at members addresses with the reminder notice on the address label and the renewal form on the rear of this form. Members are obviously taking notice of this form as there has been a large number of PayPal and EFTPOS renewals coming in. This is very pleasing to see.

You can also pay your renewals over the weekend of the seminar. If you have your forms filled out and the correct renewal amount with you. You can pass it onto me if you see me out and about. You will also have the opportunity to pay your membership renewals during breaks between lectures over the weekend.

I hope you all enjoy yourselves over the weekend and take home some useful hints or information from the various lecture sessions.

## **Judging & Rules Report**

*Paul Sabolta*

Well.... There has certainly been some controversy this year! And will continue for some time. The main item was the total rejection by AFLACA of our proposal to introduce four more Sections into Faceting Competitions - Concave, Fantasy, Freeform and Novelty. These were rejected on the grounds that there are already provisions in the existing rules available but competition committees don't elect to use them. This is actually correct, so I propose that the AFG establishes its own new sections but still remain within the existing rules. This will be evident in the 2019 Annual Faceting Competition and the 2020 IFC and hopefully in all future AFG competitions.

Of the 11 items proposed at the J&R meeting at Willunga, only 5 were wholly or partially approved.

There is a full list of Rule changes that were passed in FT222.

If you have any suggestions for rule changes, please forward them on to me so I can investigate the pros and cons.

It was disappointing to see there were NO ENTRIES FROM AUSTRALIA FOR THE 2018 IFC!

This is not satisfactory! For the country that started this prestigious event some 30 odd years ago it is rather a poor show! Come on guys! We can't let this competition die, it needs your support to show the world what we can do. Please continue to support our Annual competition, it also needs more entries. The 2019 Annual Faceting Competition will be staged by the Adelaide Group and schedules will be available at this Muster, so grab a schedule and have a go.

## **Website Report**

Ed Allison reported that the website was still developing and that users are likely to see aspects being run initially for testing, then if successful, being implemented into the website. One of these being considered is the purchasing of supplies from the website direct. He encouraged more members to become involved with the forum as healthy discussion and sharing of ideas will build a stronger Guild. He advised that some discussion on the Forum had to be removed due to its disrespectful nature and he encouraged members to keep the forum discussion above being just opinions.

## **Supplies Officer Report 2018**

*Pam Kinsela*

Sales have been steady throughout the year with 40 sales since last year's muster.

We still have AFLACA Judging manuals at only \$9.00.

Also, we have the Guide for faceting Competitors (by Paul & Teresa Sabolta).

We only have nine of Book 1 (OVALS) Long & Steele books left, so if you are wanting one of these please see me ASAP.

The NEW Australian Faceting Designs (old Evan Williams' books) compiled by Henk Prins and others) is popular. We have already sold 34 copies so see me if you are wanting one.

Hoping everyone has a good year.

## **Education and Facet Talk**

*John Broadfoot*

### **Facet Talk**

I wish to thank those who have contributed articles for Facet Talk. I thank Carol van der Pennen and Lisa Han for their editorial assistance as well as Hazel Broadfoot for her proof reading. To take full advantage of the colour editions we do need more good quality photographs and articles. The Editor still has to compile articles to fill the gaps! Advertising continues to provide an income to offset the cost of Facet Talk.

A reminder to members the electronic version of Facet Talk is available on the AFG website. If you receive the hard copy you are entitled to the electronic version. I encourage all members who have access to the internet to access Facet Talk electronically. The AFG web site also includes GemCad files for some of the cuts published in Facet Talk. I thank Henk Prins for casting his eye over these before placement on the Web site.

I would also like to thank Henk Prins for his mighty effort in finalising the Evan Williams designs into a published book. John Broadfoot and Lisa Han assisted with the editing.

Apologies for the delays in Facet Talk 222. It was submitted to Creed and Lang on time but the issue occurred due to a change of staff at Creed and Lang when Ann-Maree Cutmore retired from Creed and Lang.

I would like to move that the AFG sends a Letter of Appreciation to Ann-Maree Cutmore expressing our thanks for her assistance and guidance to the editor/s in the production of Facet Talk over a number of years.

### **Faceting Courses and Workshops**

We conducted two Levels of Faceting Courses at Casino this Year with a total of 15 students. Completion of Levels 1 & 2 qualifies students for the **Certificate in Faceting** (AFG). This requires 60 hours of training. It is highly recommended that participants spend time practicing between levels. Thanks to the tutors this year – John, Carol, Robert, Barry, Chez and Ed. "The students have begun a great journey" in the words of Chez Siwka.

### **2018 Seminar**

We have two guest speakers this year – Sally Lyon - Gemmology for Facetors on Saturday morning. This presentation will be followed by a gemmological workshop where members need to bring their basic equipment. On Sunday Reg Poirier will launch his new Software – *Gem Cut Studio*. We have other interesting topics including Preforming, Sequencing, Polishing and Photography.

On Monday there will be a fossicking trip to Hogarth Range for Labradorite; Tuesday – informal demonstrations on Concave Faceting and Sapphire Cutting; Wednesday –fossicking with Garry Gatfield.

**Group Meetings, Workshops and AFG Promotion**

Groups continue to be very successful in conducting meetings and faceting workshops.

**Gem shows and club presentations**

Thanks again to those who spend time to demonstrate faceting at Gem Shows and Clubs throughout Australia. These representations are rewarded by the growing interest in faceting and in the increase in applications for Guild membership.

In conclusion I would like to thank those who have willingly given their time in organising, conducting and promoting educational activities for the AFG during the past year.

**2018 Annual Competition Report**

*Ed Allison*

Ed advised the meeting that this year's competition received only 31 entries yielding 81 stones. Overall it was a poor showing regarding member involvement and encouraged clubs to push for more of their members to become involved in the 2019 competition. The Supplies Officer handed out copies of the 2019 Competition Schedule. He informed the meeting that the 2019 competition would be conducted by the South Australian Group.

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**Minutes of the Board Meeting held at Casino on 31 August 2018**

**Meeting Commenced:** The meeting opened at 5.05pm EST.

**Present:** Directors of Queensland, New South Wales, Victoria, South Australia, Western Australia, the Vice-President, Secretary and Treasurer.

**Apologies:** Paul Sabolta, and Paul Carey.

The minutes of the teleconference Board Meeting held on 25 May 2018 and promulgated on the website and summarized in FT 221. These minutes be accepted as read. Moved Keiran Simpson, seconded Noel Warrell. Motion Carried

**Business Arising from Minutes:** There was none.

**Finances:** The Treasurer's report as presented at the Annual General Meeting and promulgated on the website and in FT 222 was accepted.

**New members:** Accepted new members from FT 221 and FT222. Moved Keiran Simpson, seconded Nev Smith. Motion Carried.

**General Business:**

- a. The Vice-President welcomed the new Directors. A vote of thanks to the outgoing Directors and office bearers was moved by Keiran Simpson and seconded by Noel Warrell. Motion Carried.
- b. Neville Smith spoke on the establishment of the Hunter Valley Facetors' Group and their inaugural meeting with visitation from the President and the Treasurer. That this new group be approved and accepted into the AFG. Moved Reg Hall, seconded Carol van der Pennen. Motion Carried.
- c. Discussion followed on the faulty PA system that had been repaired but still did not work. Neville Smith and Bruce Copper would investigate likely options with the object to look at either a new portable system versus the cost of hiring on an as needed basis. This to be further discussed at the next meeting.
- d. Carol van der Pennen raised discussion on the need to strengthen the Guild's financial position. This was highlighted by the Treasurer. Discussion followed on whether to re-introduce the session fee at the Seminar to mostly cover costs for the Seminar. The Board was asked by the Vice President to consider this or other options and report back at the next meeting. The Secretary was directed to look at cost of Facet Talk and report back at the next meeting. Consideration to reducing FT to 4 issues a year instead of the 6 was also presented to be discussed at the next meeting. Other ideas discussed were increasing the advertising rate and raising membership fees.
- e. Noel Warrell summarised the meeting of him and Les Sinclair with the Manager of the Gateway Resort; stating that the discussion went well with a supportive and positive response from the Manager. He then discussed the meal arrangements for 2019 with the consideration that the Guild go back to the camp oven dinner at the bar-b-que area.
- f. Carol van der Pennen spoke of the attitude of locals around the cabin at the resort. She advised that it wasn't as supportive or as friendly as she had expected.
- g. Lisa Han spoke about raising membership and having more members having a go at positions to ensure voters have choices for each position. She also raised the idea of having a small photograph and small article about each board member included in the following Facet Talks and on the website to let members know a little about the elected Executives. Moved Lisa Han, seconded Carol van der Pennen. Motion Carried.

**Meeting Closed:** 5.52pm EST.

Signed: ..... Dated: .....

# Australian Faceting Competition Results for Sections

See page 4 of Facet Talk for the Overall Champion and Runner-up results

## Open Sections

### Gold Medal

Ian Gutzke	O.10.1	Modified Standard Cut- Eleven Starpaths Specified Size 14mm	95.40
Barry Chapman	O.10.2	Debbie The Cyclone Frosted Crown Size 15mm	94.37
Lex Winkelman	O.10.3	Modified Standard Cut - Bobs Strange Bottom Size 10mm	99.03
Lex Winkelman	O.11.4	Fancy Cut - Three M Size 15mm	93.59

### Silver Medal

Ian Gutzke	O.10.2	Debbie The Cyclone Frosted Crown Size 15mm	93.99
Ian Gutzke	O.10.3	Modified Standard Cut - Bobs Strange Bottom Size 10mm	98.48
Frank Woodward	O.11.4	Fancy Cut - Three M Size 15mm	91.00

### Bronze Medal

Alan Charlton	O.10.2	Debbie The Cyclone Frosted Crown Size 15mm	79.17
Ray Maunder	O.10.3	Modified Standard Cut - Bobs Strange Bottom Size 10mm	97.56
Ray Maunder	O.11.4	Fancy Cut - Three M Size 15mm	90.65

## Intermediate Sections

### Gold Medal

Tia Ong	I.10.2	Standard Oblong Step Cut with Cut Corners	98.27
Lynne Webb	I.10.3	Modified Standard Cut - Centeyre Brilliant	96.09
Lynne Webb	I.11.4	Fancy Cut - Star of Adelaide	97.86
Lynne Webb	I.8A.1	Standard Round Brilliant with Continuous Girdle	93.17

### Silver Medal

Ross Beattie	I.10.2	Modified Standard Cut - Barion Square Cushion	95.80
Bob Webb	I.10.3	Modified Standard Cut - Centeyre Brilliant	92.12
Tia Ong	I.11.4	Fancy Cut - Star of Adelaide	95.22
Ross Beattie	I.8A.1	Standard Round Brilliant with Continuous Girdle	92.55

### Bronze Medal

Lynne Webb	I.10.2	Modified Standard Cut - Barion Square Cushion	93.23
Ross Beattie	I.10.3	Modified Standard Cut - Centeyre Brilliant	90.69
Ross Beattie	I.11.4	Fancy Cut - Star of Adelaide	94.38
Kiery Shirvington	I.8A.1	Standard Round Brilliant with Continuous Girdle	83.73

## Novice Sections

### Gold Medal

Francis Perkins	N.10.3	Modified Standard Cut - Lightning Hope IX	94.88
Terry McGann	N.11.4	Fancy Cut - Square Cross	96.63
Sally Lyon	N.8B.1	Standard Round Brilliant with Faceted Girdle	88.12
Paula Colley	N.9A.2	Standard Oblong Step Cut with Cut Corners	97.69

### Silver Medal

Paula Colley	N.10.3	Modified Standard Cut - Lightning Hope IX	85.39
Po Han	N.11.4	Fancy Cut - Square Cross	92.02
Alexandra Sundell	N.8B.1	Standard Round Brilliant with Faceted Girdle	80.76
Sally Lyon	N.9A.2	Standard Oblong Step Cut with Cut Corners	85.38

### Bronze Medal

Peter Bennett	N.10.3	Modified Standard Cut - Lightning Hope IX	81.06
Chi-Kuang	N.11.4	Fancy Cut - Square Cross	90.33
Peter Bennett	N.8B.1	Standard Round Brilliant with Faceted Girdle	77.08
Peter Bennett	N.9A.2	Standard Oblong Step Cut with Cut Corners	82.36

## Congratulations to all the Medal winners.

This is now the largest Faceting Competition Nationally with entries from all over Australia and Overseas. All entries receive constructive feedback and are judged by Australia's leading Faceting Judges.

It would be great to see even more entries next year.

Schedule is available on the AFG website or from the Coordinators in South Australia.

## 2019 AFG Faceting Competition

The full details and Schedule are available on the AFG Website:

<https://www.facetorsquid.com.au/page-18120>

Enquiries to Bob Kay: [bobkay@adam.com.au](mailto:bobkay@adam.com.au) or John Sellars: [johnsellars@bigpond.com](mailto:johnsellars@bigpond.com)

Mailing address: P.O. Box 277, Modbury North, South Australia 5092.

## AFG Group Reports

### Darling Downs

The last two meeting dates of the Darling Downs Group of the AFG for 2018 are Sunday the 14 October 2018. This was to have been a field trip to Wyangapinni looking for garnets. I contacted the previous Manager but he informed me the property has recently been sold. He does not have any contact numbers for the new owners so unfortunately this trip has been cancelled. Our President has some DVD's of early seminar sessions which he can bring to the meeting.

At this stage the Christmas breakup will be at the Toowoomba Lapidary Club Rooms on Sunday the 09 December 2018. Further information about this will be sent to members after discussions are had at the next meeting.

Robert Boddington Secretary. Phone: 07 4630 1970

[rboddington2@bigpond.com](mailto:rboddington2@bigpond.com)

Neville Kleidon President/Treasurer. Phone: 07 4613 4507

[nrandmmk@bigpond.com](mailto:nrandmmk@bigpond.com)

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### Moreton Bay

Meeting Held: 7 October at Mitchelton - 12 attended, 4 apologies.

Next Meeting Dates: Christmas Party, Sunday, 2 December at Mt Gravatt Club rooms (Christmas Party).

Group AGM Sunday, 3 February 2019 at Mitchelton

Peter Stringfellow gave a talk and demonstration on visual optics, a method of identifying cut gemstones using a pinhole and point source of light, and simple method of measuring the refractive index of a cut gem using a couple of pieces of cardboard.

Our next meeting is our Christmas party at the Mt Gravatt Lapidary Club premises on Sunday 3 December 2018, commencing at 11.00 am. Moreton Bay Group members wishing to attend please call Peter Stringfellow by the last Sunday in November to confirm your attendance (e.g. catering numbers) and advise if you are taking a salad or desert.

May your boundaries be true and your points always meet.

Contact Robert (Bob) Kelly on Ph. 0410 885 367, e-mail

[robertkelly@bigpond.com](mailto:robertkelly@bigpond.com)

OR Secretary: Gordon Perkins Ph. 0478 703 250.

E-mail: [flashgp62@gmail.com](mailto:flashgp62@gmail.com)

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### Gold Coast

The last meeting for 2018 will be 4 December.

Meetings are held at Gold Coast Lapidary Club rooms at 7.30pm.

All visiting members welcome. If any AFG members are new to the area and not receiving newsletters or notices of meetings and workshop dates please contact Rod Turville Ph. 07 5539 4450.

E-mail: [rod.turville@bigpond.com](mailto:rod.turville@bigpond.com)

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### Wide Bay & Burnett

If any AFG members are new to the area please contact Barry Chapman - 0407 628 910 or John at 0429 692 904.

E-mail: [bardachap@hotmail.com](mailto:bardachap@hotmail.com) - Use Subject line AFG.

E-mail: [geminfo@bigpond.com](mailto:geminfo@bigpond.com)

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### Sunshine Coast

If any AFG members are not receiving newsletters or notices of meetings and workshop dates please contact Ruth Grandcourt.

Please feel free to contact me on 07 5445 3932.

E-mail: [rayandruth@bigpond.com](mailto:rayandruth@bigpond.com) if you have any queries.

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### Northern Rivers

Hopefully we will see you all at the Muster in 2019.

If anyone has moved in to the region and is not receiving a "newsletter" from us before each quarterly meeting please contact me. E-mail: [bruce.copper@bigpond.com](mailto:bruce.copper@bigpond.com)

or phone 02 6688 8280.

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### Townsville & District

Meetings are held at the Townsville Gem and Mineral Club house in Mooney Street. If any members are in Townsville please call for a catch up now that I have retired.

Gary and Mary Cattle. Ph 07 4774 5192.

Mobile 0418 732 941 E-mail: [gmccattle@bigpond.com](mailto:gmccattle@bigpond.com)

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### Adelaide

Our next meeting will be held on Friday 2 November at Fourth Avenue, St Peters starting at 7.30 pm and it will include our AGM. We last met on Friday 7 September. There was a short overview of the Australian Facetors Guild Annual General Meeting at Casino and the activities and talks at the 2018 Seminar at Casino. Following our meeting Bob Kay showed us his American Facetor faceting machine. Our December meeting will be on Friday 7 and will include our Xmas breakup. The Adelaide Facet Group is managing the 2019 Annual Faceting Competition and the Schedule was released at the 2018 Seminar at Casino and is available on the AFG website and designs will be published over the next few issues of Facet Talk.

For information about our meetings please contact John Sellars on 0417832190 or [johnsellars@bigpond.com](mailto:johnsellars@bigpond.com) or Bob Kay on 0407191038 or [bobkay@adam.com.au](mailto:bobkay@adam.com.au)

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### Sydney

Meeting and workshops are held at Parramatta Holroyd Lapidary Club, 73 Fullagar Rd. Wentworthville. Dates for the remainder of 2018 are as follows:

28 October TBA

2 December Christmas Lunch

If you are a new member to the area or visiting please come along. If you reside in the greater Sydney area, you are welcome to join our Facebook Page for notifications and items of interest. It is a Closed Group.

For information contact the Secretary, Paul Sabolta. E-mail: [atlobas53@yahoo.com.au](mailto:atlobas53@yahoo.com.au) or phone 0415211478.

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### Hunter Valley Facetors Group **\*\*\*NEW GROUP\*\*\***

A Meeting was held on 5 August 2018 with 12 interested persons attending. After some discussion and an address by Paul Sabolta it was resolved to form the AFG Hunter Valley Facetors Group. Elected as the president is Lex Winkelman and the secretary is Alan Davis. The treasurer's duties will be shared by both Alan and Lex. The name and group formation was ratified by the AFG board at their annual meeting on 31 August 2018. We will be holding our first workshop at the Newcastle Lapidary Club on Sunday 7 October 2018. Our thanks to the NLC for the use of their building and John Maine for making the arrangements. Future workshops will be held bi-monthly. The theme of this workshop will be "your pet faceting problem" so bring it along and the combined experience of our members will help you.

If you are a faceter and an AFG member wishing to join us further details can be obtained from Lex on 0455 552 695 or Alan on 0416 233 071.

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### Perth

We are pleased to introduce Lisa Han as the newly appointed Director of Western Australia. Thank you to Richard Dunn for his role on the Board in the same capacity previously. We would like to acknowledge his contribution in promoting faceting and establishing AFG Perth in WA. The Perth group meets every first and third Saturday of the month. We are based at WA Lapidary & Rockhunting Club - come check us out!

For more details or happenings, contact Richard Dunn, Ph. 08 9593 0834 OR Lisa Han, [dirwa@facetorsguild.com.au](mailto:dirwa@facetorsguild.com.au)

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# Membership Report

*Robert Boddington*  
AFG Membership Secretary

The 2018 Seminar has been and gone for another year. It was quite a hectic couple of weeks at Casino with the faceting course and the Saturday and Sunday sessions. Then it was off to the labradorite fields on Monday. Pity about the rain showers and cloudy sky. Most members found some reasonable pieces to facet.

Talking about hectic times, my Post Office mail box was full of cheques and membership inquiries when we got home. The session Noel Warrell and I gave at the seminar seemed to work as there have been heaps of members renewing their memberships by PayPal, which is pleasing to see. I do apologise to a number of members who paid by Electronic Funds Transfer whilst I was at the seminar. I had missed your entries on the bank statement. They have been renewed now and you are okay until 2019.



There are still quite a few members who haven't renewed as yet. Please get them done as soon as you can. If they are not renewed by the 15 October 2018 your membership will lapse. You can still renew after this date but there is a bit more computer work involved.

If paying by EFT you can use your home or mobile phone numbers as reference, but make sure we have them on file. You can also use your I/D or membership number. BSB No: 012-670 Account No: 314032304 Swift code for overseas members only is ANZBAU3M. You also have the options of Cheque, Money Order or Cash (not recommended through the post).

We gained another 11 members since FT 222 but sadly have lost several who have passed on and a couple who have resigned. Our numbers are 780 at present. Please welcome the new members listed below.

Payments and inquiries should be sent to:

Membership Secretary AFG Ltd  
P.O. Box 414  
Drayton North, Qld, 4350  
Phone: 07 4630 1970  
Mobile: 0427463012  
[membership@facetorsguild.com.au](mailto:membership@facetorsguild.com.au)

**Remember to pay your membership dues.**

**If not paid by 15 October your Membership will lapse. However It can be renewed but please do so before the end of October!**

## **New members**

Mark Roberts	QLD	4741
John Bell	NSW	2148
Ronald Heinz	NSW	2326
Scott Hughes	QLD	4305
Terry Kingdom	QLD	4551
Laurence Mearing	NSW	2515
John Millmore	NSW	2847
Jonathon Selby	QLD	4650
Ying Xu	NSW	2148
Steven C Sweetman	Isle of Wight, U.K.	PO30 3DT
Casey E. Trump	Colorado USA	81505

## AUSTRALIAN FACETORS' GUILD SUPPLIES – ORDER FORM

To give guild members the best service, they are urged to use this order form or a copy to order any of the items listed below.

**Complete the form then e-mail to [supplies@facetorsguild.com.au](mailto:supplies@facetorsguild.com.au) or mail to the Supplies Officer Pam Kinsela to obtain total cost including postage and the details of how to pay via EFT or other payment methods.**

**Note:** PayPal can only be used by financial members for Membership Payments – not for Supplies.

**Supplies Officer AFG, Pam Kinsela, PO Box 7088, Brendale Qld. 4500. Phone: 0418 155 481**

Item	Price (AUD)	Qty.	Total
AFG Lapel Badges	6.00		
AFG Car Stickers	2.00		
AFG Cloth Badges 90mm Dia.	2.00		
<b>AFLACA Competitor &amp; Judging Manual – Issue No 8</b> Competition entrants will find this manual invaluable when preparing entries	9.00		
<b>A Guide for Faceting Competitors: Judging Features.</b> Revised by Paul & Teresa Sabolta 2016	10.00		
<b>Cutting Gemstones: A Beginners Guide to Faceting. (Book: 282 pages) Broadfoot, John and Collins, Peter.</b>	55.00		
<b>Long &amp; Steele Faceting Designs</b>			
Facet Design Book One (Ovals) - <b>Limited Stock</b>	15.00		
<b>All seven volumes of this series of books are available from GemCuts. (See advertisement and contact details in Facet Talk)</b>			
<b>Other Faceting Designs</b>			
<b>AUSTRALIAN FACET DESIGNS - Evan Williams NEW BOOK</b> <i>Compiled and revised by Henk Prins. 172 pages, coil bound.</i> 165 designs in GemCad with instructions and sequencing. Weight - 516g. \$46.00 including Postage in Australia. (Enquire for overseas postage).	35.00		
Sammy Fangrath Designs No. 1 and 2.	6.00		
Alexandre Wolkonsky Designs: Mini-barion 24 pp.	6.00		
Alexandre Wolkonsky Designs: Book 2	7.00		
John Wren's Angle Translation Tables: Simple translations of all faceting angles from 10° to 80° to change angles for different RI.	4.00		
<b>Postage (as quoted by the Supplies Officer)</b>			
<b>TOTAL FOR ORDER</b>			

Please make all cheques and money orders payable to the **Australian Facetors' Guild Limited.**

Please mail the above order to: -

Name: .....

Address: .....

..... State ..... Postcode: .....

Date: .....

Signed: .....

*Edited July 2018*

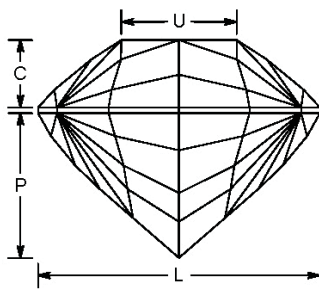
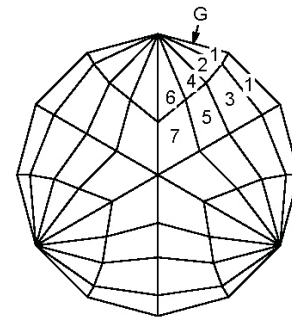
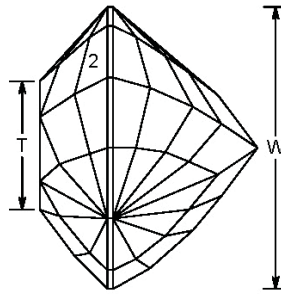
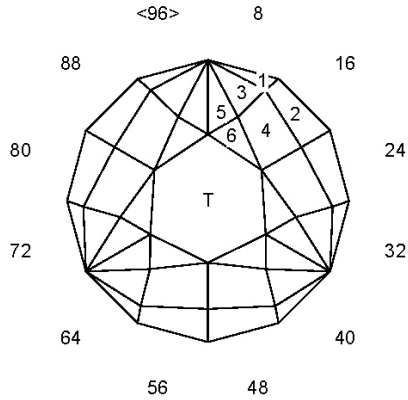
## Chevron Design

Henry E. Larson

*Off the Dop*, May, 1994

This design also appeared in the *Lapidary Journal* (unknown date).

This should be a great challenge!



### Chevron Design

Larson, Henry E; *Off the Dop*, May 94

L&S PC 45.072. Modified by John Broadfoot 2018

Angles for R.I. = 1.610

85 + 12 girdles = 97 facets

3-fold radial symmetry

96 index

$L/W = 1.000$   $T/W = 0.455$   $U/W = 0.409$

$P/W = 0.513$   $C/W = 0.240$

$Vol./W^3 = 0.274$

#### PAVILION

G	90.00°	96-08-16-24-32-40-48-56-64-72-80-88
1	61.50°	96-08-16-24-32-40-48-56-64-72-80-88
2	53.50°	25-31-57-63-89-95
3	50.00°	07-17-39-49-71-81
4	51.00°	26-30-58-62-90-94
5	43.00°	05-19-37-51-69-83
6	50.00°	27-29-59-61-91-93
7	41.00°	04-20-36-52-68-84

#### CROWN

1	51.08°	96-08-32-40-64-72
2	45.74°	16-24-48-56-80-88
3	43.92°	01-07-33-39-65-71
4	38.50°	15-25-47-57-79-89
5	42.50°	02-06-34-38-66-70
6	32.00°	13-27-45-59-77-91
T	0.00°	Table

### 38th Toowoomba Gemfest

#### Gems and Jewellery

Hosted by Toowoomba Lapidary Club

@

**Centenary Heights State High School  
Cnr South & Ramsay Streets**

Saturday: 20 October 2018 9 am – 5 pm

Sunday: 21 October 2018 9 am – 3 pm

#### CONTACTS

Riki (chair): 0458 728 649

David: 0417 611 820

#### ADMISSION

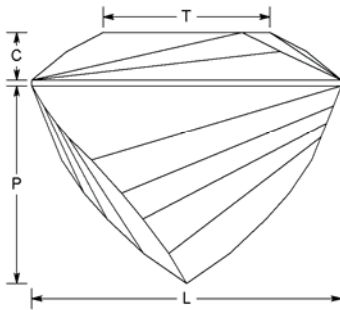
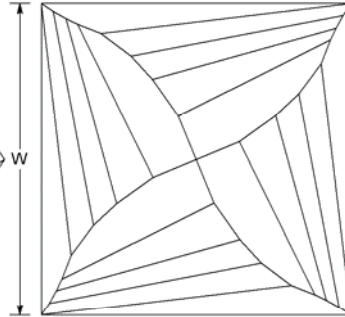
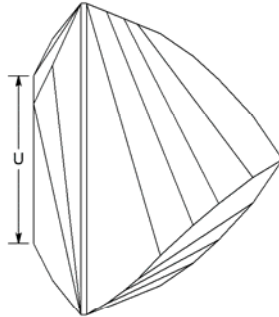
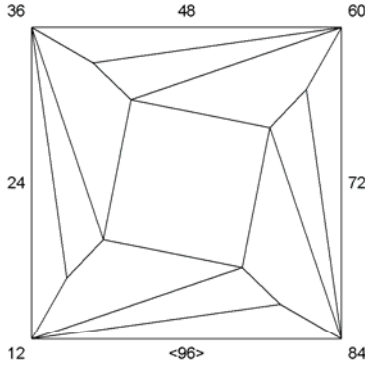
\$5.00 adults (13 and over)

Children under 13 years are free

[www.toowoombalapidaryclub.org](http://www.toowoombalapidaryclub.org)

# ZIG ZAG

Don Olsen  
Facets 413, July 2009



### Zig Zag

by Don Olsen  
Angles for R.I. = 1.540  
33 + 4 girdles = 37 facets  
4-fold radial symmetry  
96 index  
 $L/W = 1.000$   $T/W = 0.537$   $U/W = 0.537$   
 $P/W = 0.633$   $C/W = 0.153$   
 $Vol./W^3 = 0.382$

### PAVILION

90.00°	96-24-48-72
68.00°	96-24-48-72
58.00°	01-25-49-73
52.00°	02-26-50-74
48.00°	03-27-51-75
42.00°	06-30-54-78

### CROWN

39.00°	96-24-48-72
29.00°	01-25-49-73
23.00°	03-27-51-75
0.00°	Table

Original cut stone was in amethyst

# PILBARA GEOLOGY SUPPLIES



**\$49.95**  
+ Post

### Belomo 10x Triplet Loupe

- TRIPLET LENS QUALITY
- FULL METAL CASE



**\$79.95**  
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### Belomo 10x Triplet Measuring Loupe

- 0-20MM MEASUREMENT LOUPE
- 0.1MM MEASUREMENT INCREMENTS



**\$79.95**  
+ Post

### Belomo 10x Angle Triplet Measuring Loupe

- 13-45 DEGREE MEASUREMENTS

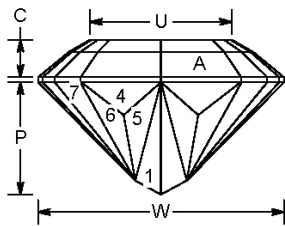
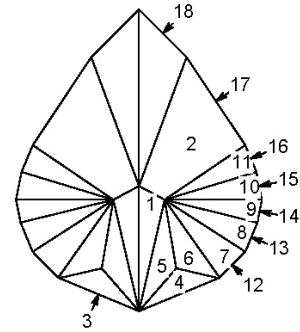
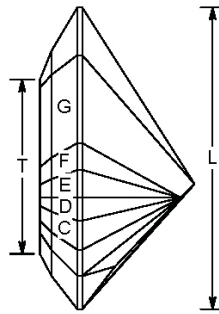
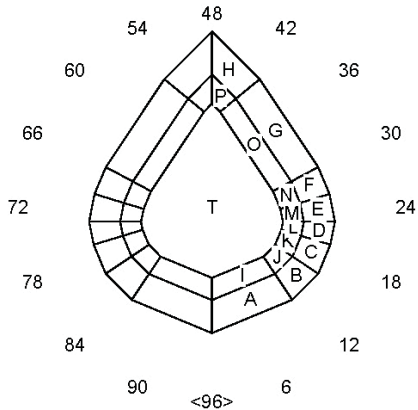
## Call Now To Order ☎ (08) 6102 2288

🌐 [www.pilbarageology.com.au](http://www.pilbarageology.com.au)    ✉ [sales@pilbarageology.com.au](mailto:sales@pilbarageology.com.au)

## LEAF 2

Henk Prins 2018

This design was inspired by the George Lennig leaf design (FT222) and one by Nancy Attaway.  
Works well for RIs from Quartz to CZ.



### Leaf 2

by Henk Prins, July 2018.  
Inspired by Nancy Attaway's "Aspen Leaf"  
Angles for R.I. = 1.720  
55 + 16 girdles = 71 facets  
1-fold, mirror-image symmetry  
96 index  
 $L/W = 1.226$   $T/W = 0.708$   $U/W = 0.577$   
 $P/W = 0.457$   $C/W = 0.152$   
 $Vol./W^3 = 0.223$



#### PAVILION

1	42.00°	01-36-60-95	Cut to PCP
2	45.30°	33-63	Meet PCP
3	90.00°	06-90	Establish size
4	52.40°	06-90	Meet 1-3-3-1, form a level girdle
5	43.40°	03-93	Meet 1-3-4
6	46.00°	09-87	Meet 1-2-5
7	46.40°	12-84	Meet 1-2-5-6
8	46.20°	18-78	Meet 1-2-5-6-7
9	45.90°	21-75	Meet 1-2-5-6-7-8
10	45.90°	27-69	Meet 1-2-5-6-7-8-9
11	45.90°	30-66	Meet 1-2-5-6-7-8-9-10
12	90.00°	12-84	Level girdle
13	90.00°	18-78	Level girdle
14	90.00°	21-75	Level girdle
15	90.00°	27-69	Level girdle
16	90.00°	30-66	Level girdle
17	90.00°	33-63	Level girdle
18	90.00°	36-60	Level girdle

#### CROWN

A	40.00°	06-90	Establish girdle width
B	40.00°	12-84	Level girdle all around
C	40.00°	18-78	
D	40.00°	21-75	
E	40.00°	27-69	
F	40.00°	30-66	
G	40.00°	33-63	
H	40.00°	36-60	
I	30.00°	06-90	Establish size of Tier 1
J	30.00°	12-84	Level tier all around
K	30.00°	18-78	
L	30.00°	21-75	
M	30.00°	27-69	
N	30.00°	30-66	
O	30.00°	33-63	
P	30.00°	36-60	
T	0.00°	Table	Set size of Tier 2

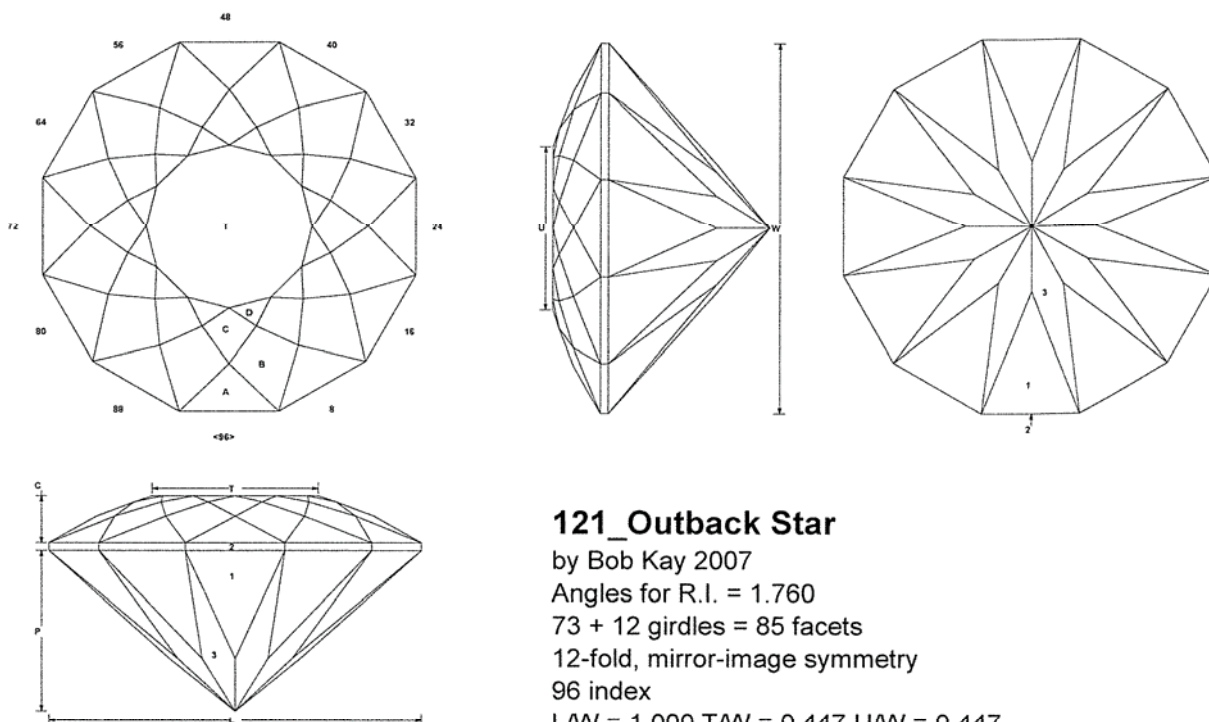
## OUTBACK STAR

Bob Kay, 2007

From 2019 Australian Facetors' Guild Limited  
Annual Faceting Competition Schedule

### Section 1.10.2 121\_Outback Star Cut in any colour synthetic Corundum

85 Facets: 73 + 12; Meets: 61 (13 Pavilion + 48 Crown)



### 121\_Outback Star

by Bob Kay 2007

Angles for R.I. = 1.760

73 + 12 girdles = 85 facets

12-fold, mirror-image symmetry

96 index

L/W = 1.000 T/W = 0.447 U/W = 0.447

P/W = 0.434 C/W = 0.128

Vol.  $MW^3 = 0.195$

#### PAVILION

1	42.00°	96-08-16-24-32-40- 48-56-64-72-80-88	Cut to TCP
2	90.00°	96-08-16-24-32-40- 48-56-64-72-80-88	Set size
3	40.00°	04-12-20-28-36-44- 52-60-68-76-84-92	Cut to meet 1 - 2, form PCP

#### CROWN

A	30.00°	96-08-16-24-32-40- 48-56-64-72-80-88	Set girdle thickness
B	25.00°	04-12-20-28-36-44- 52-60-68-76-84-92	Cut to meet A - 2
C	20.00°	96-08-16-24-32-40- 48-56-64-72-80-88	Cut to meet A - B
D	15.00°	04-12-20-28-36-44- 52-60-68-76-84-92	Cut to meet B - C
T	0.00°	Table	Cut to meet C - D

### New Open Challenge

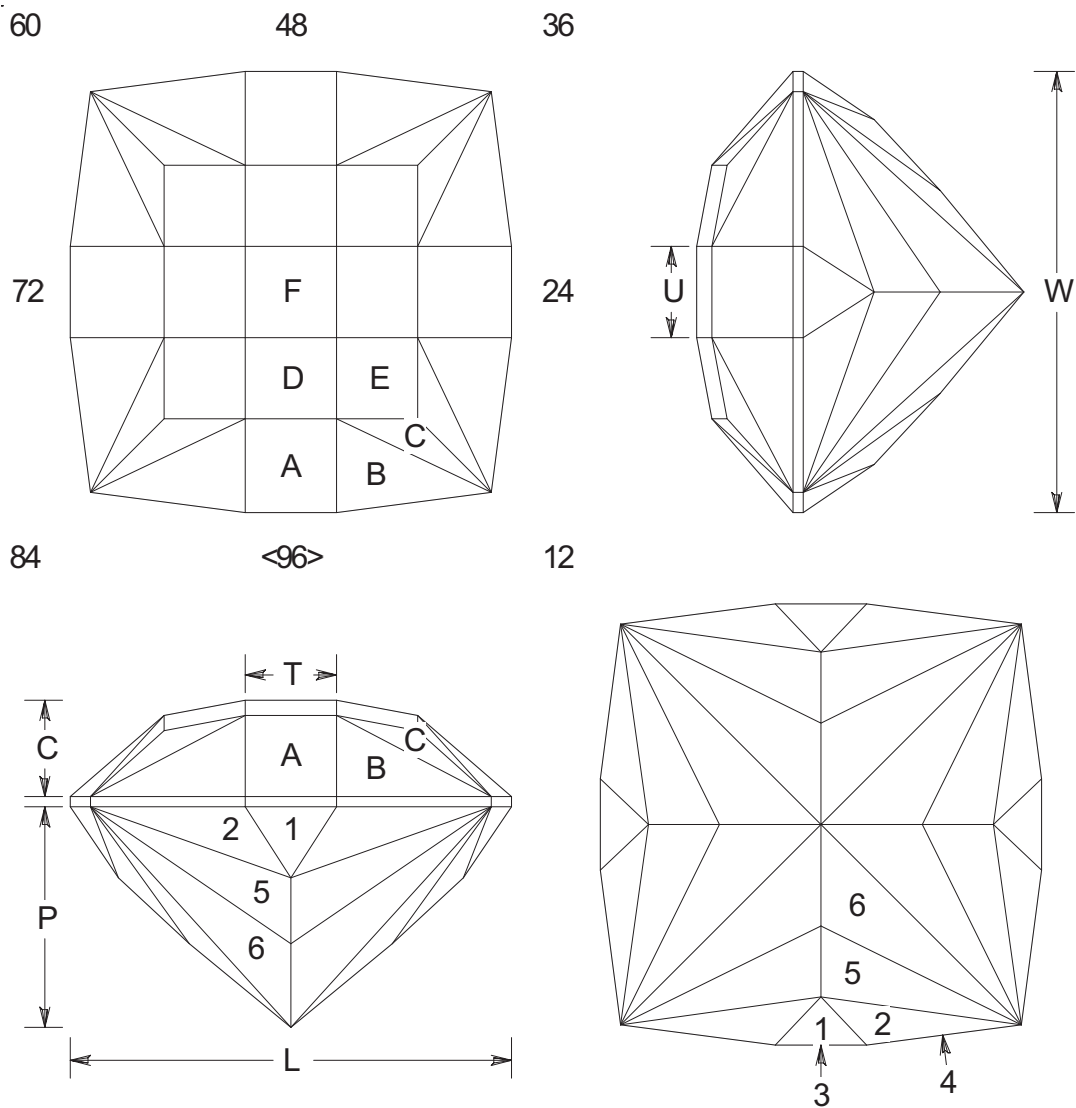
2020 Australian Faceters' Guild Limited Annual Faceting Competition  
Section O.10.3 FERRIS CHECKED TOP

Colourless Cubic Zirconia

Specified Size 9.5mm

69 Facets: 57 + 12; Meets: 45 (21 Pavilion + 24 Crown)

ALL indices, angles and cutting sequences are cutter's choice.  
How would you cut this for the competition?  
How many facets are really Open or Master cutters?



## Dichroic and Trichroic Materials

By Sylvia LaCroix

In Facets No. 415, September 2009.

Pleochroic, which means “many colours”, is the term used to cover both dichroic, a two colour change, and trichroic, a three colour change mineral (gemstone). Some minerals and gemstones can show different colours depending on the direction the viewer is observing the gemstone. Pleochroism is caused by the absorption of different wavelengths of light traveling through different directions of a crystal. There are seven crystal systems. Tetragonal, trigonal and hexagonal can be dichroic. Only monoclinic, orthorhombic and triclinic can be trichroic since they have three unique axes of symmetry and three unique directions to absorb light. A crystal's lattice is a three dimensional group of atoms arranged in a symmetrical pattern which repeats. Each crystal system consists of a set of three axes: A, B and C. The crystal systems, listed in order of decreasing symmetry are: isometric or cubic, hexagonal, tetragonal, trigonal, orthorhombic, monoclinic and triclinic.

Examples of some crystal systems are:

- Cubic – garnet, spinel, pyrite
- Hexagonal – corundum, beryl
- Trigonal – tourmaline, quartz
- Orthorhombic - topaz, tanzanite
- Triclinic - amazonite
- Monoclinic - kunzite

When light hits a gemstone, it can be reflected, absorbed or transmitted. Reflection is when the light hits an exterior or interior surface and is bounced back or off the stone. Absorption is when the light is not reflected nor transmitted. Transmission is when light travels through the gem and exits. Pleochroism is caused by the absorption of different wavelengths of light traveling through different directions of the crystal. The RI or refractive index is the ratio of the speed of light in air compared to the speed of light in a gemstone. The speed of light in air is  $3 \times 10^8$  metres per second. So the speed of light in a gemstone might be  $2.5 \times 10^8$  metres per second.

### Electromagnetic Spectrum

White light is composed of all colours. The object will absorb all colours and transmit its own. For example, tanzanite is blue, and absorbs all the wavelengths except blue, which it transmits. Visible light is a small part of the electromagnetic spectrum. The shortest wavelengths are cosmic rays. Gamma rays are longer, followed by X rays and ultraviolet rays. Then followed the visible wavelengths. Longer wavelengths include infrared, used for night vision cameras. Longer yet, are microwaves, then radio waves (FM and AM).

The colours of the visible spectrum are Red, Orange, Yellow, Green, Blue, Indigo and Violet. You may have learned the mnemonic ROY G BIV, reminding you of these colours from longest wavelength to shortest for visible light.

The colour of light is a function of its wavelength. The wavelength increases toward the infrared and decreases toward the blue or violet end. Because the wavelength decreases, the frequency increases. A nanometre is one billionth of a metre. Our eye interprets light from 400 to 700 nanometres. This is the visible part of the spectrum.

We really do not see much of the electromagnetic spectrum. White light is made up of all the light of various colours. Sir Isaac Newton showed this by using sunlight and a glass prism. The prism breaks up sunlight into a band of colours which is known as the visible spectrum. Red, with the longest wavelength, bends the least, while violet, with the shortest wavelength, bends the most. Light enters the human eye through the pupil, or the opening, then travels to the back, or the retina. It is at the retina that the photosensitive cells are located. The rods are cells that are sensitive to light and dark, not to colour. In dim light, objects may be perceived as shades of grey and not colour. There are more rods than cones. The cones respond to colour. There are three sets of cones which overlap. These are blue, green and red cones. The red cones are sensitive to red-orange, the green cones are sensitive to green-yellow, and the blue cones are sensitive to blue.

### The Dichroscope

The dichroscope uses a piece of highly birefringent colourless calcite to split the incoming light into two beams which are bounced off tiny mirrors positioned inside so as to reflect each of the two beams onto a pair of side-by-side viewing windows. The dichroscope is about 2" long and has two very tiny windows in it. You have to put a gemstone up close. You should be able to see two shades. One must view the gemstone with the dichroscope from several different directions. Some directions would be an optic axis direction in which there would be no pleochroism shown. So if the gem you are viewing is pleochroic and you view it from only one direction, there is a large chance of error.

The dichroscope only shows two colours at a time so in a trichroic material it would take more than one direction to see all three colours. In blue topaz, you would see one darker and one lighter shade. Ruby has an orangey-red colour and a purplish-red colour. One could use the dichroscope to tell that sapphires are double refractive and not single refractive as is spinel.

### The Purkinje Shift

The Purkinje effect is the tendency for the peak luminance sensitivity of the human eye to shift toward the blue end of the colour spectrum at low illumination levels as part of dark adaptation (Wikipedia).

The following is from: [http://www.khazargems.com/color-and-gemstones/info\\_8.html](http://www.khazargems.com/color-and-gemstones/info_8.html)



The human eye has the ability to see colour depending on how much light hits the object and is subject to the following conditions:

1. In dimmer light, more blue is perceived. So blue sapphires look bluer in dim light, and rubies look redder in bright light.
2. Eye colour of blue, brown or hazel. Blue eyes can see greater than 30% more colour than dark eyes. So a dark eyed seller in Asia will not see the same colour intensity as a buyer in Germany.
3. Atmospheric Conditions. Hot, dry, sunny locations such as India will show more intense colouration such as reds, while cooler, low humidity or cloudy locations such as Thailand may show colouration as darker and drabber, such as blues.

### Colour Change in Gemstones

Colour change depends on lighting conditions. Daylight fluorescent tubes simulate daylight with the full range of frequencies. Incandescent is more reddish. Night light has more red wavelengths and less blue wavelengths. Alexandrite appears blue-green in daylight and red-purplish in incandescent light.

### Chrysoberyl

The crystal system of chrysoberyl is orthorhombic and the hardness is 8.5. It is a brilliant gemstone. In yellow, brown or green, chrysoberyl was highly valued in the Victorian and Edwardian Eras but is overshadowed by alexandrite and cats eye.

#### Alexandrite

Alexandrite was discovered in 1830 in the Ural Mountains of Russia. It was named to honour Tsar Alexander II. The red-green colour change were also the colours of the Russian Imperial Guard. In 1987 alexandrite was discovered in Brazil.

*Below: 1.09 carat Sri Lankan alexandrite. Green in daylight or fluorescent lighting (top) and red in incandescent light (bottom). (Photograph courtesy of [www.MineralMiners.com](http://www.MineralMiners.com))*

#### Cat's Eye

Like the eye of the panther, cat's eye chrysoberyl seems almost supernatural in origin. Cat's eye is a cousin of colour changing alexandrite and is a variety of chrysoberyl which has a distinct band of light across its face which sweeps from side to side.



### Iolite

Iolite's name comes from the Greek word meaning violet. The pleochroism of iolite was helpful in navigation when Leif Eriksson ventured out into the Atlantic Ocean. He had a secret weapon - iolite. A piece of iolite was the world's first polarizing filter. On cloudy days one could look through it and determine the exact position of the sun. Iolite could cancel out the haze, mist and clouds and make things appear clearer. This is how the Vikings could navigate safely. Iolite has different colours in different directions in the crystal; violet-blue from one, clear from another, and yellowish from a third. Iolite is sometimes called water sapphire. The hardness is 7 to 7.5. *Below centre: 3.5 carat iolite pear. (Photograph courtesy of [www.GemSelect.com](http://www.GemSelect.com)).*

### Tanzanite

Tanzanite is one of my favourite gemstones. It was discovered in Tanzania in the shadow of Mt. Kilimanjaro in the 1960's. It was named Tanzanite by Tiffany's in 1967. The rough is blue in one direction blue-purple in a second and bronze in a third. The bronze or root beer colour dominates, but when the crystal is heated, the blue dominates. Legend has it that the heat effect was discovered when some brown crystals were discovered lying on the ground. Lightning caught the grass on fire. The cattle herders noticed the beautiful blue colour and picked up the crystals. Thus, they became the first tanzanite collectors. Pleochroism (dichroism, and trichroism) is the result of selective absorption of different colour components of light as they pass through a gem material. If a pleochroic gemstone is observed in a different light source it may display remarkably different colours. In incandescent light, tanzanite is blue, in fluorescent light it is more purple.

*Below centre: 3.5 carat cushion cut tanzanite. Photograph John Broadfoot.*

### Tourmaline

Some tourmaline gemstones have one axis which is brown to opaque black. The other directions may show a lovely green or pink but the colour of the finished stone may be terrible. To avoid this, several tourmaline cuts have been devised. The sides of the C axis are cut steeply, about 70 degrees, so that the light on the dark axis is prevented from reflecting back in the gem. Jewellers have had to devise a special tourmaline mount to accommodate such gems.



These photographs of tourmaline gemstones are courtesy of [www.GemSelect.com](http://www.GemSelect.com).

Top: 17 carat bi-colour step cut crystal from Mozambique valued at \$5000.

Bottom: A 7.3 carat green tourmaline from Mozambique valued at \$2000.

### Andalusite

In some gems, most notably andalusite, all the colours are attractive (orange-brown, yellow-green and gold) and the mix of them in the finished gem is considered desirable. Andalusite is named after Andalusia, the province of Spain where it was discovered. It is a wonderful gem for the fall. It is relatively low in price and has lovely earth tones. The beautiful colours seem to blend together.

### Sphene

Sphene is a brilliant transparent yellowish gemstone and has high lustre and fire. It is found in Sri Lanka, Austria and Brazil. The refractive index is 1.8 to 2.1. The specific gravity is 3.52 to 3.54. Although sphene is rather soft at 5 to 5.5 it is always cut as a faceted stone which suits its lively appearance, rather than a cabochon that is more normal for soft stones. Another name for sphene is titanate because of its titanium content.

### Kornerupine

Kornerupine falls in the category of rare and collector's gems. Mostly it is seen in cats eye with a very dark green, almost black, body colour and a white or greenish-white eye. Transparent faceted kornerupine is extremely beautiful in its shades of green and grey. It is unusual in large sizes over two carats.

### Diaspore

Diaspore was only recently introduced into the market. It is a colour change stone similar to alexandrite. The hardness is 6.5 to 7. The refractive index is 1.7 to 1.75. Its change from greenish-brown in daylight to pinkish bronze in incandescent light makes it an interesting gem. It has also been found in champagne colour. It was not been found in facetable quality until 1977 in Turkey which is the main source for this stone. It has strong cleavage and may chip. It has many cutting problems.

### Kyanite

Kyanite is named after the Greek word for blue. Its colour indeed makes it a lovely gem with a sapphire-like blue. It can also be colourless, white, grey, green or yellow. Its hardness varies from 4-4.5 to 6-7, depending on which crystal direction you are cutting. It is a nice gemstone for evening earrings or pendants. In ancient times it was said that kyanite suspended from a human hair could follow the earth's magnetic field like a compass needle. In those times people took kyanite with them when they entered unknown territory so they wouldn't get lost. Kyanite was believed to aid in self-expression, communication and supernatural abilities.



### Oregon Sunstone

Sunstone is the state gemstone of Oregon and is the prime source for this beautiful gem. Large quantities of this gem quality labradorite, most of it water clear, straw yellow or yellow sunstone have been produced from deposits in Southeastern Oregon for many years. In the schiller type of sunstone, millions of copper platelets reflect the light with varying intensities resulting in a golden red play of colour. The schiller phenomenon makes the sunstone appear to glow as if it had its own internal light source. Sunstones with schiller retain this unique glow even when viewed from a great distance and in evening light. This inclusion was the reason for naming it sunstone, from *heliolith*, from the Greek word *Helios* for sun, and *lithos* for stone. Although the common colour of Oregon sunstone is straw yellow, it can also be found in pink, peach, red, salmon, red-orange, red-green and blue-green. It also can be bi coloured and tri-coloured combinations of yellow, red and green. A small percentage are dichroic and trichroic. Oregon sunstone differs from sunstones found in any other place in the world. It has a strong pleochroic colour depending on the colour in the central stone.

Sunstone  
Photograph  
courtesy of  
GemSelect.



### Peridot

Peridot comes only in green or yellowish-green hues. The hue and intensity depends on the amount of iron in the stone. The first stone was found on a small volcanic island off the coast of Egypt. Some Egyptian beads are from 1580 BC. That's really old. Most peridot comes from Arizona, however from about 1990 to 1994 a rich deposit was found in Pakistan and Afghanistan at the 15,000 foot level of the Himalayas. They can only be mined in summer. Legend says peridot has the power to drive away evil spirits. The Romans called peridot the "evening emerald" since its green colour did not darken at night and was visible by candlelight. Its hardness is 6 to 7. It is the August birthstone.



Faceted gemstones courtesy of [www.GemSelect.com](http://www.GemSelect.com).  
From left: Andalusite, Sphene, Kornerupine (4 carat),  
Diaspore (colour change – daylight top and  
incandescent below) and two Kyanite gems far right –  
top is a rare eye-clean blue and bottom a step cut (5.2  
carat) included specimen.

## How to Photograph Gemstones

Columbia Willamette Faceters' Guild

From: <https://facetersguild.com/how-to-photograph-gemstones/>

**Editor:** At the 2018 Seminar we held another popular session on photographing faceted gemstones. Carol van der Pennen demonstrated how to get good results using a mobile phone with higher resolution camera models. John Broadfoot demonstrated the use of a cloud dome and Glenys Prins showed a very compact folding light box.

Those interested in learning more and improving their skills further should find these links very useful. Just enter the full underlined address into Google and search. The editor has checked all the links.

Who doesn't want to take photographs of their finished gemstones and jewellery? Some say it's difficult, others just do it. Here are several tutorials and articles on taking pictures of gemstones, jewellery and other reflective items.

### Online Resources for How to Photograph Gemstones (or do Close-up Photography)

TheImage.com	<a href="http://www.theimage.com/photography/index.htm">http://www.theimage.com/photography/index.htm</a> Excellent site with a good index and very in-depth explanations.
Table Top Studio	<a href="http://tabletopstudio.com/">http://tabletopstudio.com/</a> Excellent site showing and describing techniques in detail and easy to understand. If you know just a fraction of the hints you will be a master!
Lapidary Art	<a href="http://lapidaryart.com/projects_2.html">http://lapidaryart.com/projects_2.html</a>
The Online Photographer	<a href="http://theonlinephotographer.blogspot.com/2006/08/lighting-colored-gemstones.html">http://theonlinephotographer.blogspot.com/2006/08/lighting-colored-gemstones.html</a>

### Lighting for Close-up Photography

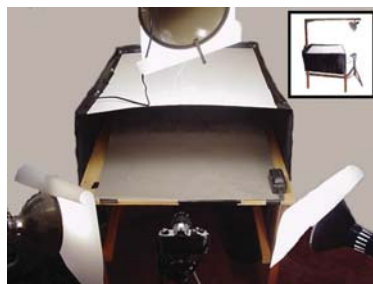
Van Rossen	<a href="http://jewelrypictures.com/">http://jewelrypictures.com/</a> Commercial site.
Gem Select	<a href="https://www.gemselect.com/other-info/gemstone-pictures.php">https://www.gemselect.com/other-info/gemstone-pictures.php</a>
Photo Gallery of Gems	<a href="http://www.atggems.com/Photo_Gallery.htm">http://www.atggems.com/Photo_Gallery.htm</a> Commercial site selling gemstones but good examples of gem photographs.
Gemstone Photos	<a href="http://jewelryphotographs.com/">http://jewelryphotographs.com/</a> Commercial site.
Tutorial on <i>How to Photograph Jewelry</i>	<a href="https://blog.etsy.com/en/how-to-photograph-jewelry-get-the-basics-with-vadjutka/">https://blog.etsy.com/en/how-to-photograph-jewelry-get-the-basics-with-vadjutka/</a> Good discussion on F-ratios and other technical aspects.
How to Photograph Jewelry with your mobile phone	<a href="http://www.beadinggem.com/2013/09/how-to-use-your-smartphone-for-jewelry.html">http://www.beadinggem.com/2013/09/how-to-use-your-smartphone-for-jewelry.html</a> Excellent article with lots of photographs of techniques.
Build Soft-lighting Tent	<a href="https://creativepro.com/digital-photography-how-to-building-a-light-tent/">https://creativepro.com/digital-photography-how-to-building-a-light-tent/</a> Great site with good illustrations of the techniques.

### Alternative Lighting Techniques for Close-up Photography

Lighting Plexiglass for Photography	<a href="https://www.diyphotography.net/using-plexi-as-a-photography-tool/">https://www.diyphotography.net/using-plexi-as-a-photography-tool/</a>
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Above: Tripod attachment for mobile phone. From BeadingGem web site.



Chrome tourmaline photographed with 5MP Pentax Optio WP, using three halogen lights arranged right/left/over middle. From: *Onlinephotographer* web site.

Left: Two Improvised light tents. Top one is from *LapidaryArt* web site. Bottom one from *CreativePro* web site.

## Precious Metal Clay Workshop

*By Jenny Gould*

*Presentation at the 2018 AFG Seminar*

I was one of the 12 lucky participants attending the Precious Metal Clay Workshop held at the 2018 AFG Muster in Casino, September 2018. Rod Turville (right) and Doug Hughes were our tutors. Doug is seated at end of table in bottom photograph.

We all started with trepidation and a complete lack of knowledge of the art of modelling Precious Clay Metal (PMC) and by the end of the course became quite confident and proud of our achievements.

Creating silver jewellery from scratch may not seem possible in a workshop - but thanks to our awesome teachers Rod and Doug all 12 students produced stunning jewellery pieces that expressed individual artistic style and character.

**So what is Precious Metal Clay (PMC)?**

It is best described as a potter's clay consistency, impregnated with silver (or gold). After a firing in in a small kiln for 20 minutes, it creates pieces of gorgeous silver jewellery with outstanding results, making each piece a true masterpiece.

**Shaping the PMC**

The silver clay is easy to work, roll, cut and shape into your own piece. Rod and Doug had all the necessary supplies on hand, including an array of moulds and patterns, and always ready to demonstrate and assist useful techniques.

The variety of pieces made by our participants was truly inspiring. By the second day, we all ventured into rings, brooches, pendants, beads and earrings, some with embedded gemstones. Silver clay is also a very forgiving medium - make a mistake, simply roll up and begin again. Post firing repairs can also be easily made.

To Rod and Doug, our awesome teachers, we say a big thank you. We learned so much in a fun and relaxed atmosphere and appreciate your time in preparation for the session and your excellent presentation, and assistance to each of us. We all left inspired.



**What's On**

- |                 |  |
|-----------------|--|
| <b>October</b>  |  |
| 20 – 21         | Nunawading & District Lapidary Club Exhibition. Dorsett Primary School, Croydon. |
| 20 - 21         | Toowoomba Gem Show. Centenary Heights.   |
| <b>November</b> |  |
| 03 – 04         | Bundaberg Gem Show, Community Centre, Old Showgrounds                            |
| 17              | Sunshine Coast Gem Show, Mooloolaba State School                                 |
| 24 – 25         | Windsor Gem Show, Windsor Function Centre  |
| <b>December</b> |  |
| 01              | Redcliffe Gem Show, Showgrounds  |

## Making Your Own Gem Stands

*Presentation by Rod Turville*

*2018 AFG Seminar*

Edited by John Broadfoot

Three types of stands were demonstrated by Rod Turville.

1. Four claw – like a gem grabber with adjustable bead;
2. Two claw (folded strands) with adjustable bead (won't scratch soft gems);
3. Two claw miniature with folded strands of wire.

**Materials required:**

- Fishing trace wire 60lb (available at tackle shops);
- Pop rivets – 3/32" (cheap shops);
- Round dowel (broom handle at hardware stores);
- Washers (hardware stores);
- Epoxy (hardware stores);
- 5 mm round beads (craft or bead shops).

**Tools:**

- Wire cutters;
- Two pair pliers with straight jaws;
- 3/32" drill bit.



**Instructions**

Cut dowel into 5 mm sections and glue washer on one side and allow to set (this will become the base of the stand). Remove the pin from the pop rivet as shown below left.

**Stand 1**

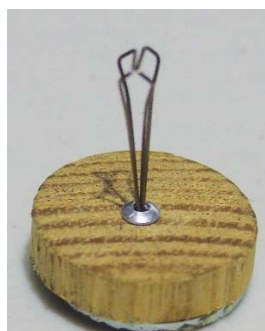
Cut four lengths of wire trace to 65 mm. Fit rivet to one end of the four wires and crimp. Fit Bead over the four wires. Drill 3/32" hole in the base and insert the rivet and wires into the hole. Tap for a snug fit. Use the pliers to bend the ends of the wires at a 20° to 30° angle facing inwards at the four compass points as shown right.

**Stand 2**

Cut two wires to 160 mm lengths. Find the middle and use the pliers to bend the two wires into a U-shape. Ensure the two shapes face each other and fit the bead and rivet over them. Crimp the rivet and fit to base. Use pliers to bend each U-shape outwards approximately 7 mm from the top. Grip again about 3 mm down and bend inwards to provide a grip on gemstone. Tension each outwards. See right.

**Stand 3**

Cut two wires into 75 mm lengths. Grip and bend each wire to form U-shapes. Fit rivet and crimp and fit to base. Again ensure the U-shapes face each other. Grip each U-shape about 4 mm from the top and bend at about 30°. Tension each pair of legs outwards to provide a grip on gemstone. Finished stand is shown below right.





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## Origin of the Bluetooth™ Logo

The Bluetooth logo, that cryptic symbol in a blue oval printed on the packaging and at the top of your mobile, is actually the initials of Harald Bluetooth written in Scandinavian runes.

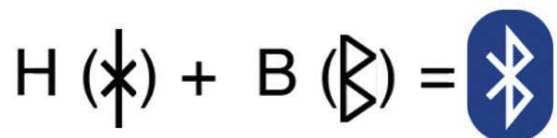
King Harald Gormsson (Bluetooth) was a famous king from medieval Scandinavia who ruled from around 940 to 986 AD. The king, who is said to have been more or less responsible for the conversion of Denmark to Christianity, ultimately went on to rule almost the entire Scandinavia after uniting it. The king was very good at bringing people together with non-violent means and he made the transition of Denmark from paganism to Christianity very amicably. Moreover, his excellent communication skills brought together Norway and Denmark into a single territory. The implication is that *Bluetooth* unites communication protocols.

He also built the very first bridge in southern Scandinavia, the Ravnge Bridge, which stood 5 metres wide and 760 metres long, impressive stats for the time. In the Viking era, this was the longest bridge and a source of great prestige for the king.

He was called 'Blatonn' in Old Norse or 'Blatand' in Danish, which translates to 'Bluetooth' in English. It is believed by many scholars that the Scandinavian king had a dead tooth which looked blue and this gave rise to his nickname of 'Bluetooth'.

**Bluetooth™** was proposed in 1997 by Jim Kardach of Intel who developed a system that would allow mobile phones to communicate with computers. At the time he was reading Frans G. Bengtsson's historical novel *The Long Ships about Vikings and King Harald Bluetooth*.

The Bluetooth logo is a bind rune merging the Younger Futhark runes Runic letter ior.svg (Hagall) (ᚨ) and Runic letter berkanan.svg (Bjarkan) (ᚱ), Harald's initials.



#### References

<https://www.pcworld.com/.../so-thats-why-its-called-bluetooth-and-other-surprising-tech>

<https://en.wikipedia.org/wiki/Bluetooth#Origin>

Image from: <http://www.norsktour.com/tips/denmark/kharald-i-sinezubyji/>

Equation comes from: <https://redice.tv/news/bluetooth-a-bind-rune-drawn-from-norse-myth>

## From the Forum

### JM

A very interesting article by Dave Radke in the Facet Talk 221. As a strong and active body we surely have enough expertise to run our own Faceting Competition.

### Why must we be subservient to AFLACA?

It seems to me that their rules are holding back real development in Gemstone design and faceting.

What do you think?

### Reply from GP

The current rules have scope within the competition Schedule to selectively modify the AFLACA rules for a competition by including Special Conditions. This is because rule B2.1 requires competitors to comply with the conditions in the Schedule issued for the particular competition. Rule B2.2 requires Entries to conform to the definitions in the Manual "together with any Special Conditions such as size colour or material which are contained in the Schedule".

The rule changes that Paul Sabolta proposed, to make the application of rule B5.6 consistent, were rejected by AFLACA, so clearly novel interpretations of the rules are permitted as we have competition stewards competing in their own competitions in SE Qld. The competition committee could set a competition that pushes the boundaries of conventional thinking by the selective inclusion or changing of rules.

### PS

That's what we're going to do. For Example: say we have 4 existing Sections in Open: O.10.1, O.10.2, O.10.3 & O.11.4. All we have to do is add as many extra Sections we want with a sequential number like O.11.5, O.11.6, O.11.7 etc. etc. etc. O.11.5 could be a Concave Cut, O.11.6 could be a Freeform Cut and O.11.7 could be a Fantasy Cut, get the idea? It is better to use Group 11 for these Fancy Cuts as the Judging sheet is more flexible.

BUT the Judging Criteria, such as, which meets are to be judged, which facets are to be concave, what size mandrel to use which facets are frosted, if there's no Table or a Girdle, size, "Cut Definition" etc. etc., need to be written into the schedule under 'Special Conditions' with other notes on the actual diagram. ALL using the existing Rules and Judging Sheets! The schedule will most likely push out to 2 or 3 extra pages just because of the extra definitions etc.

### ALL WE NEED IS A COMMITTEE WILLING TO START DOING IT!

I've emphasised this in **Bold** as this is the only stumbling block to get it started. The 2019 schedule will hopefully be the test, I'm working with the South Australian Competition Committee to have two extra Sections in Open for a Concave Cut and a Freeform Cut, so watch this space.

There is another issue, Concave facets are curved. The GemCad program cannot draw curved lines. So Diagrams will be very difficult to produce showing which facets are to be curved, unless you are very familiar with special drawing programs. It can only be written in the cutting instructions which facets are to be curved. That's how diagrams are produced in other countries, so we will follow suit for now until technology catches up.

If you have designs and diagrams by all means send them along to me to see if we can use them in the future. I already know about Dalan Hargrave, Ultratec OMF and Ashton Gems, they have diagrams, but need to obtain permission to use these. *Paul Sabolta - Judges and Rules Committee*

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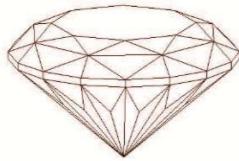
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### Facet Talk Copy dates for 2018

Number and issue	Articles to Editor by
FT224 Nov/Dec	20 November 2018
FT225 Jan/Feb	15 January 2019
FT226 Mar/Apr	19 March 2019

*These dates may change due to Editor's other commitments and travel.*

Mailing date for hard copy is approximately two weeks after copy deadline but may be altered as needed. Electronic copy will be available on the AFG website as soon as completed.

#### Submission of reports by Email

Please place the words "AFG Report" in the Subject line. This will enable easy sorting of emails. All articles sent as attachments should include the author's name – do not rely on your email for identification.

Please do not embed photographs in Word. Photographs must be resubmitted as separate files (minimum 300 dpi).

Please ensure the reports are also submitted by the due date listed in Facet Talk. If I do receive a report after that date I may have to leave it until a later issue.

If you have any queries re delivery of your Facet Talk please contact the Secretary (electronic copy) or the Membership Secretary (mailed copy) not the Editor.

### Facet Talk Advertising Rates

Colour is available for all advertising in colour editions of Facet Talk however black and white advertisements will still be charged at B&W rates.

Any Artwork for new advertisement will be by quotation and costed at \$40 per hour payable to the Editor.

	Max. Copy Area	B&W Rate	Colour Rate
<b>Full Page</b>	175mm Wide x 250mm Deep	\$120.00	<b>\$240.00</b>
<b>Half Page Portrait</b>	85mm Wide x 250mm Deep	\$60.00	<b>\$120.00</b>
<b>Half Page Landscape</b>	175mm Wide x 125mm Deep	\$60.00	<b>\$120.00</b>
<b>Half Page I/Side front cover</b>	175mm Wide x 125mm Deep	\$75.00	<b>\$150.00</b>
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## Topaz

### A gem of many colours

The article about Topaz on page 5 makes us aware of the many colours for Topaz both untreated and treated. Here are just some more specimens and examples of topaz colours and properties.

This is a large natural blue topaz from Madagascar. The crystal face is etched. *Photograph by John Broadfoot.*



The two photographs at left are of a 27 carat Imperial Topaz showing the two distinct colour directions (dichroic). This is a rare flawless example of the most desirable colours for Imperial Topaz. *Photograph by John Broadfoot.*



Below left is a terminated champagne topaz crystal showing the well defined basal cleavage. This cleavage is described as *perfect* and must be avoided as a facet surface. *Photograph by John Broadfoot.*



### Cleavage in topaz

Above right is a waterworn pebble of topaz. How do you recognise the cleavage plane/direction? The specimen has been tilted and shows a lot of small mirror reflections. These reflective surfaces are parallel to the cleavage plane. When faceting topaz orientate the table so that it is at least 5 to 10 degrees off this plane OR place the cleavage plane at about 80 to 90 degrees to the girdle plane. This will then avoid coinciding with one of the facets in a design. However, for different designs, you need to ascertain where the facets will be in relation to the cleavage plane. *Photograph by John Broadfoot.*

### Pink Mahenge Garnet

This is a beautiful pink Mahenge garnet. These gems cut very bright stones especially with odd symmetry on the pavilion. Cut by Neil McCallum, NZ member. *Photograph by Neil McCallum.*



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*What is wrong with the technique/s used to photograph this 4.3 carat Umbalite garnet?  
How could the photograph be improved?  
Answers for Facet Talk 224 please!  
Photograph from All That Glitters.*

## 2018 AFG Faceting Competition



## 2018 AFG Muster at Casino



**Jadzia's Jewellery making class!**  
 Photograph by Jadzia Siwka



**Above:**  
 A proud winner who just joined the AFG!  
**Novice Champion Alexandra Sundell**  
 from Stockholm, Sweden.

**Post-Muster Excursion**  
 Malley Hills near Yelarbon abounds with wildflowers in September - October.  
 Left: Wild Mint Bush  
 Right: Eromophila (Emu Bush)



Photograph by John Broadfoot



Photograph by John Broadfoot

**Open Champion Ian Gutzke** from Elliott Heads, Qld.



**Novice Runner-up Peter Bennett**  
 Awarded by Past Vice-President Ed Allison.  
 Photograph by Glenys Prins.



**Annual AFG Dinner at Casino**

From left: Garry, Barry, Carol, Ed, Adele, Nick, Lyrian, Col, Jadzia, Hazel, John, Chez and Rej.

Photograph by Glenys Prins



**Who said faceting isn't fun?**

**Chez Siwka and John Hogbin**

Photograph by Glenys Prins

**At the AFG Dinner**  
 From left: Laurie Stacey, Joan Millmore, Richard Dunn, Michele and Steve Morgan and John Millmore.



Photograph by Glenys Prins

## Faceting Course Participants and Tutors



**John Broadfoot and Scott Hughes**

Photograph by Glenys Prins



**John Broadfoot and Richard Palmowski**

Photograph by Glenys Prins



**Ron Heinz and Carol van der Pennen**

Photograph by Glenys Prins