



**THE
BRITISH
BOOMERANG
SOCIETY
NEWSLETTER**

NUMBER 5

JUNE 1981

The British Boomerang Society Newsletter

This newsletter is published four times a year. The aim is to provide all members and readers with miscellaneous boomerang news from around the world in addition to presenting boomerang plans and discussing technical topics. Material for publication is always extremely welcome.

The British Boomerang Society subscription rates for 1981 are :-

Junior, up to and including 15 years of age, £2

Senior, age 16 and over, £4

Overseas, (surface mail), £4 . Please send £4 in Sterling
and not just the equivalent
in another currency.

The British Boomerang Society is associated with the Midlands Kite Fliers and B.B.S. members may subscribe to the kite newsletters for an additional £2 per year.

Please make all cheques etc. payable to British Boomerang Society and address correspondence to :-

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The views presented in the newsletters are not necessarily those of the editor or of the B.B.S.

NOTES AND NEWS

B.B.S. Membership Let's get the worst news over first! The B.B.S. is short of members - or to be more accurate - short of cash. With the membership at present down by about 35 compared with last year it's easy to see the main reason. Another is the higher cost of printing. Having started so well, I'm sure all members hope we can keep off the rocks somehow or other. So if this and/or subsequent newsletters are smaller or are printed in another way, we are only trying to keep afloat until the tide turns and we attract more members.

Back Issues of B.B.S. Newsletters A small number of newsletters nos. 2 & 3 are available at £1 each including postage. (No more of number 1 left)

WESTON PARK KITE AND BOOMERANG FESTIVAL Sunday, 21st June, 1981 *Sorry, too late*

Included with this newsletter you will find details of this event. *being printed*
 B.B.S. Membership cards are being issued and members presenting them will be allowed free entry to the grounds. Depending on the weather etc. the B competitions may not follow EBF rules, but an interesting time is assured. The event is now well established and, being in the centre of England I hope members from "The North" will find it easier to attend especially as camping facilities will be available on the Saturday night.

Dunbar Carnival of the Air This time it will be a two day event - 8th & 9th Aug.

"Sport For All Day" at Concord Sports Centre, Sheffield. 10.00 - 18.00 hrs Sunday, 12th July. The B.B.S. has been invited to participate in this meeting. At the time of writing, full details are not available, but turn up just the same!

French Tournament On holiday in France, 19th & 20th September? Anyway, you might like to take part in The 2nd Tournament of the West in Laval. It's 250km west of Paris and is organised by the FFB Club of Laval: "Vol au Vent". For more details write to Luc Cormier La Grande Montanee, Ahuille 53940 St Berthevin Tel (43) 56 60 94 Reservations for accomodation can be made. Various prizes.

Walsall Fly-Ins not Throw-Ins! As MKF members know, the authorities have asked us not to throw on the Arboretum site. However, they have kindly offered an alternative one at Chasewater, so the meets scheduled for 2nd Aug. and 1st Nov. will be transferred from Walsall.

AMSTELVEEN EASTER TOURNAMENT I haven't included a full account of this.....not sure what to say. The wind nearly blew us all away as well as the boomerangs! Of course, everyone was delighted to meet Al Gerhards and see his long distance throwing. We all felt sorry for the organisers; so much of their work was blown away as well. Next year Max Hoeben says the date will be Whitsun so make a note of it now. Tonnie, Best Wishes, and hope you'll be with us on the throwing field next time!

Throwing in Windy Conditions They say it's an ill wind etc. Well, apart from the fact the Rijksmuseum had 4 extra British visitors on Easter Sunday, I picked up a useful throwing tip from Al. Normally, it's best not to throw Bs up too much, but in windy weather try aiming up a bit more. The B tends to drop or not rise too much as it turns and better returns are possible.

MY FIRST VISIT TO WASHINGTON - A Monumental Success. By Herb A. Smith

The day had been long, hot and humid. There had been fervant activity on the Mall in Washington, D.C. in preparation for the 1976 Annual Smithsonian Boomerang Tournament.....

This was my first visit to the U.S.A. and everything was strange and exciting.

My first two days had been spent in New York, where I was met at the airport by my old friend, the late Giles G. Healey..... discoverer of the beautiful and now famous Mayan Murals of Bonompak.

Although Giles now spent much of his time at his cottage in England he was a native of New York and knew the city like the back of his hand. He was thus able to give me an interesting and knowledgeable tour around during our two day stay.

We had met in England a few years previously, when Giles had shown an interest in boomerangs after seeing a TV film in which I was featured throwing these unusual objects. Some time later, I was invited to demonstrate my Long Distance Throwing skills at the Smithsonian Tournament.

Giles and I left New York for Washington on an early morning flight and on arrival there made our way by taxi to the Polo Field where it had been arranged we should meet Ben Ruhe --- the Founding Father of the Smithsonian Boomerang Tournament --- and several other enthusiasts, for the purpose of making a TV film prior to the tournament on the following day.

Amongst the group we were to meet up with was Richard Harrison, "The Boomerang Man", who had travelled all the way up from Monroe, Louisiana, and Eric Darnell from Vermont, New England. Also Marjorie Gerrish, who together with her guest Morris Maxwell (Secretary of the Boomerang Association) from Australia, had travelled by car for 5 days across the States from Marjorie's place in Portland, Oregon.

We were all strangers to each other, but it wasn't long before we were behaving like old time friends. Eventually, throwing got under way and the cameras began to film our varying styles of throwing. I was soon to discover how hot and humid the Washington weather can be! Such throwing conditions I hadn't expected or experienced back in England. After several hours, during which time none of us had taken any drink, we were all thoroughly exhausted and thirsty. We eventually adjourned to the Smithsonian restaurant for a well earned rest and refreshment!

The remainder of the day was spent on brief visits to the museums, unpacking and generally "settling in".

Morris and I were to share a room in Ben's flat and it wasn't long before we were boasting about our various achievements, showing boomerangs and catching up on the latest boomerang news from "Down Under". It was a tired and weary group that finally settled down to snatch a few hours sleep before the "Big Day".

Saturday dawned with bright sun light and a gentle breeze, which bade well for the tournament. By mid morning a group of us gathered at the Polo Field to prepare the ground by measuring out and marking areas for the various events. By midday everything was ready for battle to commence. Large groups of throwers had already begun to gather, with their ice boxes and picnic hampers which were soon abandoned in favour of some last minute throwing practice before the contest.

Early in the afternoon, I was privileged to open the tournament with my demonstration of long distance throwing. Due to the calm weather conditions I was unable to use my heavyweight models, so I chose to throw one of my weighted "Sussex Hooks", with a range of 80-90 yards. This soon had the crowds gasping!

"Sussex Hooks", with a range of 80-90 yards. This soon had the crowds gasping! Few, if any, had witnessed a boomerang throw exceeding 45 yards before, and the contestants, together with the spectators, were most generous with their applause and appreciation.

Whilst I had been unable to demonstrate any 110 yard plus throws, I had nevertheless introduced Long Distance Throwing to the Americans. Now, many excel at this type of throwing. A witness to this being "Big Al" Gerhards current record throw of 123 yards!

Al was to follow me with an excellent display of his own skills, using a large laminated boomerang of his own design which was almost circular in shape.

Al, like myself, was attending his first ever tournament, and like myself also, had been making and throwing his own boomerangs for several years unaware that many others in various parts of the world were, likewise, doing the same thing.

For the remainder of the tournament, I was kept busy answering questions, sampling cans of lager and generally enjoying myself!

One man was so impressed by my demonstration that he offered to purchase my "Sussex Hook" with an open cheque! It was not for sale, but I did eventually mail him a copy for a modest sum of \$ 10. (A few months later I received a letter from him saying he had thrown it over 90 yards, had made some copies and then retired the original to his study wall).

Later that day when the dust had settled and the rubbish had been cleared from the field, a large number of people gathered at Ben's flat for a special dinner party. Old friendships were being renewed and new friendships forged. It was a memorable evening and the babble of conversation continued into the early hours of Sunday morning. It must have been about 1.30 am when Marjorie Gerrish asked me if I thought I could throw a boomerang around the Washington Monument.

On a recent visit to Australia, Marjorie had been subjected to an ear bashing account by an enthusiastic Australian of his achievements with a boomerang. A throw around the Washington Monument had been his proudest boast. "Could you do that Herb?", Marjorie asked. "Yes I think so", was my reply. Whereupon, half a dozen voices chorused "Let's go over first thing in the morning". This being agreed, and Marjorie asking to be given a call at her hotel, we all departed for a few hours sleep.

I set my alarm for 5.45 am, and in no time at all, it was ringing. I gave Ben and Morris a call, but hadn't the heart to ring Marjorie at that unearthly hour of the day. Unknown to me, George Leavens, a phtographer of a sporting magazine was also asleep in the flat and had agreed to film the coming event. There was little time for early morning coffee, so we all washed and dressed and Ben drove us to the site of the Monument, just as it was beginning to break daylight. The weather was dull and wet with a fresh-to-strong breeze....."Not the best of conditions", I said to myself.

On arrival, our party was met by several others, some of whom had camped out all night by the base of the Monument. A uniformed guard was standing nearby and eyed us with a look of suspicion. Ben had a brief conversation with him, explaining our reason for being there and asked permission to make the attempted throw. "Well", he said, "You can if you don't damage the Monument!"

We hadn't much time. In a distant car park, several coaches were discharging passengers, who were obviously coming to pay a visit to the Monument..... even at this early hour! They were beginning to wend their way up the footpath leading towards us.

Let me here explain. Seeing it from a distance the previous day in daylight, it hadn't occurred to me that the Washington Monument was anything more than a massive 550-foot needle of rock tapering upwards from a 55-foot square base.

Imagine my surprise to discover that this great "needle" was built upon a hill, with a broad paved walk surround, which in turn was surrounded by tall metal flag poles set every 15-20 feet apart..... one pole for each State I believe? Each pole was decked with the "Stars and Stripes". The flags were fluttering in all directions as the wind bounced off the Monument.

To be on the safe side, I had brought with me one of my "Sussex Hooks", which had a range of 65 yards more than sufficient to circle the Monument. But now I had a problem. I would have to throw this boomerang between and beyond the metal flag poles and hope it would find its way back between the poles on the far side. This was going to be a risky business. I should have brought one of my shorter range boomerangs. It was too late now!

George had set up his cine camera and the snake of visitors was rapidly drawing closer to us.

Which way is the wind blowing? The flags are giving no indication. To help matters a little, Ben decides to make a preliminary test throw with a Willi Urban nylon boomerang. Unfortunately Ben's throw went slap into the side of the Monument, much to the consternation of the watching guard.

It was my turn now. I hadn't more than a minute before the first of the visitors would arrive. Just enough time for one throw.

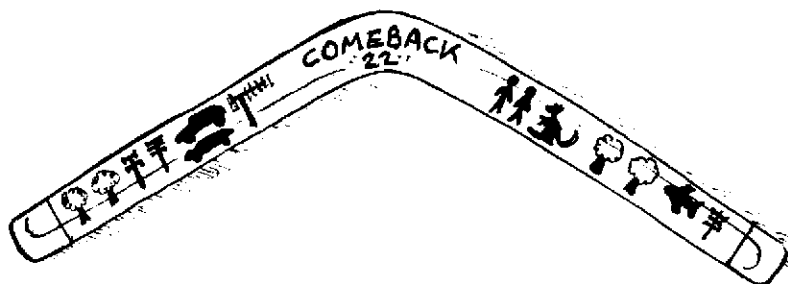
I took up a position about 10 yards from the corner of the Monument and paused for a brief moment to decide which flag poles I would aim between. Then, taking a deep breath, I stretched back my body and right arm and hurled the boomerang away into the distance. It went like a bullet, past the Monument, between the far flag poles and disappeared from view behind this great needle of rock. In those brief moments the Washington Monument had become something of a friend. It wasn't going to shatter my boomerang after all! If anything, one of the flag poles would do that on the return flight. I waited anxiously as the seconds ticked by. Then suddenly, to my relief, the red hook came floating back into view again, around the left-hand side of the Monument. As if to show its contempt for the metal flag poles, it passed between two more and came to rest on the grassy bank behind me.

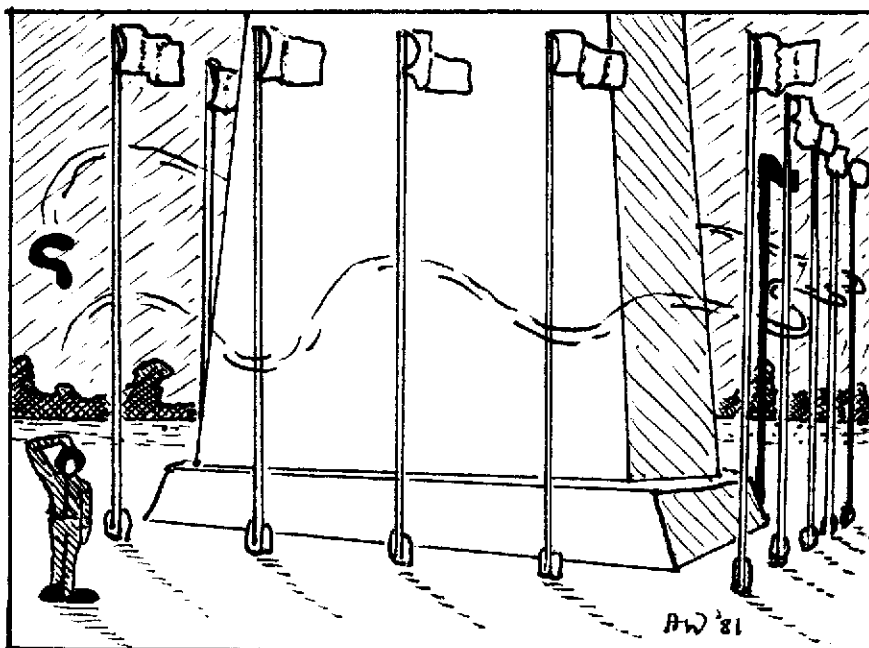
I had made a successful throw and everyone was delighted.

By the time I had retrieved my boomerang, the first of the visitors arrived on the scene, unaware that another small group of people on that grassy hill had just visited the Monument for an entirely different purpose.

I have never discovered if George was able to get a film of the event. Perhaps, due to poor light and the speed of the boomerang it was impossible? If you should ever read this article George, perhaps you would be kind enough to let me know?

On hearing the news later, Marjorie was most disappointed to think we had let her sleep on and she had missed all the fun and games. However, I understand she was witness to another successful throw by Richard Harrison and Morris Maxwell on the following day, when I was far away in another State continuing my trip across America. But I wonder if anyone has since successfully negotiated, not only the Monument, but the surrounding flag poles also?





Slalom Course - Strange Wind Tool

Hooray for Mr. Snouffer
 I really like his tricks,
 alas, my hernia's grumbling
 feels something like a stitch.

Those somersaults and back flips
 whilst whanging rans sure do,
 nothing for my ego,
 in fact I'm feeling blue.

My repertoire of rang tricks
 consists of falling flat
 upon my face, it's painful
 whilst straining for the catch.

My homemade rans are useless,
 yes Bummers every one,
 they do the tricks ol' Snouffer does
 onlookers say it's fun.

So why do I like boomerangs
 when aggro's all I get.
 Gymnast agile? no need to be
 I have as much fun as does Chet.

Too Embarrassed.

(Not J.J.)

THREE (etc.) BLADED BOOMERANGS

By Bill McGovern

Reading the articles written by Michael Hanson and finding them of great interest, I wondered if the following examples from my collection could raise a spark of enthusiasm amongst my fellow members.

No. 1 This is fairly conventional, and according to Michael to whom I gave one, "It seems to fly on circular rails and is very steady".

The design started out as an equilateral triangle, and progressed from there, but note, the original triangle is not cut out. 1/4" ply used.

(Sorry Bill, I fear I may have made a mess of the drawing--- hope not.)

These three bladed boomerangs were referred to as "Trimmerangs" by my late neighbour and boomerang colleague, Hymie Hayman. This name, as far as I'm concerned has now stuck.

No.2 This model is made from three straight pieces of 1/4" ply, each piece being thonged to the adjoining arms. The theory, if any, is that each blade finds it's own position when flying. Amazingly, it seems to work!

Length of blades, 13". Width 1 3/4". Leading and trailing edges contoured as usual.

No.3 This is similar to No.2, but the blades, which are again straight, are bolted together using very small nuts and bolts.

Blade length, 15". Width 2". Thickness 4 mm.

Usual aerofoll, but no positive incidence required as the bolting together of the blades gives a slight dihedral effect.

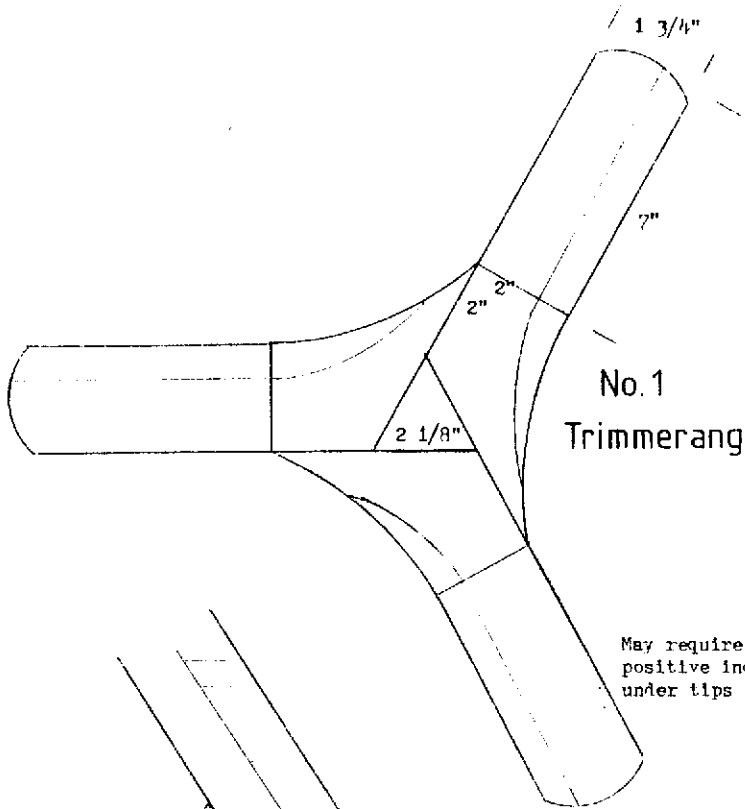
No.4 The unusual feature of this six bladed pinwheel is the axis point, which is 1/3 of the length of each blade from the tip.

Length of blades, 14". Width 1 3/8". Thickness 4 mm.

Usual contouring, but positive incidence not required. Note:- The blades are so arranged as to put one short blade between each pair of long blades.

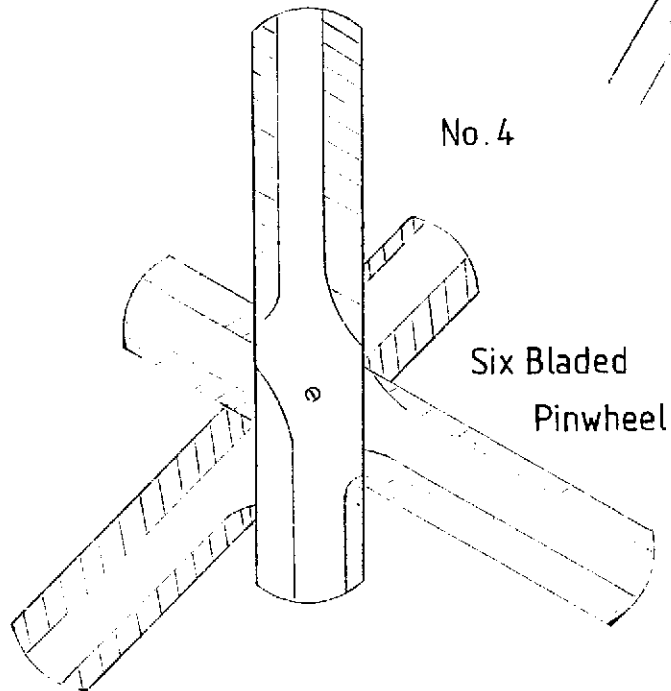
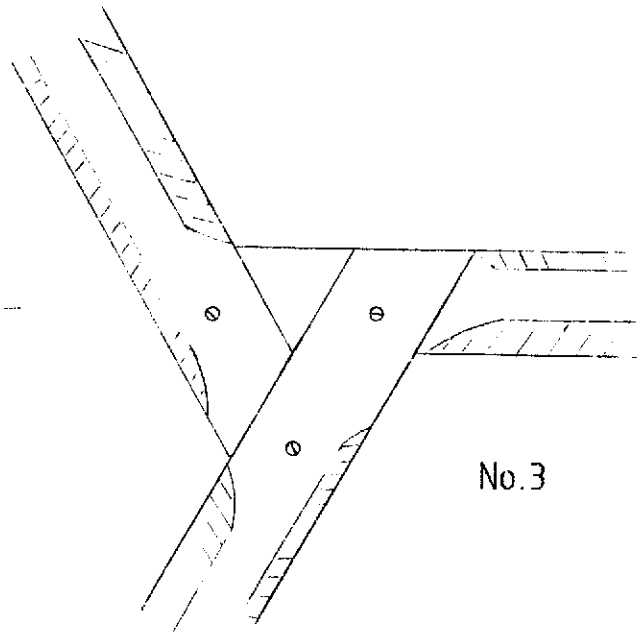
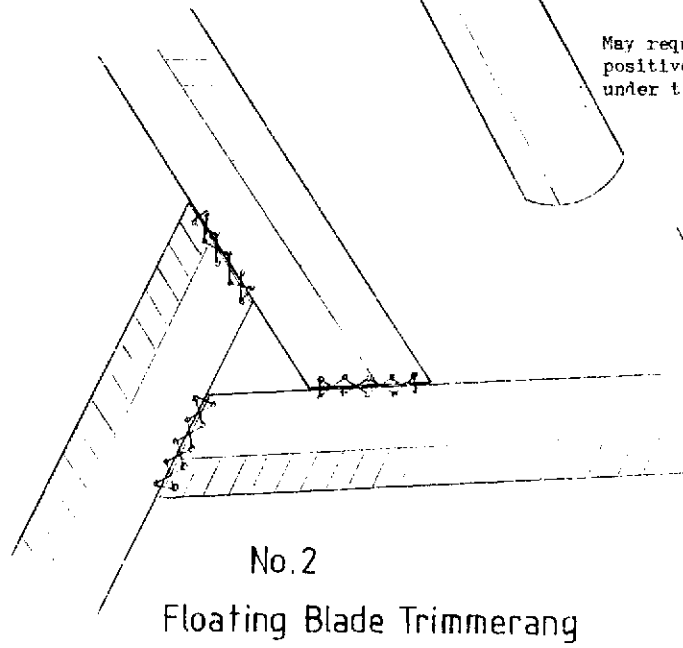


Well, the tree looks cross.
I don't know about the sticks!



NOT TO SCALE

May require a little positive incidence under tips



HORNIMAN - DULWICH PARK THROW-IN

Sunday, 12th April, 1981

After all the effort put into organising this meet by Elizabeth Goodhew and John Wray it was a little disappointing that such a small number of people turned up. The day was sunny and not too windy, so I wonder why? Surely no-one thinks competitions are for "experts"? Perhaps those who haven't attended a boomerang event so far may not realise that the competitions are only part of the activity. There's always a great deal of discussion, trying out boomerangs, and plenty of "drawing around".

Do make a note please, the next Dulwich Park meet is on 25th October, but don't forget Weston Park on 21st June!

RESULTS

ADULT COMPETITIONS

Champion of Champions - Jacques Beslot

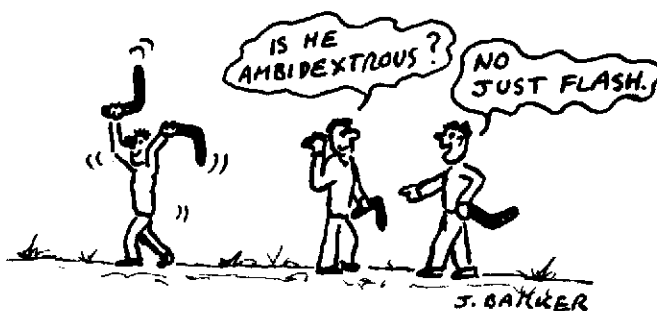
Throwing for accuracy	*1 Peter King 0.30 m
	2 Dave Jones 1.20 m
	3 Mark Harris 1.95 m
Catching	*1 John Jordan 12 catches
	2 Jacques Beslot 11 catches
	3 Michael Hanson 5 catches
Shortest time for 3 throws	*1 Jacques Beslot 25.5 sec.
	2 John Jordan 26.8 sec.
	3 Michael Hanson 28.4 sec.
Maximum time aloft (Total of 3 throws)	*1 Mark Harris 40.9 sec.
	2 Roger Levitt 39.9 sec.
	3 Jacques Beslot 36.5 sec.
Unusual boomerangs	*1 Roger Levitt - Catermerang
	2 Jacques Beslot - Razormerang
	3 Michael Hanson - Seethrumerang

JUNIOR COMPETITIONS

Junior Champion - Donald Laird

Accuracy : Catching : Shortest time for 3 throws :
Best made boomerang,Placings combined :-
*1 Donald Laird
*2 David Schummy
*3 Jonathan Rollnick

*Presentation boomerangs generously donated by
Mr. & Mrs. Dave Jones



BOOMERANG WHISTLE By Robert Leckie

To begin at the beginning.

This idea came to me as I examined a Chinese pigeon whistle given me recently. The device has been in use since ancient times to herald carriers arriving at lofts or for the pleasure of fanciers who delighted in musical birds.

The device is shaped from a very small gourd no more than 32 mm across and into which are fitted 4 whistles all differing in pitch. At its bottom protrudes a thin flat tang pierced with a hole for a silken thread by which it is attached to the back of the pigeon through the tail feathers; the whistle orifices facing the direction of flight. As the pigeon beats its wings the rush of air is sufficient to produce a loud harmonious note. The whole thing weighs no more than 5 grams and will produce a note by just presenting it to a stiff breeze. It is truly a marvel of ingenuity and craftsmanship.

The principle embodied in such a device can be adapted to the boomerang as a useful safety factor.

The prime consideration is to keep the entire body of such a whistle within the body of a boomerang without compromising the function or shape.

Therefore the required internal volume of the whistle which affects the note (the larger the lower) must be entirely accommodated within the body also. This is achieved by building up the boomerang with three layers of ply.

A cross section of such a boomerang is:-

Top layer	1.5 mm ply
Hollow centre layer	4.0 mm ply
Bottom layer	0.8 mm ply

PVA glue is used to form a sandwich of the three layers.

The thickest ply is first channelled to suit the shape and requirements of the boomerang and the top and bottom layers are later applied in the order given.

Any channelling is best incorporated in the thickest section and at the outer ends of the arms close to the leading edge of the boomerang. Exact duplication of the hollow channel is desirable to balance any loss of displacement.

Incidentally, sandwich construction allows for countless variations in balance and overall weights of boomerangs with much scope for experiment and study.

A complete new field of research..... moveable weights within, etc!

STEP BY STEP CONSTRUCTION

I feel bound to give detailed instruction since experiment shows that much time can be wasted unless principles are clearly understood.

USE SHARP TOOLS AND WORK CLEANLY!

The term "Clean as a whistle" is no false precept!

1. Draw your design out full size on thin paper.
2. Select and mark out area desirable and suitable for your channelling.
N.B. Front edge of channel at least 10 mm from leading edge of estimated trimmed, finished and sanded boomerang.
3. Draw similar channel area on other arm to compensate for displacement and to balance.
4. Trace out interior and exterior lines onto 4 mm ply core material with transfer paper.
5. Cut out along interior and exterior lines with a fretsaw or ABRAFILE. (A)
6. Bond top layer of 1.5 mm ply to top surface of the core and keep firmly in contact till quite dry. Trim to shape of core beneath along outer edge.
7. Select a point along the channel for the optimum position of the whistle. This should be at a point of greatest rotational sweep during flight, consistent with suitable width of cord to maintain strength.

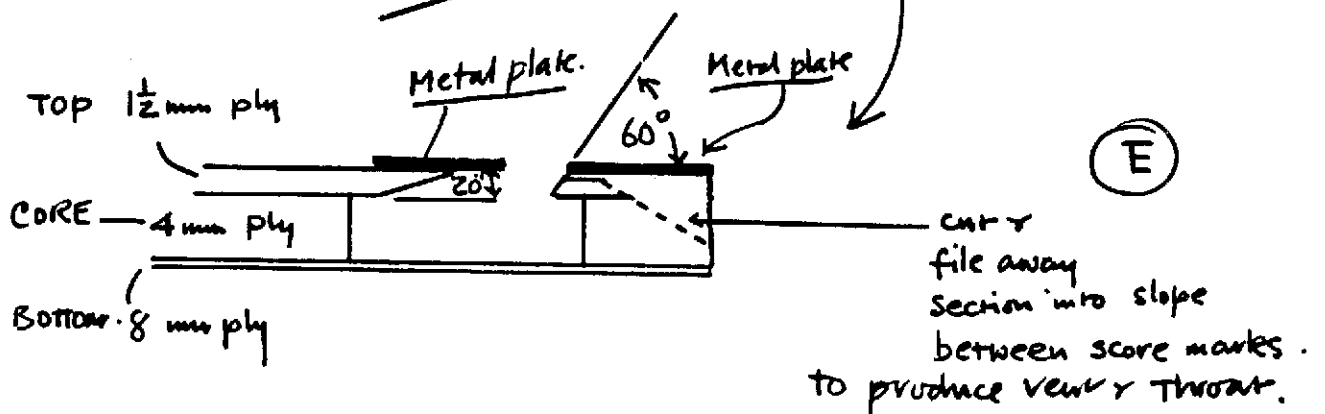
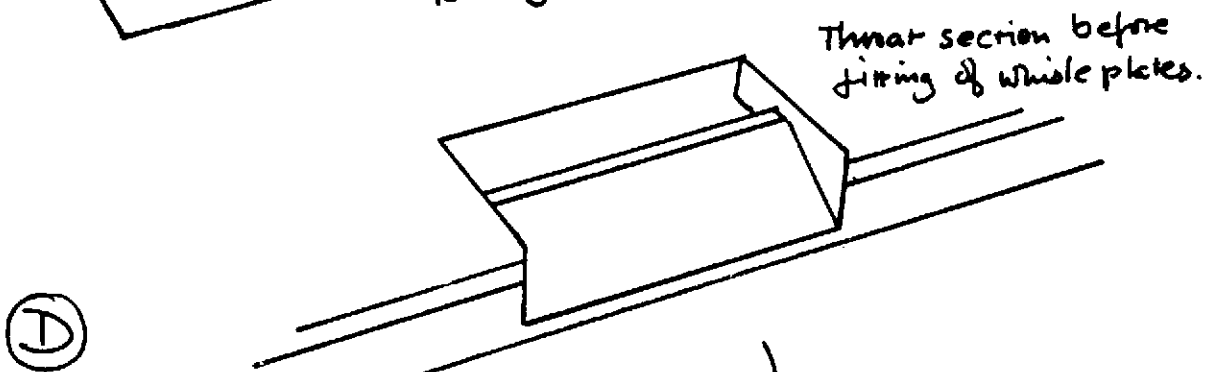
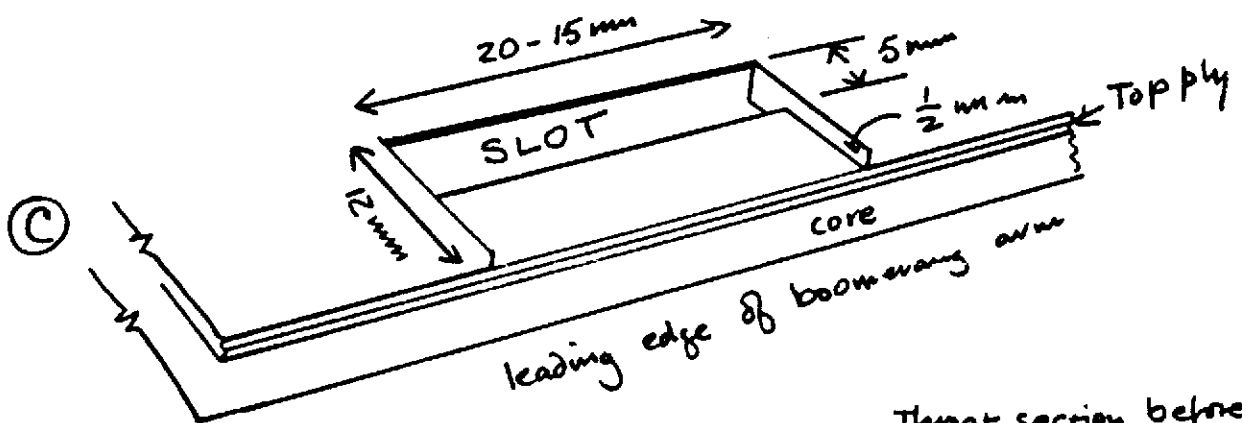
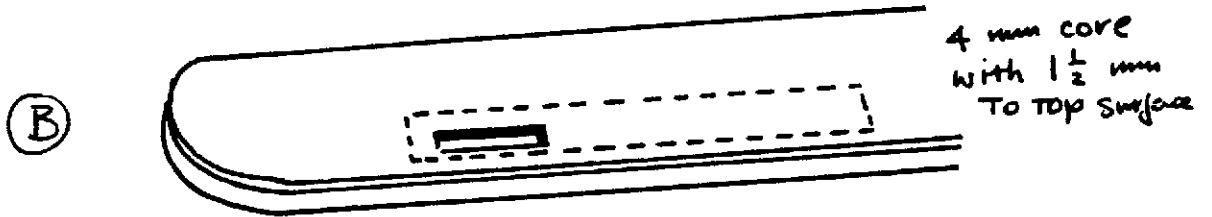
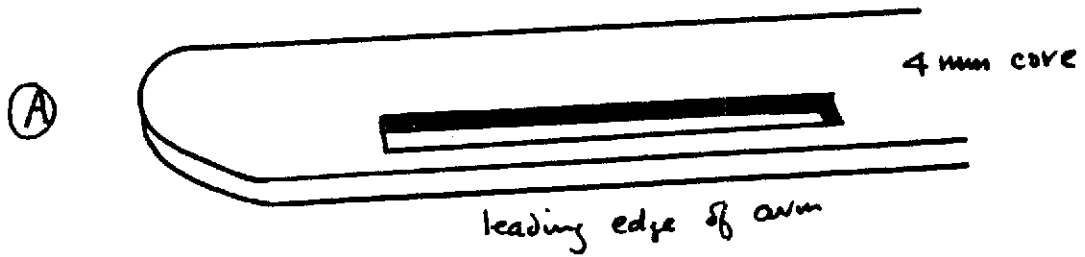
8. Pierce from underside two very fine holes to indicate likely width of whistle throat (15 - 20 mm) at edge of channel closest to leading edge of boomerang.
9. With a very sharp Stanley knife or scalpel cut a slot 15 - 20 mm long by about 5 mm wide parallel to leading edge and at least 12 mm from the estimated trimmed edge of the finished boomerang. (Diagram B and C)
10. Make all edges square with a small flat file.
11. Shape a slope to the front edge of the slot at 60° to horizontal. (Dia. E)
12. Shape a slope on the underside of the rear edge of the slot at about 20° to the horizontal. (Diagram E)
13. With a sharpe blade score a line forward from each end of the slot towards the leading edge. DO NOT CUT THROUGH TOP PLY.
14. Sand or file away top layer of ply between scored lines to a depth of about 0.5 mm. Keep this shallow trough flat and very clean. (Diagram C)
15. Sand or file a sloping surface downwards from almost the leading edge of the slot to almost the front leading edge of your trimmed boomerang. (D)
16. Cut a piece of very thin metal (preferably stainless steel) to bridge the flat groove completely and extending to the very edge of the trimmed front edge of the boomerang.
The results so far have produced something similar to the mouthpiece of a penny whistle, but with an enlarged vent leading to a flat thin throat.
17. Now, here comes the exciting part!
Block off the channelled area below with some scrap 0.8 mm ply and secure firmly with Sellotape.
Cut another strip of flat metal wide enough from front to back to cover your slot and wide enough to be held firmly at each end during the tuning.
18. Blow gently through the leading edge vent and tune for the loudest note by sliding the metal bridging plate back and forth to widen or narrow the slot from front to back.
19. When you are sure of optimum results mark the position of both metal plates but DO NOT FIX YET.
20. Remove temporary plate of 0.8 mm ply and cover under surface of core completely with 0.8 mm ply. Allow to dry under weights until absolutely dry.
21. Sand and shape your boomerang carefully avoiding the immediate area to which you will fasten the whistle plates.
22. Check for sound first, then glue metal strips in position with superglue or epoxy resin.

N.B. The position of the plates is very critical to the success of your efforts as is the depth of the throat which governs the blast of air over the slot during flight. A little experimentation and patience is rewarded at the tuning stage by spectacular results.

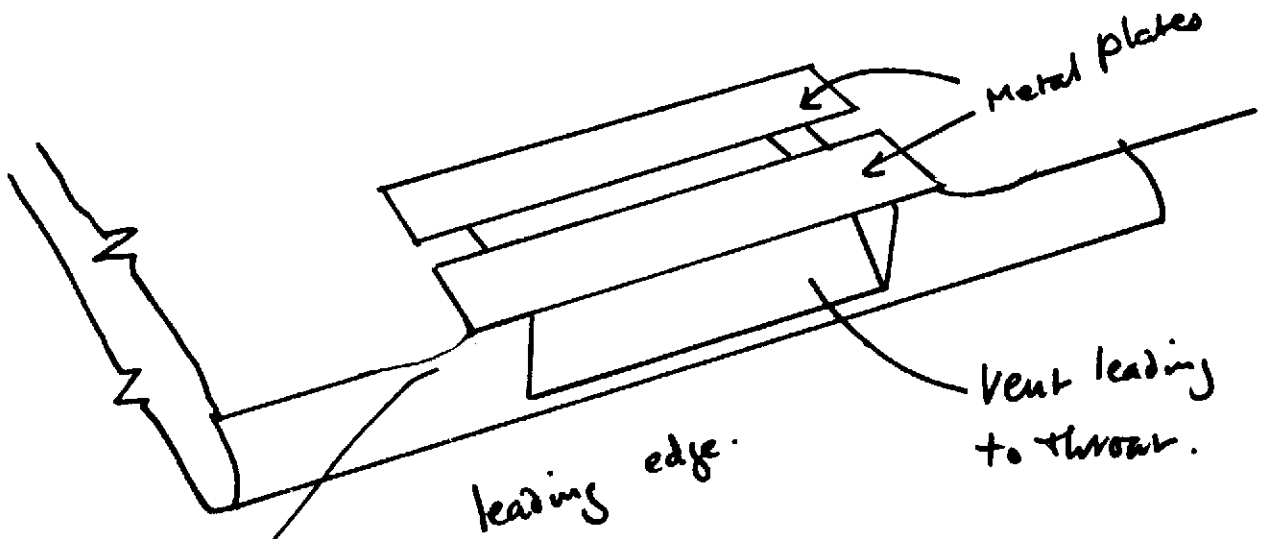
That's it. Now go out and throw your didgereedoomerang!

Robert Leckie

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TW10 61A

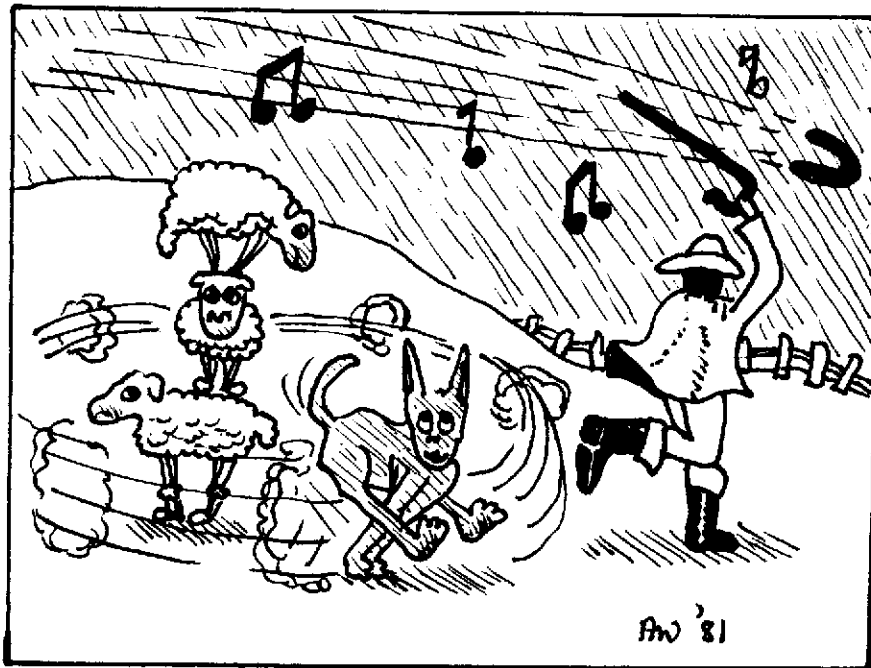


Appearance of finished boomerang with.



Not to SCALE.

Fair off corners
to blend smoothly
with leading edge



BOOK REVIEW

BOEMERANGS, by Ger Schurink. B.V.W.J. Thieme & Cie, Zutphen. 1980.
ISBN 90 03 97045 9 Dfl 14.95 (About £3)

Strictly speaking perhaps, this shouldn't be regarded as a review as the book is written in Dutch and I can't read it! However, I have discussed the contents with the author and several other Dutch boomerang fans, and in any case the diagrams and photographs are so good there's little need for further explanation.

Detailed designs for 18 boomerangs are given — traditional, hooks, cross-sticks and several unusual shapes. For some of the designs, size variations are also included. Generally, 6 mm 5 - ply birch plywood is recommended which, as many B.B.S. members already know, is the material favoured by most boomerang makers world-wide.

One or two further comments may be helpful especially to those who obtain the book. I emphasise these comments are not intended as criticisms.

Five aerofoil shapes are shown in Fig.3, and of these the second from the top is probably the best for most boomerangs — it's really the MBA - SC shape as described by Rusty Harding. Also, only the design on p. 41 uses aerofoils with any pronounced bevel or undercut on the undersides of the leading edges of the arms. On p.53 an "overlap" design is shown. Most boomerang fans think that with this type of boomerang the trailing arm must be placed on top of the leading arm. Ger shows it the other way round and assures me it works that way too. For maximum economy it's obviously best to cut as many boomerang blanks as possible out of one piece of plywood without regard to the direction of the grain (Fig. 21). But for greater strength experience shows it's far better to ensure that the grain of the outer plies of the wood runs from the tip of one arm to the tip of the other. It's necessary to compromise when making cross-sticks of course.

The topic of "tuning" is not dealt with. I would have liked to have seen some details included since not all boomerangs fly well without adjustment (and some not even with it!). However, I have to agree with the author who told me that different boomerangs with the same fault cannot be guaranteed to respond to the same treatment.

The fact that the book is written in Dutch is not a major drawback for real boomerang fans. All in all, Ger's book is a very welcome addition to the small number of boomerang books already published, several of which incidentally are now out of print.

Well done Ger, and many thanks!

J.J.

NOTE "Boomerangs - Making and Throwing Them", by Herb Smith is still available. To obtain a copy send direct to Herb at:-

15 Malin Road
Beaumont park
Littlehampton
Sussex
BN17 4NN

Don't forget to enclose a cheque or P.O. for £1.25 which includes cost of post and packing.

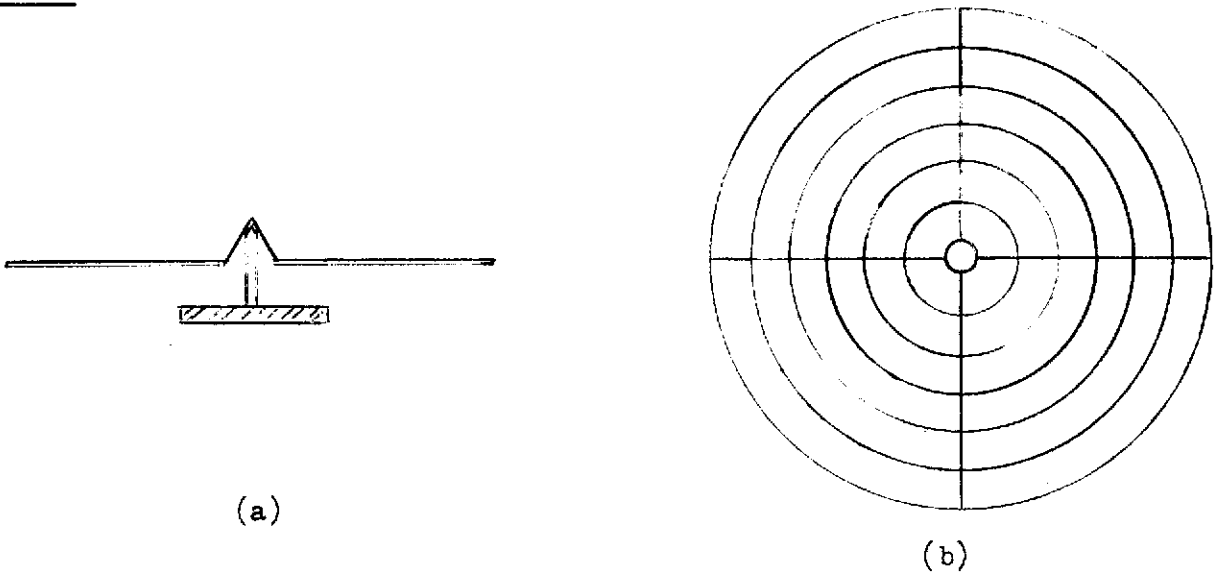
CG - FINDING DEVICE

Al Gerhards demonstrated this device at Amstelveen during the Easter tournament. I guess he might well have wished he'd prepared a tape to save his voice as everyone showed so much interest!

Foolishly, I didn't make any notes or take a picture at the time so I now have to see how much detail I can remember. (Perhaps Al, you'll correct me if I'm very wrong).

The device is really quite simple. It consists of a circular piece of stiff cardboard about 50 cm diameter, with a hollow metal cone fitted through at its centre. The cone rests on a pointed metal rod to give a low friction bearing. (Fig. 1a)

Figure 1



The cardboard disc has concentric circles and radial lines marked on it as shown in Fig. 1b.

To find the centre of gravity of a boomerang, Al first of all balances the boomerang on the edge of a piece of wood clamped vertically as shown in Fig. 2.

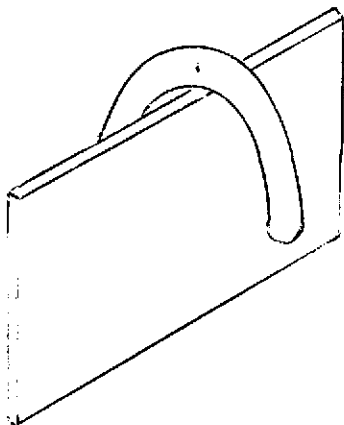


Figure 2

He then marks the boomerang where it rests on the wood.

The CG lies on a line vertically below this point. Al then places the boomerang on the disc with the mark placed over one of the radial lines and moves the B along the line until the disc is balanced level.

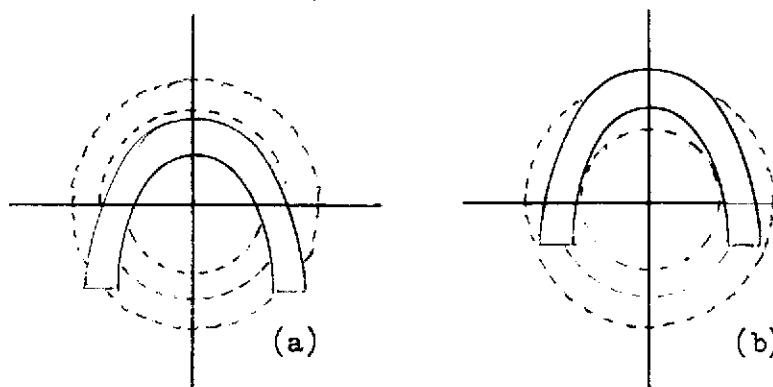
When balance has been achieved, the CG of the boomerang is at the centre of the disc.

Now the beauty of this method is that the position of the centre of gravity is easily seen and studied.

Why would one wish to do that?

Well, the disc has concentric circles marked on it and, by studying the position of the boomerang, what Al calls a "neutral circle" can be envisaged.

Figure 3



Two different neutral circles are shown in Figure 3. The smaller neutral circle shown for the boomerang in Fig. 3a means that more of the ends of the arms project outside the circle compared with the larger neutral circle for the boomerang shown in Fig. 3b.

The thinking is that the boomerang in Fig. 3a will have a shorter range because of the higher turning torque generated.

Now, when discussing neutral circles I keep wanting to say, "Other things being equal!" And we can all ask such questions as, "Is the circle really neutral and without any effect?" or "What about the shape of the ends of the arms?" or "Where does the total weight come into the reckoning?" or even "What about the CG of a cross stick?!"

Let me hasten to say Al doesn't for a moment claim that by using this piece of equipment you'll be able to understand all aspects of boomerang behaviour! He uses the balance to give a parameter which can be correlated with the flight characteristics of fairly similar boomerangs. Also by placing weights on a boomerang it's easy to see how the neutral circle is changed.

Al certainly finds the device of great value and I'm sure it will help all of us develop some fruitful lines of thought.

Notes

1. The conical bearing used by Al is the type used for balancing the blades of some lawn mowers.
2. Another reason why makers like to determine the CG is so that decoration on one arm can be placed in such a position that it reinforces and doesn't cancel out the effect of decoration on the other arm.
3. A possible extension of the idea is to suspend the disc on a wire of suitable thickness. The set-up would then become a torsional pendulum as well as a balance. As I recall, the period is related to the moment of inertia.....I'll leave all that for others to try!

J.J.

BOOMERANG CALENDAR

21st June	WESTON PARK KITE AND BOOMERANG FESTIVAL, Shifnal, Shropshire.
12th July	Concord Sports Centre, Sheffield. "Sport For All" Day. 10.00 hrs.
2nd August	Throw-in/Fly-in, BBS/MKF, Chasewater, near Cannock.
8th & 9th August	Carnival of the Air, Dunbar, East Lothian, Scotland. (Boomerangs, Kites etc., etc.)
24th October	Boomerang Workshop at The Horniman Museum, London.
25th October	Throw-in at Dulwich Park. Competitions start at 11.00 hrs.
1st November	Throw-in/Fly-in, BBS/MKF, Chasewater, near Cannock.

Shreegreen Lane

GIRLS & BOOMERANGS (No.2)

Chet Snouffer, who runs The Free Throwers Boomerang Society, promptly responded to my request for enlightenment. Here's what he says.....

My brother and I are physical education majors and were discussing why women don't naturally take to throwing B's as well as men. Though I know of no structural differences in the shoulder girdle (though there may be one), there are such factors as strength to weight ratios which are considerably less in the female past puberty. A woman's greatest Trainability (adaptation to stress factors such as weight training, running, learning movement patterns such as tossing B's, etc.) is 20-30 years of age, yet her age of greatest strength to weight ratio is 10-14 approx. So when she has the best strength to learn to throw, she doesn't as readily incorporate the skill movements, and when she can learn the quickest, she is not necessarily in the best shape for it.

Of course many are good throwers and highly skilled athletes, but even great female tossers like Fran Ruhe, just do not have the same ease of throwing. I am sure this is mostly due to the socialization of women in our society.

Men, as boys, are always throwing something, and at first, both boys and girls show the same awkward learning patterns when learning an overhand toss. However, boys in general catch on much more quickly to the movement skill, and so continue doing it, because of their early success. Girls either see no future in this, if successful, or give up because of initial failure, and so the skill of overhand tossing remains a relatively new movement for their muscles.

My best gymnasts are girls however, and so that shoots the whole works right there!

Let us say God made men to hunt and thus throw, and women to do everything else.....better!

This is a no win situation, so I shall drop the hot potatoe tout de suite!

I'm going to say nothing.....



A bit late Michael!

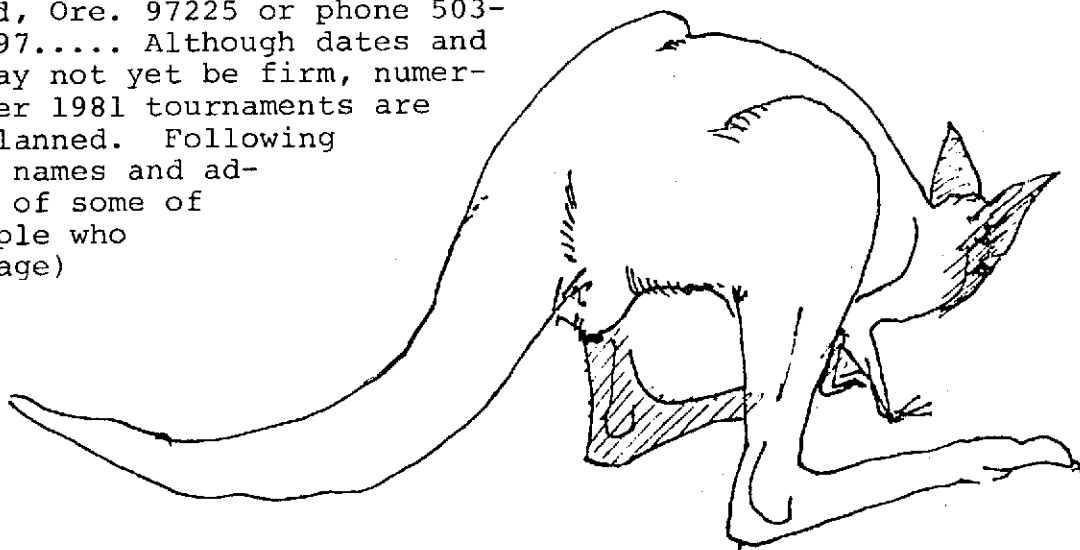
BOOMERANG NEWSLETTER

Volume II, Number 1

Spring 1981

AS YE THROW, SO SHALL YE REAP. The 8th annual Now-You-See-It, Now-You-Don't, Now-You-See-It-Again Smithsonian Institution Boomerang Festival will be held Saturday, June 13 in West Potomac Park in Washington, D.C. For experts, there will be consecutive catching ("survival"), doubling, juggling, maximum time aloft with a catch, and the costume finale. We're dropping the Australian round as too time-consuming but adding a six-blader consecutive catching competition in which catches must be made spinning on the palm of the hand. If you don't have a pinwheel (with bolt extending downward from the center to catch on the palm), then make one or acquire one--and practice. A catch will be valid if the boomerang spins two seconds or more on the palm. For competition rules (in due course), write Tina Parker, Resident Associates, Arts and Industries Building, Smithsonian Institution, Washington, D.C. 20560. As usual, there will be a workshop the preceding Saturday. One request to tournament competitors: Please do your warm-up throwing on the way to the Mall, viz. in some empty field rather than in a park adjacent to the Polo Field where the tournament will be held. We had a distinct overcrowding problem for warm-ups last year, since the Smithsonian, for safety reasons, forbids use of the big Polo Field for this activity from 11 a.m. on during tournament day. Out-of-towners are particularly alerted to the fact that the U.S. Boomerang Association will hold its own all-day tournament Sunday, June 14, on the Manassas campus of the Northern Virginia Community College. This will give enthusiasts two days of competitive throwing instead of the usual one. Doug Pratt, of the USBA, will answer questions on competitions, hours, etc., by telephone: 703-369-1822 (after 6 p.m.). Or write him c/o USBA, Box 96, Clifton, Va.

MORE COMPETITIONS. Marjorie Gerrish, patron saint of boomeranging, has scheduled her annual Pacific Northwest throw-in for Sunday, June 7 at Gabriel Park in Portland, Oregon. For details on this sixth annual tournament, write her at 4885 S.W. 78th St., Portland, Ore. 97225 or phone 503-292-5697..... Although dates and sites may not yet be firm, numerous other 1981 tournaments are being planned. Following are the names and addresses of some of the people who
(next page)



can be expected to organize flings: Chet Snouffer, 340 Troy Rd., Delaware, Ohio; Nick McAuliffe, 9 Morrill Pl., Amesbury, Mass. 01913; Peter Ruhf, Route 2, Box 67, Emmaus, Pa. 18049; Bob Coakley, 107 S. Lindsay, Flandreau, S. Dak. 57028; Eric Darnell, Star Route, S. Strafford, Vt. 05070; and Paul Bigelow, 1307 Campo Sano Dr., Coral Gables, Fla. 33146.

Dave Robson opened the outdoor season across the country with a spring fling in Baltimore's Inner Harbor April 12. "Brush the winter dust from your 'rang," Dave advised contestants.

VERBAL CONTEST. A boomerang--an Al Gerhards' long-range weighted special-- to the person who comes up with the best shaggy boomerang story that ends with this line: "Sir, the koala tea of Mercy is not strained!" (From "The Merchant of Melbourne.") The winning entry will be published in this newsletter.

HYPNOTIZING EAGLES. Through the kind offices of Art Foran of Clancy, Montana, this writer has added an American non-returning boomerang, a so-called rabbit stick, to his collection of hundreds of antique and contemporary 'rangs. The maker was Ishi, a Piute Indian living on the San Carlos reservation in Arizona. Having grown up a half a century ago in the desert north of the Grand Canyon, Ishi recalls how as a boy he used rabbit sticks to hunt from horseback. Ishi carried two sticks, one in the hand and one stuck in the belt for a second shot if the first missed. The hunting was best in the winter, because snow slowed down the rabbits and deprived them of cover. If a direct hit failed to kill the quarry, the blow ordinarily rendered the rabbit senseless, in which case the hunter would retrieve the rabbit stick and use it to give the rabbit a finishing whack. The weapon he made for me is 15 inches long, with ovoid airfoil and a 120° curve at the center. The weight is about eight ounces, and there is a rudimentary handle carved at one end.

Ishi is a master of many Stone Age arts, including the 15-minute fashioning of flint arrowheads with antler flaking tools, the curing of elk robes to a silken softness, and the making of bows from big horn sheep antlers backed by sinew. His children, he says, are able to capture an eagle, hypnotize it so they can pluck feathers for ceremonies, and then free the bird unhurt.

RIPPLE EFFECT. Bob Coakley of Flandreau, South Dakota, chose small-town over metropolitan (Washington, D.C.) living for many reasons, one of which he details as follows: "A friend checks my mail for the pink slips indicating a package needs to be signed for, and makes the pickup for me. I have set this up with the local post office, something you couldn't do in a big city. One day a few months ago when a number of people were anticipating my getting a shipment in time for a tournament, the pink slip appeared. Danny (the friend) picked up the package and within an hour people were passing the word: 'The boomerangs are in!' I was reminded of the scene in Oklahoma where Wells Fargo comes to town and everyone is lined up waiting to welcome it."

'RANGING DOWN UNDER. Bob Burwell of Queensland became Australia's premier long-range thrower when he made a measured toss of 107 meters with complete, accurate return in a Boomerang Association of Australia tournament this year. The world mark is 113 meters (123 yards) by Al Gerhards of Downingtown, Pa. Burwell's

boomerang, a vulcanized small hook, actually went further but was measured from where it crossed the axis line.... Brother Brian Thomas of Sydney reports that his colleague Brother John Griffiths threw and caught boomerangs atop Ayers Rock, the spectacular central Australian massif; that he himself pitched 'rangs from the peak of Three Sisters in the Blue Mountains of Australia; and that he has shipped boomerangs to fellow members of his religious order in Rome, Zambia, and New Guinea. "And so we spread the good news," he says. ... Brother Thomas manufactures indoor four-bladed boomerangs that are proving popular. He makes them of 1/16th-inch balsa, wings 1 inch wide and 9 long, glues the wings together, sands off the corners, and decorates them with poster paint to make them attractive in flight. Give it a try.

* * * * *

Editor's note: Following is another in an occasional series of short essays on boomerang aerodynamics and related subjects. The writer is a well-known Vero Beach, Florida, boomerang-maker and theorist.

AIRFOILS

By Rusty Harding

I've tried out more than 50 different airfoils in the past three years, ranging from autogyro and helicopter airfoils to the latest developments by the sailplane and the radio-controlled sailplane experts; and I've tried all the super-efficient airfoils developed by NASA in the past five years for use on modern light aircraft. As a result, I'm convinced that the best all-around airfoil for sports boomerangs is the MBA-SC. It consistently produces good flying boomerangs with no surprises. Remember, with all the airfoils tested by all of the world's best aero experts, none of the tests included testing with pulsating air velocities of about 10 pulses per second, and none tested with airflow from trailing edge to leading edge. Both are real conditions that a boomerang airfoil regularly sees. The MBA-SC is a simple airfoil and can be generated approximately as shown below:



BLOCK OUT AS SHOWN ABOVE



ROUND ALL EDGES AND SAND SMOOTH

What does MBA-SC stand for? Quite simply, "Modern Boomerang Airfoil--Semi-Crude"! I'm sure that many will take exception to the above, having found a particular airfoil that has produced wonders for them. I've found some that work well in specialized boomerangs, but I've also found some bad side-effects with them for overall use. One airfoil in particular was extremely great at hover, if you could get it high and stable. That proved to be a difficult task, however, requiring an extremely exacting throw for satisfactory results. In checking back through the airfoil information to try to determine the reason, I found an obscure footnote to the effect that the airfoil was subject to wide center of pressure change
(next page)

with respect to changes in forward velocity, causing oscillating variations in the angle of attack during boomerang forward velocity (where advancing and retreating blades have velocity variances) and becoming stable with the constant velocities at hover. The basic point here is to note that seemingly minor changes to a boomerang can have profound results in its ability to fly well, and that those results are often not readily explained by common boomerang knowledge.---Excerpted, with permission, from the British Boomerang Society Newsletter.

CORRESPONDENCE. People who are surprised that a boomerang even returns will be startled by the following explication by Rusty Harding of boomerang-throwing at the Ruhest, a country place in Emmaus, Pa., used as home base by experts Barney Ruhe and his twin cousins Peter and Larry Ruhf: "They (the three) have a great game which separates the men from the boys," he writes. "It's a throw to the peg and catch type of game with a variation. More properly, it



could be called 'a throw under the two wires that run from the barn to the house, over the peach tree, between the apple tree and the pine tree (but low enough that you don't hit the overhanging branches), miss the barn, miss the parked cars, miss the two wires again, and catch at the peg.' You absolutely have to have a boomerang with a 22-25-yard range, and dead accuracy with your throws. Hit the wires and you'll ruin the boomerang, trees take lots of time for retrieval, barn wrecks the boomerang, cars--well you get clouted by the owner, rather heavily--and if you don't catch it, you're out of the competition. Lots of fun, though."

...One purpose of big buildings is to have boomerangs thrown around them. The latest triumph: Brett Snouffer of Delaware, Ohio, winged a 'rang around the chapel at Cedarville College and brought it right back for the catch.... Nigel Sheldrick of Tyne Tees Television Ltd. in Newcastle-upon-Tyne, England, writes me saying he understands I have a cat that catches boomerangs and asks whether this is a "catamerang?"... Jack Lord of "Hawaii 5-0" fame says he hopes to incorporate boomerangs into a future show.

ANYBODY SECOND THE MOTION?

Bob Curtis of Victoria, Texas, proposes the ancient Mesopotamian mythological hero Gilgamesh as the patron saint of boomeranging. The bas-relief image here is from Khorsabad, now in the Musee du Louvre, Paris.

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