FEEDBACK

SLALOM NEWS AND VIEWS

No. 5 JUNE 1983 PRICE 50p

MERANO '83 • TECHNIQUE TIPS • RESULTS

Official magazine of the British Canoe Union Slalom Committee
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FEEDBACK EDITORIAL

Last issue I wrote about the commitment we needed as slalomists to secure the building of a critical slalom course at Nottingham. The major test was the May Day Sponsored Paddle and the early indications are that the response was diabolical. Did you paddle and raise at least £10.00?

Many people paddled for the first time in years and raised money for A.S.C.O.T. but even more stayed away and quietly forgot to remember. Money is still needed so if you haven't contributed already do it now.

I would suggest that the majority of paddlers who compete in slalom are interested in at least one thing, their result. Whether a novice or world champion a clear indication of one's time at the finish at least reminds us of the fact that it is a very long way from the start and we should do more training. Better still, it gives us a chance to figure out a total score, if we can add up the penalties, and acts as a safeguard against transmission error. Immediate comparison with one's rivals is possible and some measure of achievement immediately awarded.

Quite often the other paddlers are interested in your result too. Parents and friends who might avoid the dripping cluster around the results board and termoil at the finish would like to know how their paddler fared. What is a Public Address System for? How can we encourage more paddlers and spectators if we don't let them know what is going on? It is disappointing that at some events where a form of public address system is used the only indication one has that there is in fact a competition taking place is when the prize giving is called. By this time many people will have left. As well as individual times the top placings after each run could be announced giving spectators a clear idea of what is going on and paddlers the information they deserve. Many people working at a slalom will not get the chance to look at the results, judges too, might miss that opportunity so why not be more informative, organisers, let us know who has the fastest time so far and tell competitor 93 that his time was 148.6, he might be from your club.

As our International teams prepare to compete in the major events in Europe we extend our best wishes to each competitor, may he or she be fast and clean, and our thanks to those who have helped in the preparation of the teams, Management and Coaches particularly.

FEEDBACK CONTENTS

Slalom Training Course Stone, 9 July 1983

Coaching from experienced international paddlers under Chief Coach, Ken Langford.

Technical Skill Improvement

Fitness Training Techniques

Lectures

Youth and Junior paddlers are encouraged. Apply to:

B Gladwin
1 Cooks Bank
Acton Trussell
Stafford

enclosing SAE for further details before 30 June. Course fee: £5

FEEDBACK INFO

Indoor Slalom Champs

There will be up to 8 venues in December 1983 and January 1984. Suggestions for venues are invited; volunteers wanted to organise and publicise locally. Regional Slalom Representatives - see Yearbook - should be contacted for more information. Full details in September Canoe Focus and in Feedback 7. Why not set up a series of local pool events leading to a regional championship?

Fosters

Fosters Draught International and Regional Slalom on October 28/29/30. Regional selection arrangements from your regional representative.

Volunteers to help at the event, in any capacity, from Wednesday, 26 October for course erection, names please to Roger Fox or Roger Annan.

Buoyancy Aids

Following further discussions BCU/BCMA and a visit by Albert Woods to an ICF Slalom and Wild Water committee, it seems likely that only buoyancy vests/jackets with material joining front and back under the arms (not tapes only) will prove acceptable. For UK competition the interim ruling is extended until the end of this season which means that all aids with buoyancy (6kg minimum) on the upper torso, front and back, will be accepted together with BS Lifejackets at Div 4/Novice events

Holme Pierrepont

Don't stop pushing, money is still needed to make absolutely sure of a convincing case to the Sports Council, Notts County Council and other authorities. Make sure you collect and send in all your sponsor money.

Mementos

Promotion Mementos and Press Statement notices for promotees have been sent to slalom event organisers. Early events did not have them, however, and they can be obtained by sending SAE (9 x 4 in.) with event details to the ranking list compiler.

Slalom Administration

The Executive does not believe that paddlers/clubs will accept drastic increases in levy payments to pay for administrative or coaching services on a full time basis. However, a part time paid executive secretary is suggested as the answer to some of the overload problems. 100 days a year paid, plus travel/subsistence expenses to meetings, might suit someone with an interest in sport, and some relevant experience including minute taking who is available on a dozen or so weekends for the meetings.

Veterans

Paddlers over 30 under 35 who elected in 1982 to become Veterans in Div 2 or below may not now paddle as such following the AGM ruling but CAN apply to be reranked on application to Rodney Stallworthy.

Hambleden

Please drive cautiously along Mill Lane, Aston when attending this slalom. Complaints have been made following the Div 3 event on April 9/10. Courtesy and respect towards the locals should be automatic. Apparently it isn't.

Amateur Rule

The Amateur Rule/Sponsorship/Advertising debate staggers along. It is essential that an officer of BCU (National, Section or Regional) is informed by the individual competitor of any sponsorship or advertising proposal. It is strongly recommended that apart from Local Authority grants any payments are made via the appropriate BCU treasurer. There are still no agreed rules of procedure.

ICF Rule Changes

A paper has been prepared by the Slalom Committee to be circulated in Canoe Focus during May. The background to the proposed rule changes and details of the consultative process by which views of British Slalom, not just those of the Committee, will be presented to the ICF are explained. Your views are sought in a questionnaire also enclosed in Focus. After the Test events at Bourg St Maurice, Augsberg and Lofer are completed, clubs will be circulated with all available information for discussion. A Special General Meeting of the Slalom Committee will be held on Saturday, 17 September (probably at Nottingham or Stratford) where full discussion of all proposals will take place and resolutions for ICF Slalom and WW Committee and ICF Congress will be prepared. If you paddle or officiate this affects you.

11-19 June	World Championships Merano
16 July	Slalom Executive Bala
23/24 July	Test Competition Augsberg
30/31 July	Test Competition Lofer
17 Sept	Slalom Executive Special General Meeting

ADVANCED PADDLING TECHNIQUES

- the first of two extracts from John Macleod's talk to the Coaching Conference at Holme Pierrepont.

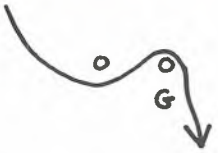
Strokes

Straightline Sprinting

On course demands mean that the paddler needs to be able to accelerate hard many times and it is fairly natural that this isn't always possible after some flat out paddling. Neither is there a good deal of time to be saved in going a fraction faster in a straight line. Power in the stroke comes from the use of back rotation and the lower arm pull, a smaller contribution being made by the upper arm push. Power is most effective in the first half of the stroke, (quick blade insertion and good initial acceleration of the blade) the second half of the stroke needing the attribute of speed of action. These points in mind you paddler can improve straight line strokes to maintain a good slalom speed. Straight line acceleration has to be developed on top of raw speed - the strength, power and stroke rate components all being increased. In the boat this can be developed when changes of direction are involved, (short courses with long rests). Weights and isokinetics are also useful.

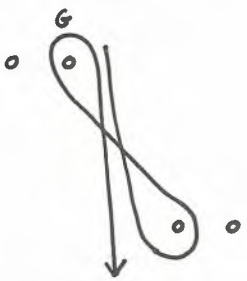
Body Lean and Arm Reach

Body lean has several uses. To the side it stabilises, sometimes it can be used to sink the boat under a pole and other times to achieve the correct balance on riding waves. It can also vary the pivot point of the boat and increase the length of stroke. Arm reach is often used in conjunction with body lean.



On this sequence, to come out tight round the green means a lean back.

On this breakout, bow under the red means a lean forward.



On this sequence bow under the green means a lean forward.

Extra reach is required in two instances:

- extended telemark
- more effective rotation

Both these are used in the two time wasters in slalom, ie the breakout and the turn. However, this extra reach ISN'T required in all turns and breakouts. Extra reach can improve turning with an increased stroke length and leverage (turning moment), but there is less chance of putting the power in. Make sure the paddler isn't tending to use one or the other exclusively. He should know when to use one or the other. In analysing the coach has to decide on WHAT HAPPENS TO THE BOAT. Can the paddler make it turn quicker using the alternative? Is the line round the breakout improved using the alternative?

Dynamic Strokes

Dynamic strokes are essential for acceleration, control and speed. Static strokes provide control. This implies that if a static stroke is used there has to be a good reason. May be it could be replaced with a stroke that maintains motion. Static hang-on strokes can occur because a stroke has been started too early or not enough speed was reached before the stroke was planted. In both cases the stroke is inefficient and needs sorting out. The only way round this problem is to enquire as to why a paddler uses such a stroke. If there is an alternative the next step is to prove which technique is the better of the two. Good comparison means many split times and not only in the one circumstance.

Negative Strokes

Negative strokes have to be identified and questioned. They are definitely not planned and the reasons for getting in the situation where they were required should be faced to ensure an awareness of the necessary correct strokes. Paddler know a negative stroke when they do one but often conveniently forget their existence. Talking a paddler out of negative strokes is an excellent way of getting round the problem - but then find out why the paddler has used the stroke, before being critical.

Momentum

Directional change such as breakouts can be improved if the paddler concentrates on now lowering the speed of the boat and keeping the speed on right round the pole, more often than not on a wider, probably safer, route. This means that strokes used are all in pace with the motion - ie no static strokes at all. Some situations benefit from this approach. Others do not. Using momentum can be energy saving and where directional change is involved energy expenditure can be a maximum. To encourage paddlers to keep momentum work on the dynamic bow draw and telemark, using the accelerative pull out of the second half of the stroke.

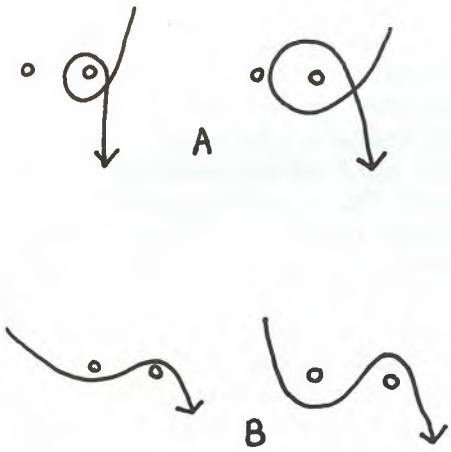
Rotational momentum being used is easy to spot. Does the boat hesitate in a full spin? If it does the paddler has failed to get out of the turn as quick as he could have done. Using rotational momentum on a full spin means critical judgements have to be made as and when to initiate the turn. Look for the paddler starting the turn too early or too late and ensure that his training covers a variety of approaches and water speeds.

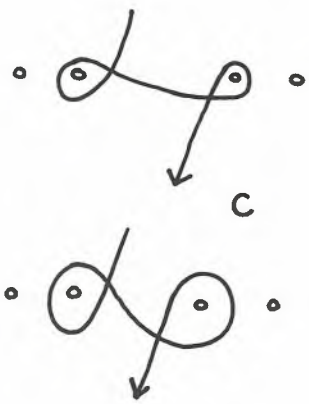
Momentum into fast current is often useful. Look out for the paddler who makes a cross using every ounce of stroke in the slack - the last two strong strokes in the slack ensure a good 'take off' speed. The cross may be to get right across to the other side or it may be to get to a forward down on the other side. In the latter case the upstream momentum in the slack is transferred to sideways motion by the current. The more upstream speed the quicker the boat will go.

Momentum out of fast current is kept on when there is an 'S' manoeuvre or breakout well in the slack, perhaps even on a boil. Momentum on the 'S' ensures little time on the gate line whereas in both breakout situations momentum ensures getting to the gate line quickly and in the last case with good control.

Routes

Short routes are desirable but not always the best solution. Route length generally gives one a good idea of a paddler's ability. If he needs space he'll take it. Short routes are not always seen in true perspective, ie how short they can be.





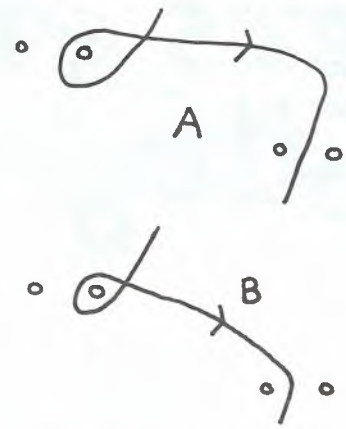
These comparisons indicate savings made.

Short routes require a greater deal of skill and effective strokework round the pole and whilst a short route may be desirable the paddler may not be able to cope with:

- holding the entry
- crossing the gate line safely
- getting a good exit

The route taken must be the fastest and safest the paddler can achieve. Tight, but slow routes can hinder.

Commitment to current



Route B may be required. To achieve it the boat has to be committed, with momentum, to the current at as much of an angle as the paddler can allow. Deliberately training this technique will give the paddler a better grasp of what he can manage. Variations in water are essential.

Approaches

On approach there are many instances when slowing the boat up helps. Good entry boat positioning and speed has to be correct. Stalling to get the speed right doesn't have to mean stopping paddling. Taking the pressure off paddling often stalls but in doing this control is sometimes reduced and strokework has to facilitate control.

Routes on entry and exit are partly defined by the position of gates before and after. On negotiating a gate the next gate is of EQUAL consideration as the gate being tackled. The route to a gate is determined by the path taken out of the previous gate.

Viewing a gate should start as soon as possible, even when negotiating the previous gate. Quite often a single pole is viewed quite deliverately, especially when reversing is involved. Headswitching disorientates and should only be done when safe.

NEXT ISSUE: COMPETITION STRATEGIES

TIMES PAST

Jennifer Munro is fighting a wonderful battle to put canoe slalom on the pages of all our national newspapers and through her good offices in local papers too. However, where has the sport been? It was pointed out to me that the Times Newspaper 24 April 1954, the BIRTH day of Alan Edge, carried a six inch column on page two from the Times canoeing correspondent outlining events at the Shepperton Canoe Slalom. This article included the results which incidently placed Paul Farrant winning the men's class and his sister the ladies'. The standard of men's competition has improved since then, however, as Miss Farrant also came second in the men's kayak event.

ROMANCE

The more observant amongst us might notice that Mandy Wragg our own star from Yorkshire TV, and personal friend of le Pontiff, is sporting a diamond ring on the third finger of her left hand. Congratulations to Alan Edge, our ladies coach and World Team Champion, 1979, on such a propitious occasion.

Congratulations, too, from yours truly to my old friend 'Pud' Wilson, a paddler of sixteen years standing from Southport swimming baths to the icy rivers of Alaska and back. His wife to be, Jane, is beautiful and far too good for it.

PHYSIOLOGICAL FREAK

Eric Jamieson, the front half of our magical C2 crew Jamieson/Williams, has come to the attention of specialist American physiologists. After much self-advertisement as Mr Body Beautiful a strange lump was noticed on his right shoulder. Body Beautiful described this as a muscle attributed to intensive training, looking in the mirror and flexing a lot. However, the experts cannot reach any agreement, the official comment is that Eric is an extremely unusual specimen. As an aside to our 'Romantic' comment let us just say that Eric's Mum, Joyce was very pleased Eric had someone to look after him on Joyce and Robert's recent holiday to Yugoslavia.

NEV

A word of warning to the irreplaceable members of the executive committee. Neville Unwin hinted that he wanted to do more canoeing and retire from the Slalom Exec. It is only after massive pressure and a broken arm that he continues to work indefatigably for the good of the sport, organising judges, selling Feedbacks and contributing greatly to slalom meetings for which instead of 'Any Other Business' the agenda reads "Nev's Half Hour".

THE SHAPE OF THINGS TO COME

It has to be a Scot to add yet another dimension to slalom canoeing. Named after a flower, this C2 World Team Champion and his unknown partner from south of the border were seen paddling at Fairnilee on their second runs in the C2 event with a Sony Walkman blaring out Michael Jackson. It could be a thing of the future as they went three seconds quicker and produced a clear run. Word from the Executive on this point is that we can expect good music and a lively commentary at all premier and selected Division One events next year.

Publicity

"YOU AND THE PRESS" is a most invaluable booklet produced by the Central Council for Physical Recreation (CCPR). It has been sent to club secretaries, not to club publicity officers by mistake.

Get it - read it - it makes good sense and it takes two minutes.

Brevity is what is wanted and this should be married to clarity. The advice is basic and practical.

Please read page 7 "Writing Copy and Press Releases". Then follow the advice!

The work which goes to the press must be 'polished'. Be critical of your own work and also accept constructive criticism. It's the only way to learn and improve.

"GIVE CANOEING A CHANCE" - much work and money has gone into this leaflet designed by Tony Tickle. Two copies have been sent out to club secretaries. I hope to get a press release and some more leaflets together for Publicity Officers to send out with a few words of their own to the local press. On paper there's no problem, in reality ...

THE PUBLICITY TROPHY is to be a club trophy. I hope it will be presented on a suitable occasion, perhaps at the AGM. It is to go to the club with the best local press coverage.

The club with the best balance of hyperbole and fact should win. At the moment the prize is going to Bolton Canoe Club. Please let me have your press clippings. Press reports on slalom events are more useful to me than results.

To all those who are beavering away - well done. To the others - get writing or telephoning - get publicity minded.

Jennifer Munro

Copies of either booklet can be obtained from 3 Moreton Avenue, Harpenden, Herts.

Media Publicity

BBC 1 are to broadcast Paddles Up, a programme featuring top national and international paddlers at Llangollen on Wednesday evenings at 6.55pm throughout July. There is also a proposal to record a similar programme during the Fosters week for transmission in the winter.

The Manchester Newsletter reports that Maurice Rothwell may appear on BBC 1 on Friday, 10 June at 10.15 in a programme about recreational development of the River Irwell.

Meanwhile, Radio 2 in April featured Richard Fox as part of a programme on Watersports Champions. Included in the programme was the sound of Martyn Hedges capsizing the presenter on Hambleden Weir. He liked it so much that they did it again.

Stolen

At Richmond Town Slalom, on Saturday, 16 April

1 pair of wooden Prijon paddles 206cm LEFT, metal tipped, in good condition with the name John Glendening on the back of one of the blades
2 pairs of new Freeblades
1 pair of new Hydros
1 red and black neoprene spraydeck

were also stolen at this event.

If you have any information about the thefts, or should anybody try to sell you this equipment, please contact John Glendening at Flat A, 55 Clarkegrove Road, Sheffield 10, and Richmond Police Station, North Yorks.

MERANO '83

Great Britain Team Selection

For Liptovsky Mikulas 20-22 May and Merano 16-19 June

General Manager: Albert Woods
Manager: Brian James
Team Coach: John Macleod
Physio: Carol Killip

K1 Men

Coach: Hugh Mantle

Milo Duffek

RICHARD FOX - Age 23, Stafford & Stone

Scraped into team for 4th World Championship under pressure to retain fast and clean image at Merano. Beat the Austrians at Lofer in May, will be faster in June.

PAUL McCONKEY - Age 26, Stafford & Stone

Explosive material from Stone. Placed 14th at Merano Pre-Worlds, now paddling more consistently than ever with only 5 penalties from two selection races. Sometimes beats Fox in training.

MERANO ITALIA
CAMPIONATI MONDIALI DI CANOA

11-19·VI
1983
CONI ICF FICK

KANU — WELTMEISTERSCHAFTEN
SÜDTIROL MERAN

JIM DOLAN - Age 26, Manchester

Repeated his '81 selection with a cool 2nd place at Bala. A strong, reliable paddler with great experience now looking to improve on a 10th place at Bala '81. Argues with the English.

Tony Tickle

Keith Williams

ROGER MANWARING - Age 30, Matlock

Makes the team on this, his third attempt for a World Championship place. Was 6th at Tacen last season in the Europa Cup. Now training at Matlock. Looks younger than he is.

K1 Ladies

Coach: Alan Edge

SUE GARRIOCK - Age 19, Stafford & Stone

Won Grandtully with a determined clear run. Has gone from strength to strength since Bala '81. Now training full time in Stone and looking for a medal in her second World Champs.

JANE RODERICK - Age 20, Stafford & Stone

Recovered from a bad result at Grandtully, to take first place at Bala. Her smooth technique and precision drifting suit the Merano course. Like Sue, Jane is training full time in Stone.

LIZ SHARMAN - Age 24, Bury St Edmunds

Suffered minor setbacks at the selection races but will be smoking by the Worlds. Undefeated in Europe last season. Trains on a duckpond in Suffolk.

Keith Williams

GAIL ALLEN - Age 18, Ambleside

A new member of the team for Merano. Her hard work over the winter was rewarded with consistent results in the selection events. Thoroughly determined and still a youth, Gail has to be a hope for the future.

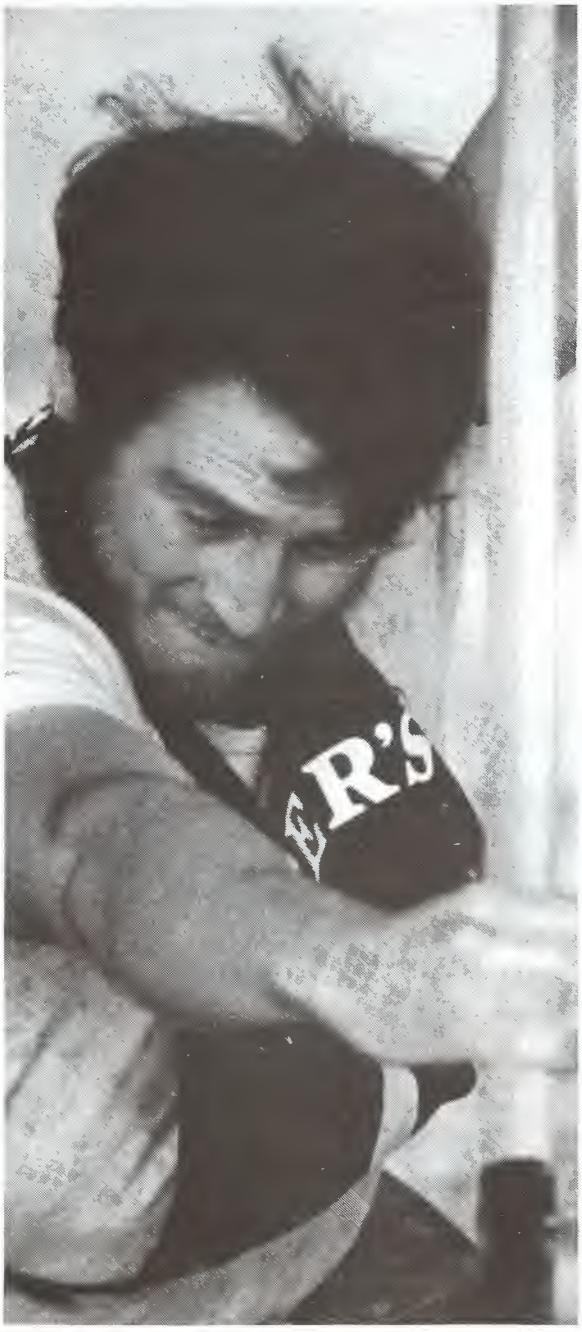
Tony Tickle

C1 Men

Coach: George Radford

MARTYN HEDGES - Age 26, Windsor
Team Captain

Big Bushy is still No. 1 in Britain by a long way but he will face much stiffer opposition in Merano. Now concentrating wholly on slalom he stands more chance than ever of beating the Yanks, but will he shave his beard for the big race?



by Keith Williams

by Tony Tickle

JEZ TAYLOR - Age 25, Windsor

Third in both selection events Jez has been training full time since [illegible] summer and is still improving. Drives a Morris Minor but can go faster. Writes for a famous magazine and likes ballroom dancing.

PETE KEANE - Age 28, Luton

Back for his fourth Worlds having missed the Europa Cup last season. An exciting paddler to watch at his best, and looking more determined to better his 7th placings at Jonquiere and Bala.

PETE BELL - Age 23, Stafford & Stone

Flew to a second place at Grandtully with a brilliant run and overcame nerves at Bala to make the team for the first time. Paddles Davy Hearn's old boat and switches sides.

by Keith Williams

C2 Men

Coach: Pat Thorn

JAMIESON (22)/WILLIAMS (23)

The biggest and strongest boys on the team. In the race for gold at Merano with the Americans, Swiss and Germans. Looking more consistent this season and likely to better their form of last year.

JOCE (26)/OWEN (26)

Like Eric Jamieson and Rob Williams Bob and Bob go to Merano as reigning World Champions in C2 team. This time they will be looking for a higher placing in the individual event too.

SMITH (26)/SMITH (26) - Urchins

Merano will be the first World Championship for this crew. They gained valuable experience last season in the Europa Cup and showed good form at Bala in April in the Team Event with the other two crews.

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* SMALL ADS *
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Want to sell your boat, paddle or body?
Tel: 0785 817016 for details.

GREAT BRITAIN 'B' TEAM
Bourg St Maurice - 28/29 May

Kl MEN	Kl LADIES
Russ Smith	Jane Wilson
Andy Gladwin	Sue Ward
Graham Gladwin	
Steve Parsonage	
Mike Druce	Cl
Roy Garriock	Rob Black

Manager: Roger Annan or Alan Kennedy
Coach: Albert Kerr

YOUTH 'A' TEAM - EUROPEAN YOUTH CHAMPS
Spittal - 16/17 July

Kl MEN	Kl LADIES
Rob Welsh	Clare Pallett
Rob Wright	Karen Davies
Chris Arrowsmith	Vember Mortlock
Matthew Copeland	
Chris Nelson	Cl
Peter Oldfield	Martin Deacon
	Nick Porucznik
	Colin Brown

Manager: Norah Small
Coaches: Len Smith, Neil Baxter, Julia Harling (to be confirmed)
Martyn Hedges

Tony Tickle

Tony Tickle

YOUTH 'B' TEAM
Seo D'Urgell-Sort - 9/10 July

Kl MEN	Kl LADIES
R Jones	I Grant
D Crosby	T Arrowsmith
I Raspin	P Briscoe
C Peek	
S Green	
R Wheadon	
A Baldwin	
N Harrison	
I Simpson	
I McKay	
A Grant	Cl
A Curry	S Ward

Manager: D Stanley
Coaches: A Welsh, J Jayes, L Savage

Congratulations to all those selected. Reports on each trip will appear in the next issue.

The Science of Slalom-2

Physiological Bases of Slalom Paddling

ENERGY TRANSFER

The digestive, circulatory and respiration systems of the body combine to ensure an adequate supply of appropriate substrates from which to synthesize ATP in the working muscle. We need to consider the contribution of each of these systems in the transport of energy to the muscle.

METABOLISM AND ENERGY TRANSPORT

Figure 2 is a diagrammatic representation of the 'flow' system which results in the end products of the breakdown of food to energy arriving at the appropriate working or storing site. This breakdown is called catabolism. The other aspect of metabolism namely anabolism is the building of cells in muscle, bone and other tissues, the synthesis of hormones, enzymes and plasma protein. (Its relationship to the energy transport system is also shown in Figure 2.)

CARBOHYDRATE DIGESTION

The useable parts of any carbohydrates that we eat are progressively reduced to simpler forms of sugar by the action of enzymes in the digestive tract. These sugars are absorbed into the blood stream. It is possible for specially prepared 'glucose' rich food 'drinks' to provide glucose in the blood stream in less than an hour. Stodgy, 'starchy' carbohydrate meals require two or three hours to reach the blood and affect glucose levels.

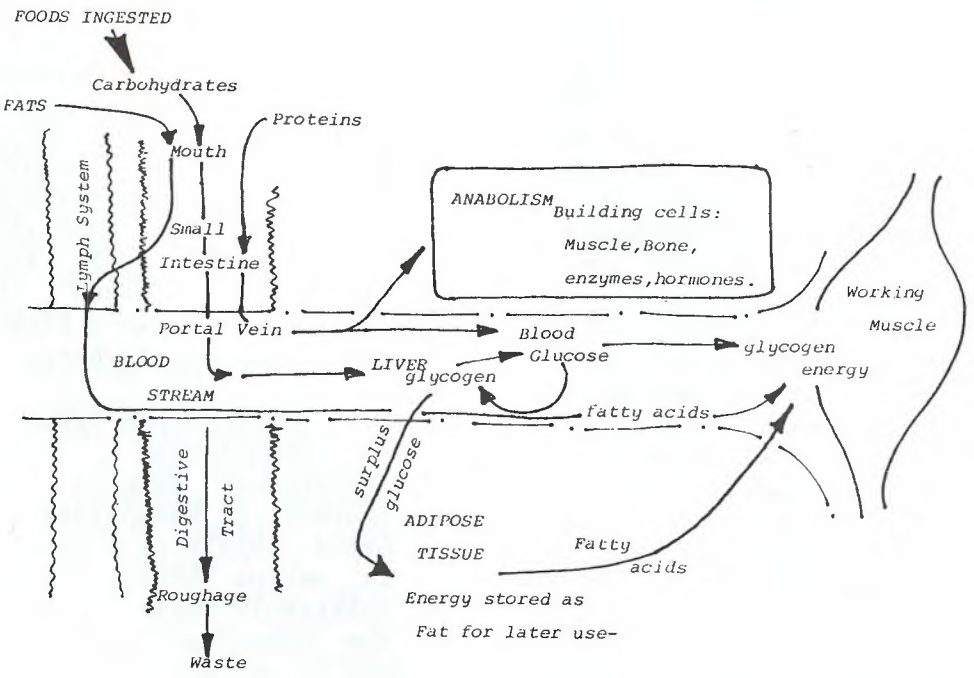

Figure 2 The Transport of energy to the Muscle

The liver acts both as a producer and store for glucose. The first requirement is to maintain a blood glucose level appropriate for the proper functioning of the brain. The brain cannot function when blood glucose levels fall. Blood glucose levels are depleted by muscular activity and as glycogen and glucose are used (remember anaerobically or to provide a substrate for aerobic work) the liver must release more into the blood. When the body is not working hard and the supply of glucose from food is greater than the demand for energy to work or support life the surplus is converted into adipose tissue for storing fats. Remember 3,500 calories of unused energy can convert to one pound of fat!

FATS

The fats we eat are an important source of energy for muscle activity. Fats are made up of glycerol and fatty acids and these find their way into the blood stream via the lymph system. Once in the blood stream they can add to the stores of freely available energy in the adipose tissue. Fatty acids are an important substrate for aerobic activity but it is unlikely that this route for supplying energy is directly involved during the course of a single slalom run. Nevertheless integration of the systems must always be borne in mind for during recovery following a run these processes will certainly be used. About 60% of the energy needed for the work involved in an hour of sub maximal training will come from fatty acids. Short, maximal efforts will rely on the carbohydrates as the primary source of energy for exercise.

PROTEINS

It is possible for the body to use the amino acids obtained from the breakdown of proteins to ´fuel´ activity. Under normal conditions this does not occur. These acids are the essential building blocks for new tissue. When any training is stimulating growth an additional demand for protein exists above that normally required for repair and replacement. Diets must allow for this building work.

RESPIRATION

The blood stream absorbs and transports to the working muscle not only the glucose and fatty acids but also provides the link between the ´respiration´ that takes place in an individual cell and the ´respiration´ that we normally think of in terms of breathing in and out.

RESPIRATION IN THE CELL

Oxygen in the blood stream is under pressure as it passes through the capillaries in the muscle it is in close proximity to the working muscle cells. Within these cells oxygen is constantly being used in aerobic metabolism. As oxygen is used then the partial pressure of oxygen in the cell is lowered and the blood passes the oxygen over to the cell in order to restore the balance. Such a balance is never achieved as some oxygen is always being used. In the muscle myoglobin acts as a very temporary oxygen store which can provide oxygen when a contraction temporarily reduces blood flow to the muscle (ischaemia). When the muscle relaxes, the blood flows again and the myoglobin ´recharges´.

The oxygen in the blood is carried by haemoglobin. At rest, the difference between the oxygen content of haemoglobin in arterial blood supplying a muscle and that in venous blood leaving it is relatively small. Less than 25% of the oxygen available may be taken out of the blood. In hard exercise almost all, if not completely all, of the oxygen in the blood will be used up by the working muscle.

Three factors influence this. They are:-

1) the number of capillaries in use increases - this effectively reduces the speed of flow of blood over the tissue and this also leads to

2) a greater surface area of blood in contact with the tissues

3) The working cells are using oxygen very rapidly and the partial pressure of oxygen in the cells falls almost to zero. The rate of gas exchange is directly affected by the difference in partial pressures in the cell and around it. As the difference gets bigger (as the internal pressure drops) the rate of exchange increases.

There is also a slight increase in the rate of exchange associated with the increase in temperature in the working muscle.

CARBON DIOXIDE

Having given up its oxygen to the muscle the blood has the capacity to pick up the by products of work. The most important of these is carbon dioxide.

CO_2 levels in the blood are the main trigger for many of the respiratory reactions during and after exercise.

CO_2 levels in the cell rise above the level in the blood the CO is forced across the cell membranes to be carried away by the haemoglobin. The other by products of intense activity - notably lactic acid (which is the result of the anaerobic system producing more pyruvic acid than can be used in the aerobic system) - are freely diffusible in the body. Blood lactate levels quite accurately reflect the level of lactate in the tissue.

RESPIRATION - INSPIRATION TO CIRCULATION

Figures 3(a) and 3(b) represent the transport system for oxygen and carbon dioxide. Muscular contractions produce enlargements of the rib cage which, with the tension in the diaphragm pull air into the lungs. Inspired air contains about 21% O_2 . On reaching the lungs some of the O_2 comes into contact with the membranes of the capillaries and a transfer can take place. CO_2 in the blood is effectively exchanged for 'fresh' supplies of 0 . The expired air contains between 15-18% O_2 (hence the viability of mouth to mouth resuscitation). The % of O_2 falls to the lower figure in a fit person who is working hard.

Blood leaving the lungs is now enriched with O_2 . It enters the left side of the heart to be pumped to the lower chamber (left ventricle) and then around the body. As the blood leaves the heart via the aorta it is under considerable pressure. Successive heart beats pump the blood around the arteries to the brain and active tissues.

The process of diffusion (respiration) in the muscle, discussed above, results in the reduction of O_2 and the increase in CO_2 in the blood. This returning blood is not under the same pressure and the internal walls of the veins are equipped with tiny cusps which work as one way valves. As muscles contract the only direction that blood can pass along the veins is towards the heart. This muscle pumping action is essential for good circulation and partial explains the value of 'working' during 'recovery' in training. Having returned to the heart the blood is pumped back to the lungs again to complete the cycle.

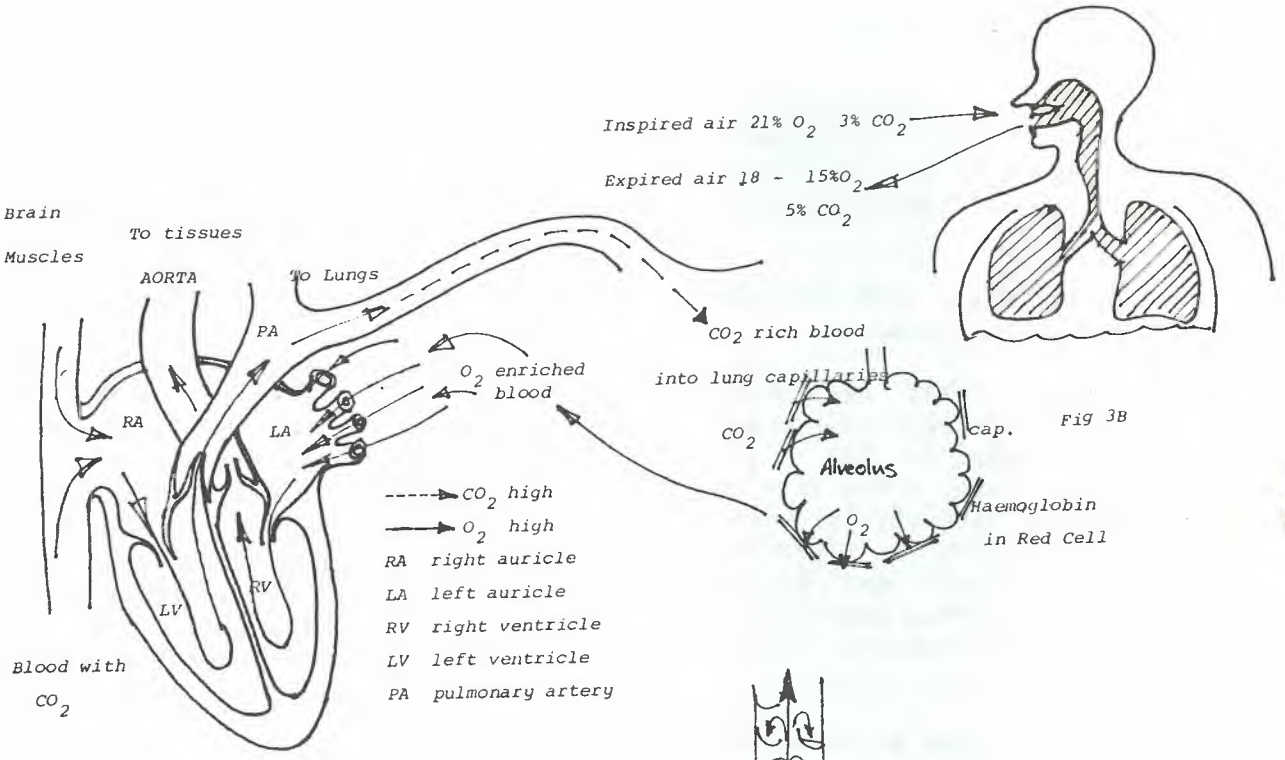

Fig 3B

Fig.3A Circulation around the Heart.

Fig.3C Vein cross section

SUMMARY

Digestion, respiration and circulation process integrate to supply the muscle tissue with usable energy. The energy transfer in the working muscle is both aerobic and anaerobic. The proportion of one to the other depends on the intensity and duration of the activity. Working always depletes the anaerobic stores which must be replaced as soon as the aerobic system is not working maximally to maintain the activity. Muscles fibre types relate to their ability to perform anaerobic (white/fast) or aerobic (red/slow) work. The proportion of white to red fibres on a muscle indicates how efficient that muscle might be performing a particular sort of work.

The next consideration is the extent and means by which we can affect those processes which are relevant for slalom. I will try to present that information next time.

If you have found this brief account of the bases of physical performance interesting but not sufficient detailed and want a good text, the most extensive I have found is :-

Samson Wright´s Applied Physiology by Cyril Keele, Eric Neill and Norman Joels (published by Oxford University Press) 1982.

It costs 15 (soft cover) and is a very detailed 620 page volume for those who already knew what I was writing about but who might want a reference text.

Others should look at Mathews and Fox (1980 edition) Applied Physiology for Sport and Physical Education.

John Fazey

FEEDBACK LETTERS

Catch 22

Dear Feedback, I wish to bring to your attention some decisions of the Jury at Hambleden Div 3 slalom on 9/10 April,

An incident in which I was involved was the refusal to grant a rerun after we had gone to the assistance of another crew which had capsized.

The crew capsized close in front of us in the main jet, we immediately went to their assistance, there being no other boats around. We were able to give immediate moral support to this crew and assisted in freeing one of the crew whose foot had caught as be bailed out. We were well clear of the main flow and progressing towards the bank when a 'Rescue Boat' finally arrived.

The Jury's decision to refuse a rerun introduces a Catch 22 situation, where not to rescue results in disqualification and rescuing loses you the run.

Of two previous requests for reruns for rescues, one had been upheld and the other rejected as being "not necessary". How is a competitor in the middle of a run supposed to decide when a rescue is not necessary? The safety of any fellow competitor is the most important point. To put someone elses life in danger by refusing to rescue is very dangerous as any capsize in cold water could be fatal. The British Journal of Sports Medicine state that winter capsizes result in 65% had difficulties with breathing, 21% admitted extreme alarm and 6% exhibited fainting. Add to this the effort of competing.

Robin Stonestreet
Leeds

Starting Young

Dear Feedback, In Issue 3, Martyn Hedges' article on C1 is misleading, I feel. He makes the case for K1's switching over to C1 or C2. He thereby subtly implies that the canoe classes are second class events. What really needs to happen in Britain is for more people to start out in the canoe classes and stay there. Martyn warns about not starting too young for fear of harming the body. I first heard that a decade ago from the West Germans. However, we have not found that to be true. Our C1's start young (12-13) and train seriously from that age. In preparing my new book one thing that leaps out of the 11 case studies is that the best people usually start very young in each class, although it is perfectly all right for them to paddle all classes (in fact, I think that's advisable). Yet they usually specialise quite early (14-15) and can expect to have top results a few years later. Britain is a good kayaking country, but much needs to be done in canoes. It has to start with an attitude that canoes are a separate, yet equally legitimate event. Interestingly, that has always been the case in this country, since we have a strong tradition of open canoeing, which I guess you don't have so much in Britain.

Bill Endicott
Washington DC, USA

Organised Practice

Dear Feedback, First a personal note, although I regret the need for the canoeist who wishes to keep informed to buy three magazines, I would like to thank you for providing an open contact between paddlers, and paddlers and the Exec. Furthermore may we hope the current open dialogue between paddler and Exec will continue.

I am writing to you on behalf of the Manchester Canoe Club Sub-Committee concerning the February article 'Organisers Conference'

The Organisers Conference has produced a number of objectives which I am sure we would all like to see. Taking just one, the opportunity for different ability paddlers to have reasonable access to the course, we believe the only way to provide this is to have better organised practice. Writing a timetable does not make best use of the time and can penalise late arrivals. With closely controlled practice of complete runs, sufficient time can be allowed between paddlers of different ability. On most courses this requires at least three people controlling Start, Congestion Point, and Finish. These posts should be staffed for at least three hours on Saturday morning, two hours Saturday evening and two hours Sunday morning. This will require more officials, in fact practically all the objectives will require more officials.

As the Slalom AGM rejected efforts by Chester and Manchester Canoe Clubs to provide more officials, may we ask the Exec to monitor all slaloms, eg by the number of judges entries, by the chairman of the jury reports and by any paddler writing to the Exec concerning any particular slalom organisation, and to produce for the next Slalom AGM a formula for making these worthwhile objectives possible.

R Bradshaw
MCC Competition Sub-Committee
Organiser

Ed.: The problem is obviously related to size of entry and the Executive has recommended that organisers of novice events should limit the entry to allow more practice time. Organisers of large events are recommended to design courses avoiding tight clusters of gates where congestion will occur during free practice.

Numb Bum Brigade

Dear Feedback, Many readers will be aware of the action taken by certain judges at Grandtully Pl Slalom on Sunday 3 April this year. For those who are not, I shall outline this action. During the first run of the Men's Premier Team event, many of the judges stopped judging for a period of 15 minutes. This was done as a protest against the appalling conditions endured by most of the judges on the previous day. Many had been left to judge for over 4 hours without a break, in what at times were verging upon blizzard conditions. From my own experiences, I know that this led to an extremely low standard of judging.

On discussing the problem with other judges it was felt that the conditions experienced by judges at many slaloms were leading to a great decline in the standards of judging. A declaration was posted at Grandtully giving people the chance to show their support for this view. The fact that those who signed it include 2 section judges, a jury member, and the organiser of the Grandtully event; a member of the ICF, as well as many judges and paddlers indicates that there is much agreement on this view.

As stated in a letter to the event organiser, the purpose of this action was not to disrupt the event, but to provoke discussion and action on the raising of judging conditions. To this end it was immediately very successful, as the question over the judges was the main talking point around the Grandtully site for the rest of the event. However, it is essential that the results of these discussions are converted into useful changes. It is up to the competition organisers to ensure that this happens.

My own view is that the maximum period of time that anyone should

be expected to judge continuously is 1½ hours. After this time, even

in good weather conditions, concentration is lost, leading to a marked increase in the number of judging errors.

In order to make such time limitations feasible, it is necessary to increase the popularity of judging, consequently increasing the number of judges available. At present, the only incentive for judging is an entry into the judges event. However, the runs for this event are frequently at inconsiderate and anti-social times. Furthermore, a person who has just been judging for 3 or 4 hours is usually too cold to be able to practice on the course at the end of the day.

Some of the judging problems at events are caused by the non-attendance of people who have entered the judges event. Frequently this is not surprising since if a prospective judge receives their start list and sees that there are many empty spaces on the judging rota, they will realise that they will probably be expected to judge for unreasonable lengths of time, and will possibly decide not to attend.

One judging error, made by a judge who has been on duty for an excessive period of time, can completely ruin the promotion or team selection chances of any paddler at any level of competition. At a time when there is much discussion upon the number of decimal places to which event times should be taken, and following the introduction of radio communication between some section and gate judges, I feel that it is much more important to solve the more fundamental judging problems.

John Glendening
Sheffield

Bias

Dear Feedback, Organisers, did you notice that the Canadian Divisions are getting bigger? Just in case you are not aware of the fact take a look at the ranking list some time.

Canadians pay the same money as kayaks so if you are running a restricted event don't be biased towards K1's. At Premier and Division One events the Canadian Divisions sometimes outnumber the Ladies in Senior and Youth, so why not give the same number of prizes?

Don't be biased towards K1's because you can't paddle Canadian, dip your hands into those levies and give them some incentive to go on further!

Yours, from the HUB CAP

Dear Agony Aunty, Please find enclosed a £5 donation for the Premier Clothes Line Award 1983, to be given to the family who devise the best way to tie 1, 2, 3 and even 4 canoes and paddles on their car without argument.

Yours in hope, A Mum

Even FAC needs help on this one. His paddles flew off on the M6 coming back from the Washburn. He was on a clear run too - Ed.

HAMBLEDEN DIVISION 3 SLALOM 9/10.4.83

The published results for the Hambleden Division 3 Slalom are substantially incorrect. The correct percentages are between 4 and 10.5% worse than shown. To obtain the correct percentage, the best total rounded to nearest second (see Yearbook p27) must be divided by 359 (not 381.4 as shown on published results). For example:

Best total 259.8 = 260 % = 72.4
(published as 68.1)
Best total 350.4 = 350 % = 97.5
(published as 91.9)
Best total 400.7 = 401 % = 111.7
(published as 105.1)
Best total 599.0 % = 166.9
(published as 157.1)

Events round-up

With the domestic season well under way there is plenty of indication that more people are taking to the sport. The number of competitive runs taken at Novice events is up 45% on this time last year with over 1000 runs having been completed at the end of April. Many novices have competed under testing conditions particularly at Ironbridge and Stratford. Despite swims in flooded waters paddlers appear to be enjoying themselves and going back for more.

The bulk of events for divisions 2, 3, and 4 are yet to come in this year's calender and because of this numbers are slightly down. Conditions on the weirs have improved in some respects with high water at Hambleden Division 3 and Old Windsor Division 2 providing more excitement for paddlers than the earlier Division 1 event. With many events on the Tryweryn to follow throughout the summer paddlers in the intermediate divisions should have more opportunity to compete on good water.

At Premier and Division 1 level four events have already been contested and it is interesting to note that although the places at the very top have changed little the intensity of competition below is verocious. At the Washborn, or was it Washout, slalom only five seconds spanned 17 places in Divison 1, while at Bala the fi three Premier Ladies finished within 14 hundreths of a second.

Judges have again been stretched to limits of reasonable human endurance and patience but the low mumber of protests pays testimony to their efficiency as well as the value paddlers place on a 50p piece.

In terms of event organisation the trend is for clubs to be straining to cope with the basic needs of the competitor, i.e. course erection, timing, judging: and as such unable to give enough attention to peripheral factors like course maintenance, organised practice, pre-event publicity, and announcing scores to paddlers and public.

26th/27th March, 1983
SYMONDS YAT
Div. 2

K1 Men Div. 2			
1	G. Lodge	Gloucester	164
2	R. Foulkes	Warren	164
3	J. Lyons	Brum. U.	168
K1 Ladies Div. 2			
1	S. Haworth	Worcester	209
2	C. Dallimore	Cardiff	229
3	K. Ceney	Dudley	246
C1 Div. 2			
1	J. Sibley	Windsor	229
2	A. Warden	Bath U.	253
3	P. Richards	Chalfont	268
C2 Div. 2			
1	Arrowsmith/Brain	S.O.A.K.	205
2	Phillips/Lennon	U.M.I.O.T.	401
3	Parker/Thompson	Old Wallis	431
First Judge M. Mitchell			148
First Div. 2 Team Lyons/Crovier/Johnson			

26th/27th March
MIDDLETON IN TEESDALE SLALOM
Div. 3

Mens Div. 3 K1			
1	S. Wallace (J)	Hadleigh	145
2	K. Parker	Grimsby	150
3	M. Wilkinson	Tees	151
Ladies Div. 3			
1	R. Smith (Y)	Tees	174
2	L. Badger (Y)	Longridge	184
3	R. Dumper (Y)	Forth	191
C1			
1	M. Hansill	Tees	176
2	C. Payne	Nottingham	216
C2			
1	Edwards/Stonestreet		206
2	Graves/Graves		259
Div. 3 Team			
1	Bland/Conyers/Ward		216
2	Wilkinson/Nelson/Smith		227
3	Cunningham/Livesey/Pinkney		234
First Judge P. Cant			141

2nd/3rd April, 1983
GRANDTULLY
Premier & 1st Div.

Mens Premier				
1	R. Fox	Staffs & Stone	190.8	100%
2	P. McCondkey	Staffs & Stone	199.8	104.7%
3	R. Mainwaring	R.A.F.	200.1	104.8%
Ladies Premier				
1	S. Garriock	Ribble	223.4	117.1%
2	L. Sharman	Bury St. Ed.	223.9	117.3%
3	G. Allen	Ambleside	232.6	121.9%
C1				
1	M. Hedges	Windsor	216.7	113.5%
2	P. Bell	Staffs & Stone	232.4	121.7%
3	J. Taylor	Windsor	234.8	123.0%
C2				
1	Jamieson-Williams	Wey	235.9	123.6%
2	Joce-Owen	Paddington	268.5	140.7%
3	Smith-Smith	Urchins	277.6	145.5%
Div. 1 Men				
1	R. Garriock	Ribble	208.1	
2	P. MacFarlane	Oxford	219.1	
3	K. Hardy	Shepperton	219.6	
Div. 1 Ladies				
1	P. Birscoe	Telford	280.7	
2	T. Arrowsmith	Kingston	290.6	
3	D. Stapleford	Nottingham	310.7	
First Premier Youth	R. Welsh, Chester			

First Premier Youth R. Welsh, Chester
First Div. One Youth R. Jones, Manchester
First Div. One Junior I. Raspin, Tees

First Premier Team
Fox/Berwick/McConkey Pyranha

First Div. 1 Team
James/Bowles/Green Manchester

9th/10th April, 1983
HAMBLEDON
Div. 3

1	C. Blanley	J.M.C.	236.6
2	E. Sutherland	A.C.U.	237.5
3	T. Harman		241.3

Ladies

1	Smith	Bromley	460.6
2	Eyre	Windsor	546.2
3	Cordingley	W.D.C.C.	651.6

C1

1	hall	Broadland	354.5
2	Talbert	Hemel hemp.	404.3

C2

1	Saunders/Ano	Reigate	486.2
2	Shearer/Ano	Hemel Hemp	679.6

Teams

1	Gloucester	402.8
2	Colchester	467.2
3	Mayland	5.19.3

First Judge A. Heaume 179.3

16th/17th April, 1983
IRONBRIDGE
Div. 4 & Novice

Novice K1 Men

1	M. Clayton	Trent Poly	138
2	S. Chamberlain (J)	CYP	141
3	P. Witchell (Y)	JWC	141

K1 Ladies

1	B. Cooper	Aber Univ.	181
2	C. Mackey	Ibstock	182
3	J. Whitmore	Anker Valley	206

C1

1	D. Gribbin (Y)	Hemel Hemp.	151
2	A. Leafe	Swansea Univ.	167
3	L. King	Lufbra	182

C2
1

1	Wilson/Wright	Dudley	166
2	Allcock/Gibbons	Willenhall	204
3	Barnes/Brooks (J)	JWC	214

Novice Team
1 Chamberlain/Chamberlain/Trigg

Div. 4 K1 Men

1	C. Dudsgate	Swansea Univ.	119
2	M. Howells	Haffield Poly	125
	A. Jones (J)	Bala	125

K1 Ladies

1	A. Hall	Chester	140
2	A. Owen (J)	Dudley	146
3	M. Edwards (J)	Bala	160

C1

1	M. Stephenson	Rich/les	151
2	N. Coller	Leicestershire	154
3	Phillips	Umist	165

C2

1	Smith/Geddes	Battersea	151

Div. 4 Team
1 McDonnell/Ellis/Wade

Judges

1	A. heaume	Viking	106

23rd/24th April, 1983
TRYWERYN

Mens Premier

1	R. Fox	Staffs & Stone	194.51	100%
2	J. Dolan		206.05	105.9%
3	G. Gladwin	Staffs & Stone	207.24	106.5%
1	Youth C. Nelson		222.45	114.3%

Ladies Premier

1	J. Roderick	Staffs & Stone	228.81	117.6%
2	S. Garriock		228.89	117.6%
3	L. Sharman	Bury St. E.	228.95	117.7%

C1

1	M. Hedges	Windsor	217.8	111.9%
2	P. Keane		225.13	115.7%
3	J. Taylor		231.29	118.9%

C2

1	Jamieson/Williams	Wey	247.61	127.3%
2	Owen/Joyce	Paddignton	263.8	135.6%
3	Smith/Smith	Urchins	286.17	147.1%

First Open Div. 1 Man R. Garriock

First Open Div. 1 Ladie C. Arrowsmith

23rd/24th April, 1983
SHARNBROOK
Div. 4

Mens K1

1	D. Beagle	Luton
2	E. Smale	St. Albans
3	G. Carroll	Viking

Ladies K1

1	J. Smith	Manchester
2	S. Rackam	St. Albans
3	S. Janes	St. Albans

C1

1	D. Gribbin	Hemel Hemp.
2	A. Sutherland	St. Albans
3	T. Ward	Marlow

Team
Vessey/Vessey/Smale

7th May, 1983
WASHBURN
Premier Results (Full results to follow)

Mens Premier

1	R. Fox	Staffs & Stone	190.3	100%
2	R. Mainwaring	R.A.F.	195.56	102.7%
3	P. McConkey	Staffs & Stone	195.71	102.7%
1	Youth K1 R. Welsh		208.99	109.7%

Ladies Premier

1	L. Sharman	Bury St. Ed.	206.98	108.7%
2	J. Wilson		215.87	113.4%
3	J. Roderick	Staffs & Stone	219.8	115.4%

C1

1	P. Keane		213.13	111.9%
2	P. Bell	Staffs & Stone	214.44	112.6%
3	R. Doman		221.66	116.4%

C2

1	Jamieson/Williams	Wey	224.88	118.1%
2	Smith/Smith		242.29	127.2%
3	Walling/Ambridge		254.22	133.7%

Div. 1 K1 Men

1	M. Marks	Matlock	210.32	110.5%
2	R. Jones (Y)	Manchester	210.82	110.8%
3	P. Boures	Manchester	211.65	111.2%

Div. 1 Ladies

1	C. Arrowsmith (Y)	Kingston H.S.	252.16	132.5%

Premier Teams
Mens K1

1	Druce Smith	Gladwin

Ladies K1

1 Garriock/Sharman/Roderick

Div. 1 K1
1 Flanagan/Smith/Grundy

7th/8th May, 1983
OLD WINDSOR
Div. 2

K1 Men Div. 2

1	R. Waters	Windsor	158
2	J. Woodcock	Shepperton	162
3	J. Cotfield	Naughty Boys	167

Ladies

1	H. Williams	Millbrook	223
2	S. Bu-Lock	Manchester	243
3	K. Caney	Dudley	253

C1

1	J. Edwards	Bedford	193
2	D. Rolands	Chalfont	200
3	R. Richards	Chlfont	208

C2

1	Hanhan/Warden	Garstang	228
2	Rolands/England	Chalfont	241
3	Saunders/Terry		251

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