Knot News

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A Note on Pear-Shape Covering Grids

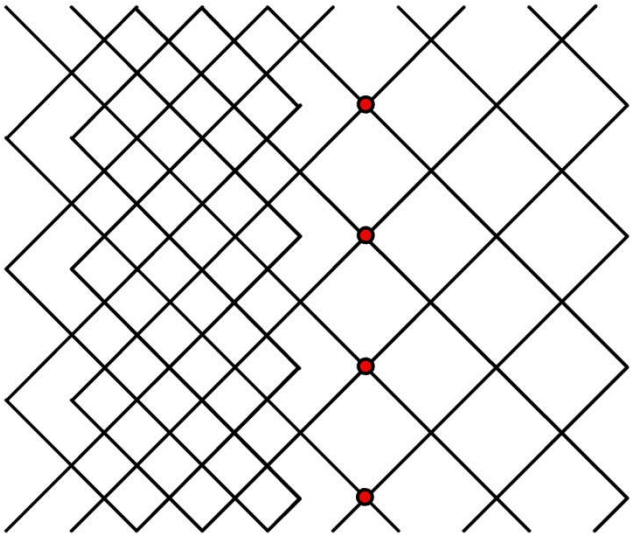
by Pieter van de Griend

Prologue

A while ago Pat Ducey had a pear-shape covering in *Knot News* [1]. In my article on the Becket Problem in the next *Knot News*, I invited the reader to note the similarity between Pat's pear-shaped knot and my Becket Knotty [2]. Here I want to present a few additional thoughts by highlighting some aspects of pear-shape covering grids.

Pat's Knot dissected

We have to start somewhere, so let's start with the knot Pat so nicely drew out on the additional chart. In the figure below its grid diagram is given.

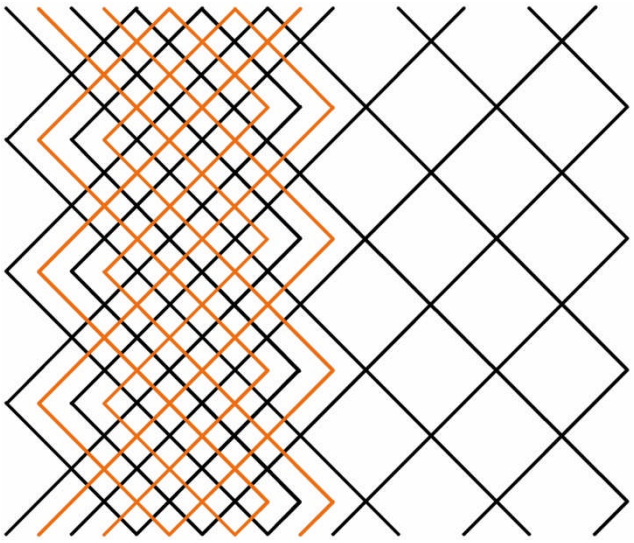


If you hood the right rim 4 times you end up with single-stranded Nested Knot (*B*,*A*,*x*,*y*) = (4,2,7,1). The 4 transition points (bulleted) connect the Nested Knot onto a square piece of Regular Grid. This so-called width-block trick offers invariance on the number of components, which guarantees the composite's single strandedness.

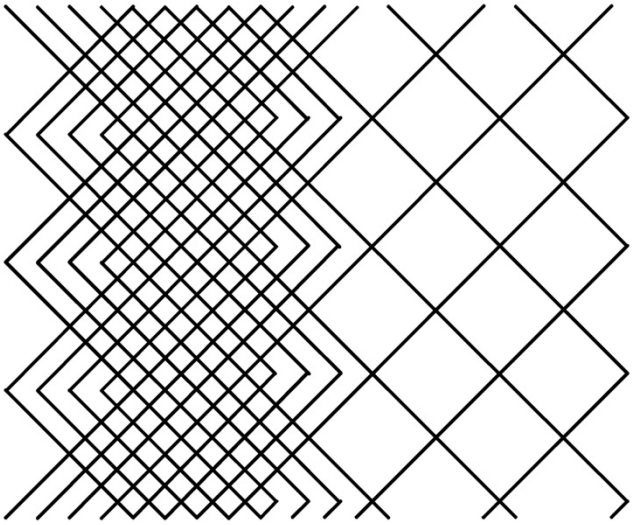
The presence of the 4-bighted Nested Knot is a sphere covering structure tell-tale [3]. Any pear-shape has 2 caps, connected by some tapering segment. The smallest cap is of course *B*=4 and *A*=1, but it is not very satisfactory, being close to a Regular Knot. For all practical purposes *B*=4 and a minimum of *A*=2 is required. Having established those facts, let's play around a bit with Pat's Knot.

Bigger Sphere?

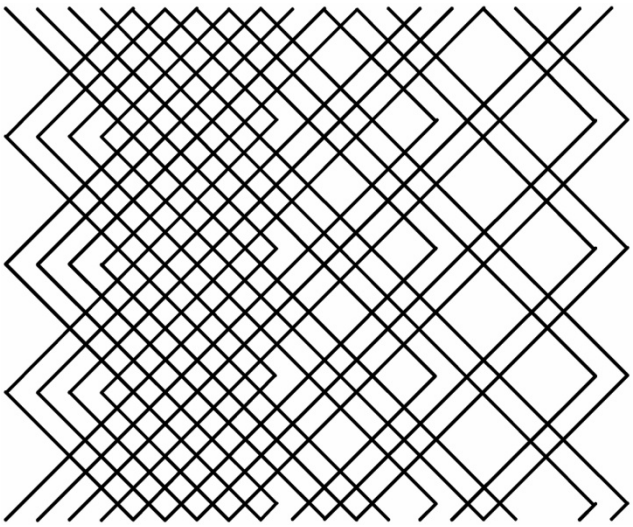
The first thing we can do is create a bigger sphere by centering an interwoven Nested Knot (4,2,5,1) into the grid. This immediately kills our structure's single strandedness, as we now obviously have 2 strands.



Retrieving single strandedness can be done by seeking one of the closest Nested Knots, which happens to be something like (4,4,11,1). It is shown below:



Apply a (Casa) coding to this grid and try making this thingy. You'll find it is not very nice. It is, in fact, more of a sphere with a cylindrical chimney rather than a pear-shaped covering. What we need is a better tapering. One possible solution is given below



What we have done is spread the so-called nests along the *x*-direction. We have a tapering, which can be protracted by adding width-blocks of dimensions 12/12, 8/8 and 4/4 at appropriate locations. Of course this game is never ending. Try skew-placing the creases.

Epilogue

The nice thing about Pat's pear-shaped knot is its relative simplicity. Is that what caused it to be found in the first place? An obvious question, of course, is whether there exist other pear-shape coverings of similar complexity level? There certainly are. Any single stranded Nested Knot which transitions into a 4/4 block of Regular Grid is a solution.

I hope this article has shown Pat that his *Knot News* papers are read and, worse still, cause cerebral activity of some kind. Thanks for a stimulating article!

References

1 P. **Ducey**, "Pear Shaped Turk's Head Knot", *Knot News*, , issn 1554-1843, no.46, p4, Dec 2004.

2 P.v.d. **Griend**, "On a Becket Problem", *Knot News*, issn 1554-1843, no.48, pp1-3, March 2005.

3 P.v.d. **Griend**, "Aspects of Sphere Covering Knots", *Knot News*, issn 1554-1843, no.57, pp1-6, September 2006.

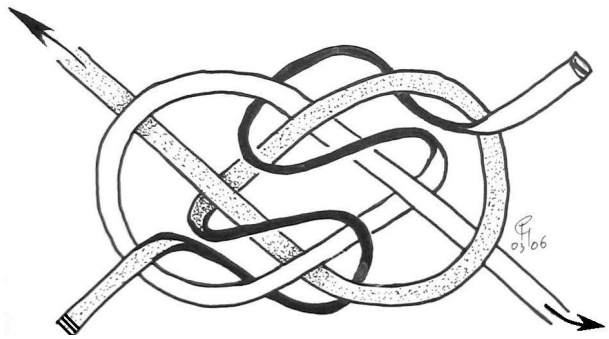
Stiphout January 2007.

A Timber Fender Stopper Knot

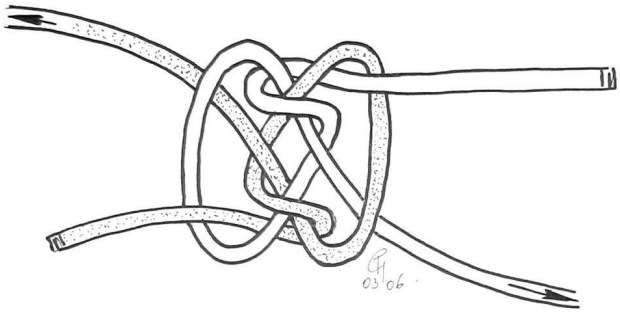
by Jan Hoefnagel

The Dutch canals enable transport by means of steel barges. They typically carry up to a few hundred tonnes of cargo. You can imagine that they have to dispose of considerable energy when chafing their way in and out of the many locks. For this purpose timber fenders of considerable cross-section are used. They are connected by steel wires and hung almost permanently down the hullside.

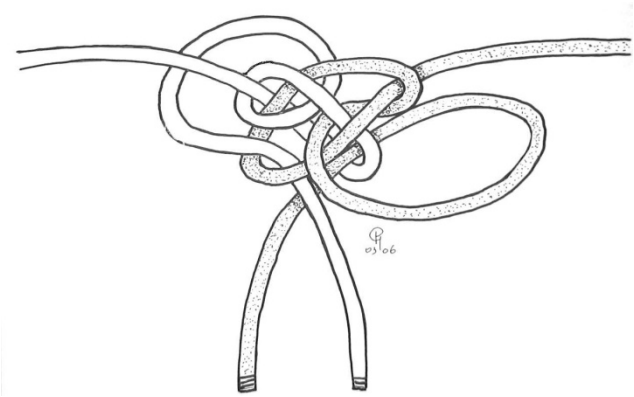
The steel wires are led through a hole in the timber and tied with a knot, which must operate like a Stopper Knot and lay flat. A Full Carrick Bend does not do so by itself, but with a few extra tucks it affords a neat flat knot. This is shown below



Before the knot is pulled up it looks like what is shown in the next image.



In order to prevent injuries, the spiky working ends are often clamped down. The image below shows how the structure looks like when worked open.



The Dutch name is *wrijfhoutensteek*. My best guess for an English translation would be timber fender stopper knot, or hitch.

From the Mail Bag

*This letter came from **Bob Solon** in Ohio:*

Remember Louie Bartos' treatise on the correct dimensions of a fid? [KN #26] I had plenty of time to think about Louie on Thursday last when I attempted to put eye splices in some 2 ½" 3-strand nylon rope.

This had the tightest lay of any of the larger ropes I've worked, 2 ½" being the largest. After an hour of very little progress I set it aside with the plan to bring in more reinforcements the next day.

My fid of choice is just under 27 inches long and has a taper of .105. That did not make the anticipated quick work of it. It was impossible to get more than the tip of the fid between the strands. I'm here to tell you that there were mutterings in The Ropewerks by the rope-jerks. It was at this point that I remembered Uncle Clarence, who taught me much about life and a little about carpentry. Clarence was the first of many who have told me, "Don't force it. Get a bigger hammer." So I scrounged around until I found the ideal tool: the Malletizer, the perfect instrument to tame stubborn line. I put the end of the fid on the floor, with the tip between two strands. Then I proceeded to beat the living snot out of that blasted line. Still it was all I could do to get a 2" hole between the strands. Normally I secure the strands with 1" masking tape. No way was that going to work here. So I took 3" plastic packaging tape and heavily wrapped the ends about 10". That made sort of a fid of the end of the strands, which allowed me to complete the eyes.

Because the yarns of this stuff are slipperier than fresh-cooked spaghetti, I decided to put in five tucks. The manufacturer says four will do. But with 100,000 pound line an extra tuck wouldn't hurt. Since the yarns were so slippery each one had to be individually tightened and there are 60 in each strand. At the end I used the Malletizer to take out most of my aggression on the splices. To set the eyes we tossed each over a steel post set in concrete and back ed a fork-lift into the "V". More aggression was relieved and the splices were as sleek as an anaconda.

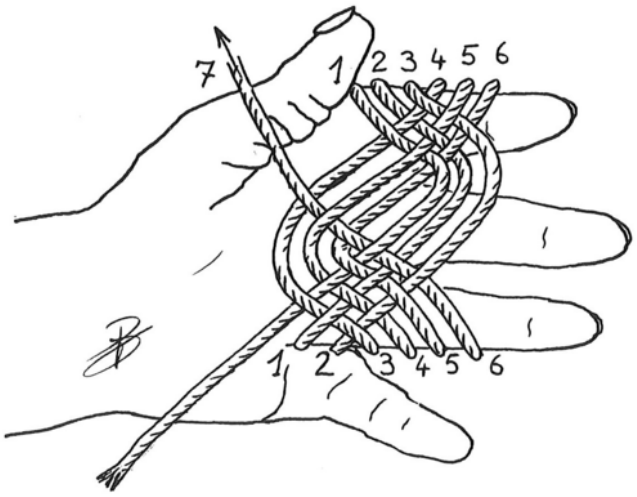
Let me know how they do it on the Left Coast. There must be a better way!

Turk's Head of 63 Faces with Internal Bights (3B x 10L tripled)

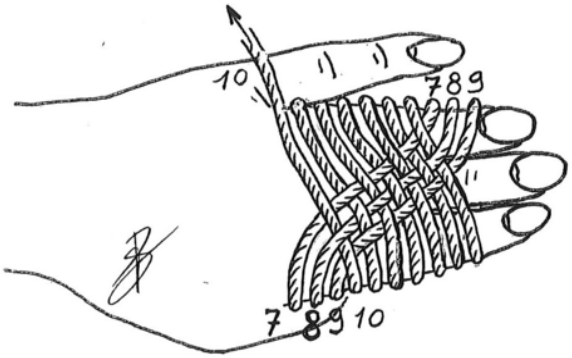
by Luc Prouveur, as translated by Charles Hamel

This article first appeared in IGKT-France's *Sac de Nœuds* #2 and is reprinted here by kind permission of the author

This Turk's Head is especially interesting because it makes it possible to carry out coverings/sleevings of spheres, tetrahedrons or octahedrons. It is relatively easy to tie because the various passages are very quickly locked.

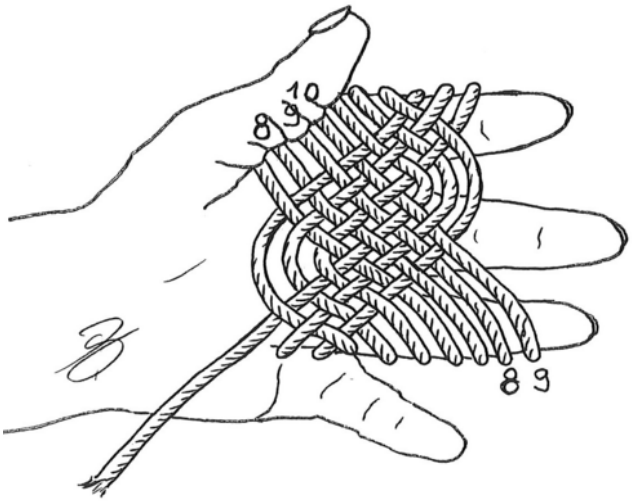


Make three turns in a spiral and at the end of the third turn, cross these previously laid spirals Over, Under, Over on the palm face of your hand so as to get back on the same side where the standing part is, then cross again these spirals following a Under, Over, Under sequence. Lay two turns (fifth and sixth) following the same direction as the fourth and at the beginning of the seventh turn, cross all previously laid turns. Turn your hand so as to see the back of it. There should be six parallel lines there.



Continue the seventh turn, on the back of the hand, so crossing the six previous turns in an Over, Under, Over sequence.

Go on laying the eighth and ninth turns parallel to the seventh one while crossing in an opposite manner of the preceding turn (that is, where there is an Over you would do an Under and vice versa).



With the tenth turn, cross all the previously laid turns so as to return to the beginning.

Passage of the ninth spiral on the back of the hand.

Letter from Lindsey Philpott, President IGKT-Pacific Americas Branch

This is the first open call that I have put into our newsletter, so I want it to have some significance for you. I greatly enjoy representing knotters whenever I go out to some festival or gathering where we think there will be some interested parties. I can talk up a storm about knots and even get a few laughs that help our would-be members to feel more comfortable about a potentially weird subject for those just starting out. We talk about where knots are still used, how life would be without knots and we discuss books about knots, using the internet and a host of other access questions that come up for those interested folks. The kids come by and want to know more, especially when we put a piece of string in their hands and ask them to show us what they can do with the string and show them how to do it for themselves. By now the family, group or person has become engaged. They ask us what it takes to become a member – we say you just have to admit it and pay to join. Paying doesn't seem so bad – it is the amount that usually ends up being the conversation stopper. I imagine that this has happened for you also, when you go to a show or you give a demonstration.

Having got your attention, I now want to ask you a question: **"Where do we go from here?"**

I have heard suggestions about reducing the cost of membership, I have heard suggestions about splitting away from the Guild in England, I have heard suggestions about omitting the costly *Knotting Matters*, I have heard suggestions about each member getting one more member as a partner, so as to double the membership overnight. I have also heard suggestions about this (people walking away at the sound of cost) not really being a problem, that those who want to join eventually will. To suggest some responses to my own question, let me get the ball rolling:

- We continue to do as we do now, encouraging membership at the current rate, changing nothing, perhaps even putting the cost of membership up to meet current rates of production and mailing.
- We become professional (like the Leathercrafters or the Basketweavers) and publish a journal with scholarly articles occasionally, fun projects for kids, the occasional Jack Fidspike article and "advertising", with low rates for our members, classified advertising, suppliers list and so on [FYI – the Leathercrafters and Saddlers Journal costs $7 per full-color glossy issue, six times a year].
- We form a new organization for the American continent only, with no color journal, but maybe with some financial backing from sponsors (or advertisers who want to get their name out there).
- We seek grants from foundations, becoming much more involved than we are right now as a group (individual members' contributions are great, but as a group we do not generally become too involved), by taking our educational message about lines and knots to schools, to veteran's organizations, to retirement communities or anywhere else that wants to hear and learn about knots.

What should we do – more of the same or similar? Let me know, so that I can help to get us on the right track you want to follow…

Sleeves for Discs, Tied in Hand

by Luc Prouveur, translated by Charles Hamel

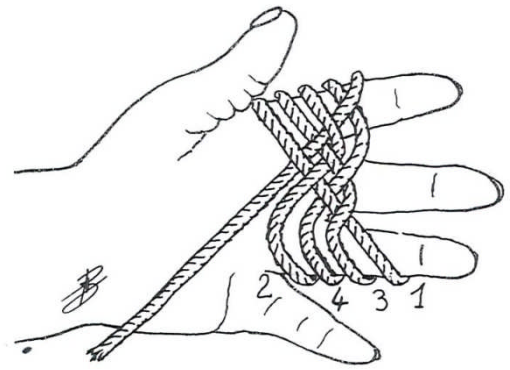
This article first appeared in IGKT-France's *Sac de Nœuds* #3 and is reprinted here by kind permission of the author

Considering I am not usually moving around with pins, cork board or a cardboard tube on me, it appears to me more logical, even if it is not always easy, to develop procedures to tie just with the hands.

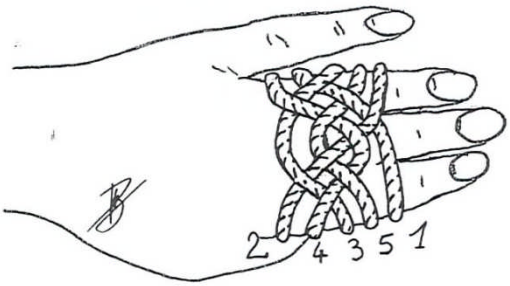
Remembering the Turk's Head of 18 Faces (5L x 3B doubled by internal bights), as shown in SdN #2 and again as the "Knobbly Knot" in KN #42, (Ashley #? – if an Ashley specialist can find the references, please give them to me!) that if set tight on a flat object gives a rather triangular form.

We will continue here with the TH of 24 faces (5L x 4B doubled by internal bights, Ashley #2216), which tends to give a square form. Then we will do a TH of 36 faces (7L x 3 B tripled by internal bights, Ashley #?) with a rather triangular shape and lastly comes a TH of 48 faces (7L x 4B tripled by internal bights, Ashley #?), which although on a square basis, leads to good results because the number of its crossings allows deformations of the various parts so as to comply with the support.

Turk's Head of 24 faces (4-2-5)

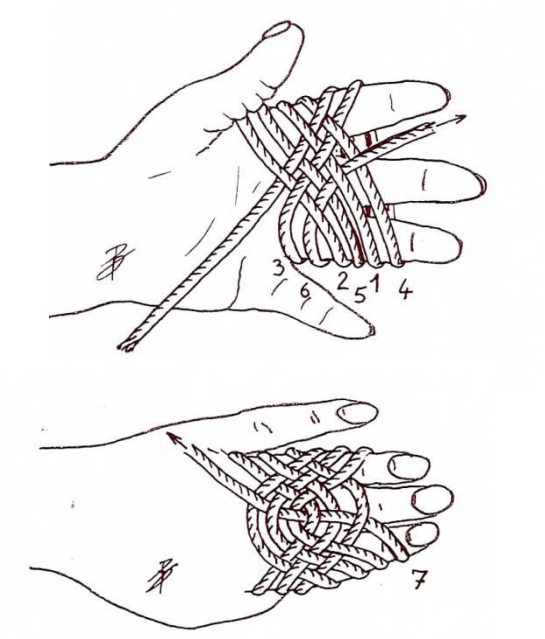


Make four turns with crossings laid in the manner shown in the drawing of the palm of the hand. Turns are always parallel on the back of the hand. Keep the standing part that crossed Under the first beginning turn in stand-by and turn over your hand. You should see four parallel turns.



While turning in the same direction of the working end (Wend), braid the first four turns as in the drawing and lock them by taking again the Wend to do the fifth turn. Finish this fifth spiral by returning to the beginning because doing the fifth turn you end on the palm face, but you should be able to do it without the drawing.

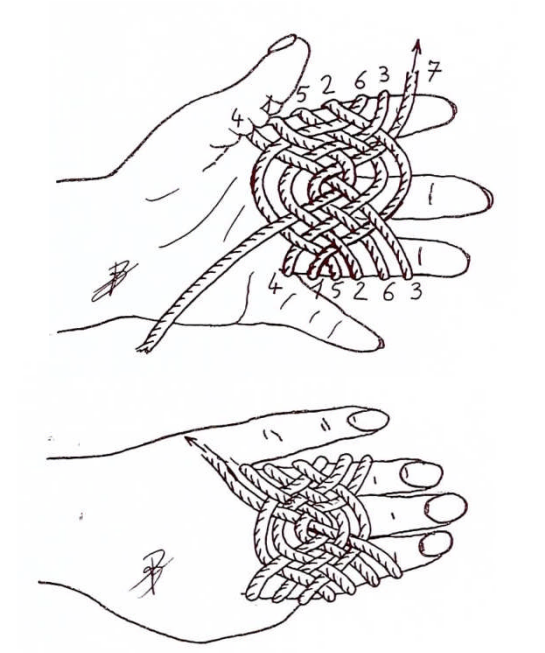
Turk's Head of 36 faces (3-3-7)



Make six turns with crossings as they are shown in the drawing of the palm of the hand (the first crossing, an Under, is carried out with the fourth turn), keeping the passages parallel on the back of the hand.

Turning your hand so as to see its back you should see six parallel passages, make the crossings as in the drawing and lock the whole by finishing the seventh turn. You are finished. One of the simplest, isn't it?

Turk's Head of 48 faces (4-3-7)



Make six turns with crossings done in the manner shown per the drawing of the hand's palm (the first passage Under is carried out with the fifth turn) and by keeping the passages parallel to each other on the back of the hand.

Turning your hand to see the back of it you should see six parallels. Make the crossings as in the drawing and lock the whole by finishing the seventh turn.

This one is almost as simple as the preceding TH and it might be the best one for a slightly flattened sphere. If it were necessary to retain only one of these TH's, it could very well be this last one, but what a pity to limit oneself when there exists so many more to explore using this principle of TH's with internal parallel bights. Next time, maybe I will write about the one with poles with five parts that have the singular particularity of not closing at the poles but are particularly handsome.

The Pacific Americas Branch AGM is approaching fast for July 6th, 7th and 8th. At the meeting scheduled for Friday evening here are some suggested topics to keep the conversation going:

Agenda

1) Welcome by the President
2) Report by the Secretary/Treasurer
3) Report by the Librarian
4) Report by the Editor
5) Discussion on the continuation of the PAB
6) Date and Time of next AGM
7) Election of Officers
8) Members Questions

We need to know who is planning to attend, also if you will be doing a display or demonstration and how much space you will need. Please contact us as soon as possible so we can start getting some idea of the attendance. Drop a line to either Lindsey Philpott at marline.man@verizon.net (562) 595-8854 or Jimmy Ray Williams at igktpab@yahoo.com (310) 679-6864 as soon as you can.
We also need commitments from attendees on reservations for the three-hour boat trip on Thursday night aboard the LAMI brigantine *Irving Johnson*. We need more takers to help make a decent sailing.

Dear Members,

Our previous webmaster, Tom Gergen, has graciously passed the torch to me. Thank you, Tom, for creating our website and maintaining it for so long. I have come to appreciate that it is very much like tying a very large and complicated knot. There are a lot of loose ends and it's not always easy to tell which end goes where. I will do my best to continue Tom's good work. At the present time, I am working on expanding our photo gallery. Jimmy Williams has taken many a good photo over the years and has posted them on his Yahoo Photos site. I feel that it is only appropriate that they should be part of our collection as well. I'm sure that many of you out there have digital photos of your knot work or events that you would like to share with the rest of us also. If you do, send them to me at webmaster@igktpab.org along with any pertinent information (i.e.: name of knot, event, dates, persons, etc…). Please don't send full sized files. Send jpeg or gif files at half-size of the original photo file. If you have many photos, contact me before you deluge me with them. I can set up an FTP account for you so you can send me a gigaload of pixels in a snap. In addition, I plan on putting a PayPal link on our "Membership Info" page so that now you will be able to pay your membership dues with just a click of the button. But wait there's more! I'm also planning on putting a search function on our "Resources" page to make it easier to find a title in our Library List. I want our website to be the kind of place where you can come back often and still find something new. I am learning as I go and I still have a lot to learn. I hope to make most of this a "virtual reality" by the time of this printing. It is a great deal of work so please be patient with me. I will do my best and I hope to hear from you soon.

José Hernández-Juviel
Webmaster and Librarian IGKT-PAB