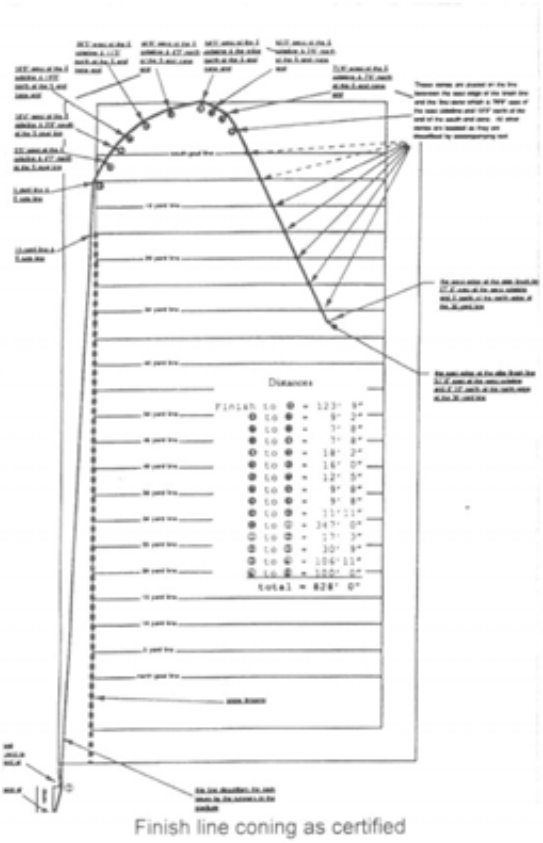
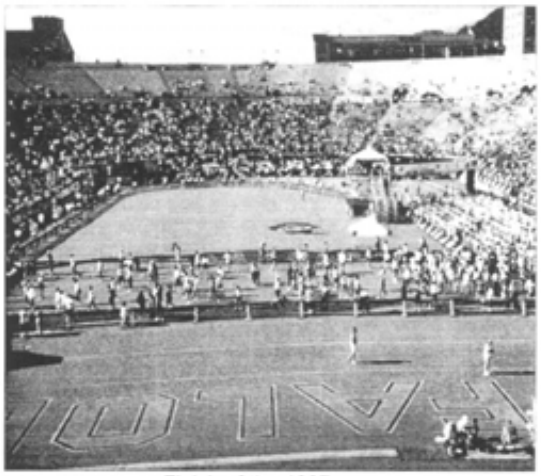
# Measurement News

July 1997 Issue #84




Finish line coning as certified



Finish of the 1997 race

**THEORY AND REALITY AT BOLDER BOULDER**

The route of the current Bolder Boulder 10 km course was last measured in 1994, and is certified as USATF Certified Course CO 94012 DP.

The course was measured by Benji Durden, one of the USA's sub 2:10 men and member of the 1980 US Olympic team, which, due to the US boycott of the Moscow Games, did not get to participate. The course finishes in Folsom Field Stadium on the University of Colorado campus in Boulder.

Benji, with Colorado State Certifier Dave Poppers, laid out and documented the locations of numerous cones which define the finish route within the stadium. As the diagram shows, it involved a lot of work with steel tape. Although changes to the course are possible in future years, the finish route within the stadium will not change. The in-stadium measurements terminate at a nail in the pavement outside the stadium, and future course revisions will not have to include remeasurement of the stadium.

MEASUREMENT NEWS
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## MNForum

The Internet is upon us. More and more certifiers and measurers now have an online connection, and communication is getting easier and easier, as messages can be sent to several people at once with a keystroke.

Some of you may be familiar with *Dead Runners Society*, which has long (as long goes in cyberspace) been an online forum for runners. RRTC is going to try to do the same thing. **Jim Gerweck** has accepted the task of setting up and operating an online forum for course measurers. It will be called *MNForum*, and is intended to be an open place where people can express opinions and ask questions about course measurement.

We do not have the bugs worked out. That may take a while, as we learn just what is involved in operating such a forum.

It will not replace personal communication. Material sent to *MNForum* will be open to all, quotable, and may be used in *Measurement News* or elsewhere. It is not the Editor's personal communication channel. If you have anything sensitive or confidential to say to the editor, send it to Pete Riegel, not to *MNForum*.

Jim Gerweck, who will operate MNForum

Announcing Measurement News Online Forum
Date: 97-06-22 22:12:35 EDT
From: MNForum

Dear Measurer:

This is to announce the launch of the USATF/RRTC Measurement News Online Forum (heretofore known as MNForum). This is intended as an electronic supplement to Measurement News, allowing participants a greater and more immediate vehicle for the exchange of ideas, questions, and opinions.

MNForum will operate as a simple maillist. Anyone can post messages to the address. These submissions will then be collated and minimally edited, then be electronically distributed to everyone on the list.

Since this is a new operation for RRTC, we have no idea what the response will be or how large it may become, nor how frequent the distribution will be. Basically, as soon as a couple of messages are collected, they will be sent. We anticipate that this would be done on a daily basis at the most, probably biweekly at least.

If you do not wish to participate in MNForum, please reply at any time with "Delete MNF" in the subject box.

If you have received this message, you are already on the list. If someone you know would like to be added, have them reply with "Subscribe MNF" in the subject box.

If you wish to submit a message, please keep it as part of your EMail message (no attachments, please).

The address is:

MNForum@aol.com

We look forward to hearing from you soon, and hope MNForum will become a valuable asset to the measurement community.

# HISTORY OF THE MARATHON DISTANCE

by Jean Francois DELASALLE (FRANCE) [transl. Hugh Jones, February 1997]

**The first marathon** was organised during the Athens Games on 10 April 1896 [although there had been a two Greek national trial races over the same course]

The Olympic Committee had planned for a course of 48km, the distance it was estimated that the legendary Greek soldier Pheidippides had covered between Marathon and Athens to announce the victory of the Greeks over the Persians. It is no more than 38km between Marathon and Athens by a direct route - but perhaps Pheidippides had to make some detours for his own safety in such a time of war as when his exploit was performed. 490 years before Christ?

It should also be noted that the same Pheidippides had some time previously run a distance of around 250km in a single stretch between Athens and Sparta to ask for Spartan help in the Athenians' struggle against the Persians.

The legend of this brave soldier is therefore the origin of all modern long distance racing: marathons in particular, but also ultramarathons and 24 hour races.

The distance proposed for the Athens Olympic Games was shortened to around 40km, as a trial made with two runners some time before the Games had shown that to run such a distance would be no easy matter. Only one of the two finished, totally exhausted. The other was forced to pull out, and lodged in the memory is the supposed death of Pheidippides after his ancient exploit. The fear of having no finishers was openly admitted, and was one of the reasons for the local organising committee changing the distance originally planned.

The second marathon was contested three months later between Paris and Conflans over the same distance - 40km - in order to try to break the "record".

The first big American marathon at Boston was organised in 1897 over a point-to-point course measured as a distance of 24 miles 1232 yards, which converts to an equivalent of 39km 750m.

Thereafter numerous marathons saw the light of day, but the British and Americans, congenitally allergic to the metric system, decided to fix the distance of the race at 25 miles, or the metric equivalent 25 x 1609.344m = 40km 233m. These events corresponded, considering the imprecise methods of measurement of the time, to races of very similar length.

**In 1908 London** was charged with the organisation of the Olympic Games. The organisation of the marathon was entrusted to a local club, Polytechnic Harriers, who fixed a course of 24.5 miles - in other words 39km 429m.

Moreover, a London newspaper wanted to promote a professional marathon after the Olympic Games, taking the same official course distance used for the Games. The official distance was brought up to 26 miles or 41,843m in order to meet the requirements of the sponsor, who was offering money for the breaking of the then current best time of 2:51:24, achieved by the Canadian Sherring in another marathon contested in Athens in 1906 over 26 miles and 18 yards or 41,860m. This distance corresponded to the actual Athens course. Shortly after the start there, a detour was made towards the memorial to the victory over the Persians at Marathon - which had claimed 192 Athenian lives.

The organising committee had to revise its course in order to make it 26 miles. There were requirements of a fixed start within the private gardens of Windsor Castle, home of the British royal family, and a finish in White City Stadium, specially built for the Games. The new course brought the runners to the stadium entrance, and it was proposed to add a supplementary section, bringing the finish to right in front of the royal box, which was located opposite the general finish line of the track. This favour was granted to the organising committee by King Edward VII, who was aware that the Games organisers wanted the runners' achievement to pay symbolic homage to the sovereigns of the British Empire. The 385 yards (or 352m) added in this way was therefore no princely whim as is often reported, but was in order to contrive fitting circumstances for the finish.

The final distance of the 1908 marathon in London was therefore estimated at the time to be 26 miles 385 yards or **42km 195m**.

This was still not made official by time of **the 1924 Olympic Games in Paris**, after a whole series of more or less obscure discussions resulted, with natural bureaucratic sluggishness, in the setting up of organisations of international sport and of athletics in particular. The problem was not raised again until the next Olympic Games.

**Article 165 of IAAF international rules** definitely fixes the marathon at the standard distance of 42km 195m (without reference to the English measurement: the conversion yields a distance of 26.21876 miles, or 16mm longer than 26 miles 385 yards).

Even if at some future time it became more convenient to fix an exact metric distance for the marathon, like 40km or 50km, by way of a reference for long distance races, the marathon legend has ensured, and probably always will ensure, that this mythical distance of 42km 195m remains definitive.

For the record, we note that the **half marathon**, for which the first IAAF world championship was created in 1992 on Tyneside (GBR), is, as its name indicates, equal to half of the marathon distance or 21km 097m and 50cm
This figure, for convenience, is often rounded up in runners' language and by measurers to 21.1km (a difference of 2.5m is insignificant, given the level of reliability of measurements or of performances achieved).
The term **semi-marathon** is synonymous, since 'semi' is a Latin word which acts as a prefix to signify 'half' when placed in front of another word.

# The First 26 Miles 385 Yards

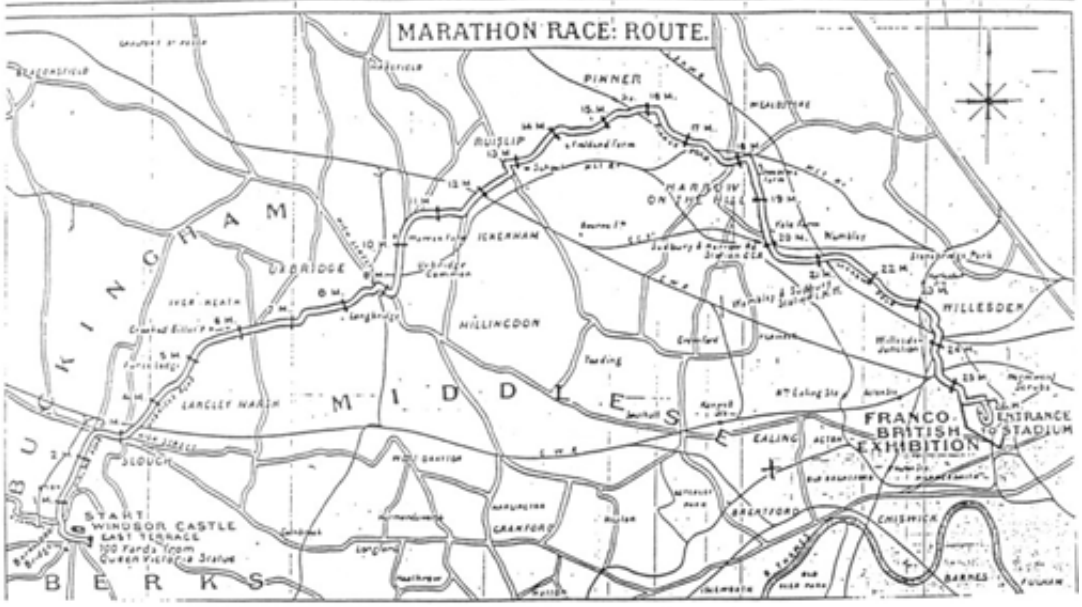
On 24 July 1998 we will celebrate the 90th anniversary of the very first Marathon over the standard distance which we now run. This was at the 1908 Olympic Games. Malcolm Heyworth, a New Zealander now resident in Chicago, whose hobby is running history, kindly provided me with the map reproduced below. His original suggestion was that I might set the readers of *CA* a puzzle using the split times of the runners to determine timing errors. Such esoteric work has enabled Malcolm to draw conclusions about the length of various historical races.

When I saw this map I thought I might put it in *CA* since many measurers live quite close to the route. Perhaps measurers might try and identify the actual roads used, where they still exist after 89 years and might measure a modern approximation to the 1908 course. When I mentioned this to Malcolm he replied with the brilliant concept of holding on 24 July 2008 a centenary running of the very first 26m 385 yard marathon. So we have 11 years to get it sorted out. The first task, identifying and measuring a modern replacement course as close as possible to the original, we can embark upon now.

I can identify most of the route on modern OS maps, and the London A to Z. I have not yet gone to inspect what is left at the old White City Stadium, but there are certainly facilities just North of the orginal finish which could be used for a race. I invite measurers to select a piece of the route and to research it thoroughly perhaps going back to old OS maps and records of road construction. Let me know what bit you select to research so that I can coordinate any overlap, and fill holes. Feed the results to *CA* and at some point we will organise a measurement. - *Ed.*



THE TIMES, FRIDAY, JULY 24, 1908.




**MARATHON RACE COURSE. The Distance from Windsor to Olympic Stadium is 26½ Miles.**

Competitors in the English Marathon race, to be held in connection with the London Olympic Games, will be required to travel a distance of twenty-six and one-third miles. This is the official distance, as announced by the English Olympic Games Committee. The start will be made in the Great Park at Windsor and the finish at the Shepherd's Bush Stadium. The route is full of small turns, varying in distance from a few yards to several miles. From Windsor Great Park the course leads along High Street, thence across the Thames River Bridge into Eton, past the college of the same name and its playgrounds, and along Windsor Road until High Street, Slough, is reached. Then the road for London will be taken for several hundred yards, when the runners will turn into Uxbridge Road, over the Great Western Railroad, and through George Street until the Long Bridge is crossed. After this the canal will be crossed, and several other small twists made when the runners enter Windsor Street, and later High Street, Uxbridge. At this stage of the run more of the numerous twists and turns occur, and Ickenham village is reached. After passing Ickenham the road will lead past Rinslip[!] village. The come Eastcote, Harrow, and Sudbury in order. By this time the runners will have completed twenty miles, and will then be on practically the last stretch. More twists and turns of the smaller distances are in order, until the exhibition grounds are reached. A special entrance will be made for the runners, and the course through the grounds will be roped off. At the Clock Tower, Harlesden, all vehicular traffic will have to leave the contestants and take another route to the Stadium

*NY Times, Sun, Apr 19, 1908, IV ("Sporting" section), p 3*

# TRIALS AND TRIBULATIONS

Subj: No Subject
Date: 09/05/97 16:38:39
From: amaison@ssdnet.com.ar (Amaison Producciones)To: Hugh Jones

Forwarded by Hugh to Pete Riegel

Dear Hugh:

I'm sending you hereby my report. of the faxsent to Race Director of the (large, new international marathon) with my comments on it.

QUOTE

I hope you were recovered from the hard work the organization of the Marathon has represented. I need to make you some comments referred to it.

I don't have clear your address that's why I'm sending you a fax, although it isn't correct but, as you will understand, I must do it.

I thank you very much for your invitation and the fact to place me on the Leader Car. This allowed me to observe quiet good the development of the Marathon and to do now an analysis shortly afterwards more of several weeks from the event. That's why I ask you to understand me, further from our friendship.

It is my wish to contribute to the development of this sport expression in all the area that is of my competition to achieve a technical and organizational quality. For that reason, I told you a few days before I travel. that I would attend the Marathon whether I were of utility or help.Those were my conditions to travel.

1) After a series of goings and comings, since I have to travel on Friday 18th, I could make it on Saturday 19th at 12:40 pm because the PTA arrived in the morning of that day.

2) When I arrived at the Airport, a car was waiting me. The driver didn't know which was the hotel I had to go. I told him that it was the Diego de Almagro. When I arrived to the hotel I had to wait a long time because the Administrator didn't have my reservation. Likewise I explained him that I will pay all the charges that could be arised. An hour later and, as I was trying to find you by phone, the Administrator told me that I have to change my room and share another with Pilo Godoy.

3) At 5 pm Mr. Godoy received a call. Someone had come to take him to the Press Conference. I told them that he was not there. It was a coincidence because the car that had come to transfer him to the meeting was the samethat had transferred me from the airport. The driver told me that I could go to the Diego Portales Convention Center with two athletes that were at the hotel loby, where would take place the Press Conference and also the presentation of guests, athletes, etc.

When we arrived everything had finished. You remember it!! After the Pasta Party has finished I intended to talk to you but as you were too busy, it was impossible. I went to the hotel with Pilo Godoy and some athletes. We waited till 9pm thinking that you, knowing we were at the hotel, would call for us. But, it wasn't that way. Of course, we understood your worries.Then I went with Pilo Godoy to dinner to a restaurant and, when we returned to the hotel at 11 pm, they told us that you had called.

4) On Sunday 20, at 7a.m. we went to breakfast to the hotel's restaurant and met there with the cubans and the mexican one whom had arrived at 2 a.m.that is, six hours before the Marathon starts.

All of them were very upset with you because they received the tickets later and with a series of

stoping points. All of this similar to Pilo Godoy's travel. In a word, the nonconformity of the guests were general with respect to the travel they should have to do.

5) During the morning before the Marathon and after it, I was interviewed by two or three journalists from the El Mercurio, LaTercera and another which I don't remember. Their questions to me were with the intention that I reflect the lack of safety that could have specifically the circuit (before that I have read La Tercera in the plane, which published a note entitled FATAL MARATHON, COULD REPEAT IT. As you know, it referred to the athlete Aro's death on August 1995). All that morning, before the race, I tried no to talk regreting the persecution of a press woman from La Tercera.

6) Once the Marathon has started and at the 13Km, I could observe big failures in the so called International Marathon. A few kilometers from the start the athletes have just not run for the marking course. It was very clear the cut over sidewalks and shortcuts taken for the runners. The Leader Car on which I was has been carring, besides the clock, two loudspeakers. The man that was with the microphone was trying to indicate the runners, from the Leader Car, the circuit. Including, it have been made with a fence and plasticribbon, a chute for the athletes to run. Sometimes they become confuse when entering or leaving a curve. It was evident the disorder on the course.

7) We aren't talking about the 42, 195mt. It was along all the course.Even more, as the Marathon went on, it was forming a tamponment of cars and bikes into the course and no one of the runners could be distinguish from thetraffic. Besides, the risk of an accident was permanently latent in the lead line and I don't want to think what would happen behind with those athletes that were coming unattached.

8) There were almost NO WATER STATIONS; they were on the sidewalks of streets and avenues. When the runners arrived to get water they struck with the people encharged of giving the liquid. The posts were no visilbles for the runners. There were bicycle riders that were delivering liquid on the circuit, but nobody assure that it was water. It was clear that the athletes have been accompanied by their coaches.

9) I couldn't see a MEDICAL AID POST all along the course. The only thing I could see after the 15Km was an ambulance, that for some moments was over the two or three leaders of the race, at the 23Km (I have all recorded on my video).

10) The POLICEMEN were in few places. There was a lot or corners and transversals streets of great importance or critics that didn't have policemen security (what a coincidence, as they told me, in the same place were Aro wasinjured on 1995, there were only two policemen on a critical transversal street due to the traffic density).

To end:

a) The security on the course was deficient

b) Very poor the hidratation over the circuit

c) The distance run was doubtful. There were several "cuts", theleaders run where they wanted

d) Medical aid on the course, bad. If there was any, nobody noticed it

e) The Km marks no clear at all.

(Race Direstor), I want to help you for the Marathon could be of International level. Is is up to you to improve it, especially on the above items. I have no doubt that you can do it; in order to do it you must delegate to others part of your work,which would permit you to control better your Marathon.

# USATF RECORDS ARE THE REAL US RECORDS

In the US we have established federation-recognized road racing records. The media do not pay much attention to them. The marathon distance is the one usually chosen for mangling. In 1981 Alberto Salazar ran 2:08:13 (at the time a media "world record" although officially they did not yet exist) at New York City Marathon on a course that was later found to be about 150 m short. After protracted and bitter wrangling within TAC (now USATF), it was decided not to accept this run as the very first official US record in the marathon. An "adjusted" time for Salazar on a full-length course would be 2:08:40, which would have been a US record if the system recognized "adjusted" times.

The media covering the New York City Marathon recognized the Salazar run for years as the "World Record" and "US Record" in their TV presentations of the race, even after NYRRC member Pat Peterson set the official US record of 2:10:04 in London in 1989 (later tied by Jerry Lawson at Chicago last year).

The New Balance Challenge, in which a US runner wins $1,000,000 for breaking the "US Record" this year should be attractive to US marathoners. Joan Benoit's US record of 2:21:21 is a tough one. Few women have ever run that fast. But the men's US record is not so tough - 2:10:04 is routinely broken in many big-city races. However, 2:10:04 is not the standard to beat. Instead, New Balance elected to use the 1994 Boston 2:08:47 of Bob Kempainen as the "US Record." That's a lot tougher to beat, as it was set on a downhill, point-to-point course with a tailwind.

The US aspirants for the $1,000,000 must run on a selected list of US certified courses. However, instead of limiting the list to "standard" courses with little net drop, the listing includes some (but not all) marathon courses with elevation drops. It's only fair that if the standard the runners must meet was set on a downhill course, they should have the opportunity to break the standard on a downhill course. That's fair enough, except that it limits the opportunities for the athletes, as there are few downhill courses compared to standard ones. It's New Balance's money, and it's understandable that they should not wish to make it too easy to take. Still, one wishes that the "record" they chose as their standard was the true one, set by on an unaided course.

It is easy to see why the media distort things in the way they do. Fast times are more newsworthy than slower ones. Perhaps Americans wish to believe our marathoners are faster than they are. But it's a disservice to fans to give them false information. And it's a moral and financial disservice to runners like Pat Peterson to have their records go unrecognized.

So, the present situation is that we have several versions of "records." We have official USATF-recognized records, which receive scrutiny for accuracy and fairness. Then we have the media "records" which seem to be the fastest times run without regard to any standard. Finally we now have the commercial "records" chosen for whatever purpose the business enterprise has in mind.

The media do not mangle track records as they do road records. A 100 meter sprint with a tailwind is not treated by the media as a "record." One wonders why road records are not treated in the same way. Until they are, the media will be relegating road racing to circus status, with "records" being whatever serves the media best. For the sport to be taken seriously, accuracy is necessary. USATF records represent fair comparisons of running ability, both on the track and on the road. For the sake of the sport, the media should use them.

Pete

## DOWNHILL MARATHON COURSES

| COURSE ID | LOCATION | COURSE NAME/RACE | m/km DROP | Pct SEP | MEASURER |
|---|---|---|---|---|---|
| GA 88024 WN | Decatur | Atlanta Marathon | 1.1 | 61 | M Hughes |
| MO 91009 BG | Kansas City | 1991 Prime Health Marathon | 1.2 | 4 | W Glauz |
| OK 85007 BB | Altus | Bulldog | 1.2 | 90 | J Metcalf |
| ID 95001 MR | Boise | The Idaho Great Potato Mar | 1.3 | 53 | M VanGulik |
| CA 89015 CW | San Francisco | San Fran Pacific Rim Mar | 1.4 | 15 | D Horning |
| TX 94053 ETM | Amarillo | Lone Star Paper Chase Mar | 1.4 | 27 | T Lowry |
| NY 95032 AM | Bath to Corning | Wineglass Marathon | 1.5 | 80 | M Landin |
| CA 87049 RS | San Diego | Holiday Bowl Marathon | 2.0 | 19 | R Letson |
| CA 97002 TK | Big Sur/Carmel | Big Sur International Marathon | 2.2 | 82 | T Knight |
| AL 95016 JD | Birmingham | Vulcan Marathon | 2.2 | 8 | R Melanson |
| CA 95001 TK | Napa | Sutter Home Napa Valley Mar | 2.2 | 89 | T Knight |
| PA 96026 WB | Lancaster | Marathon of the Roses 1996 | 2.4 | 50 | D Trimble |
| CA 87034 CW | Sacramento | 1987 California Int Mar | 2.5 | 100 | J Mansoor |
| NY 95005 WN | Albany | Mohawk-Hudson River Marathon | 2.7 | 55 | W Nicoll |
| NH 96001 WN | Keene | Clarence DeMar Marathon | 3.0 | 32 | R Teschek |
| MA 95001 WN | Boston | Boston Marathon | 3.2 | 91 | W Nicoll |
| TX 96117 ETM | Austin | Austin Motorola Marathon | 3.2 | 57 | J Ferguson |
| CO 95007 DP | Pueblo | YMCA Pueblo River Trail Mar | 3.4 | 45 | M Orendorff |
| PA 96027 WB | Johnstown | Johnstown Marathon '96 | 3.6 | 1 | R Yurick |
| CA 96039 RS | Santa Clarita | 1996 Santa Clarita Marathon | 3.8 | 36 | B Smith |
| NV 93008 BC | Las Vegas | 1994 Las Vegas Marathon | 3.8 | 99 | M Bernstein |
| ME 89004 GN | Kingfield | Sugarloaf Marathon | 4.1 | 77 | C Carey |
| OR 96002 LB | Estacada | ORRC Clackamas River Canyon | 4.4 | 68 | G Lovie |
| AZ 96019 FC | Sierra Vista | Mule Mountain Marathon | 5.8 | 84 | F Cichocki |
| MI 95040 SH | Marquette | Northern Shufflers | 6.4 | 81 | B Figuli |
| CA 88068 RS | San Diego | 1988 San Diego Marathon | 6.7 | 1 | R Letson |
| PA 96022 WB | Scranton | Steamtown Marathon | 6.9 | 72 | B Belleville |
| CO 90006 DP | SteamboatSpgs | Steamboat Marathon | 10.0 | 88 | S Maloney |
| UT 88003 FH | SaltLakeCity | Deseret News Marathon | 12.0 | 36 | F Hansen |
| SD 96035 BB | Rapid City | Mt Rushmore Int'l Marathon | 16.1 | 54 | E Egbert |
| AZ 95015 FC | Oracle/Oro Valley | Tucson Marathon | 16.5 | 52 | J Irish |
| CA 95053 PR | Palm Desert | Pines to Palms Marathon | 31.6 | 59 | R Letson |

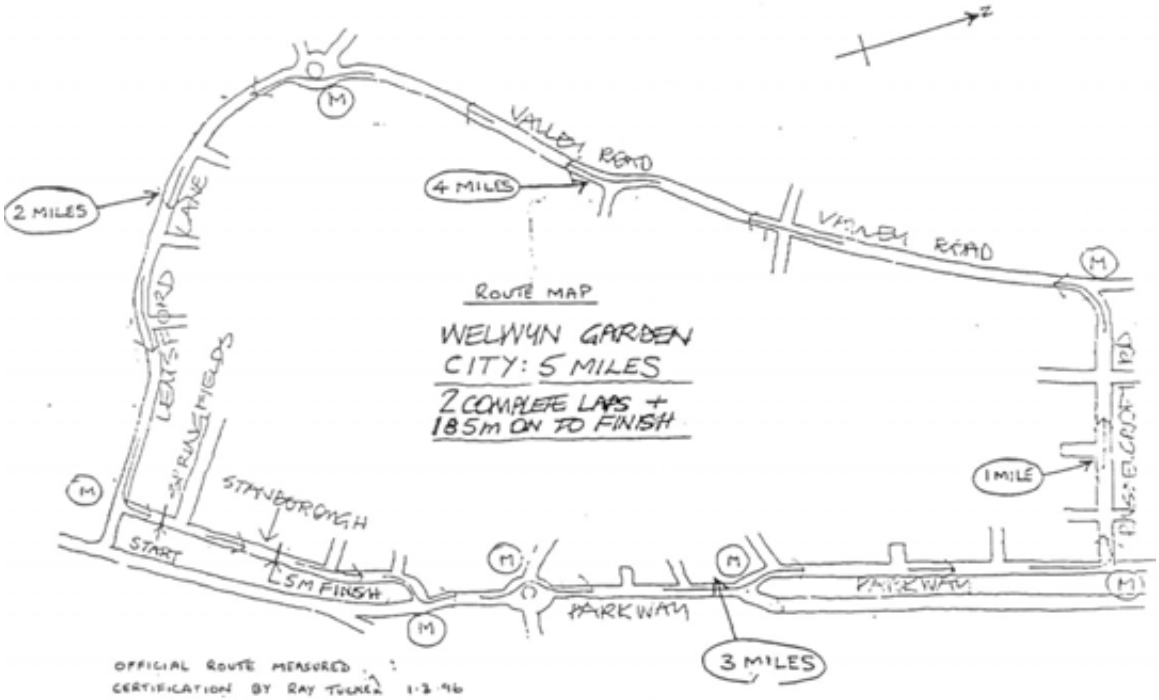
## USATF CONVENTION

Austerity in this year's USATF budget has required some changes in how we do things. Accordingly, I requested USATF to schedule a single RRTC meeting for Friday afternoon of Convention week. I have been informed that this has been done. Normally we easily cover any unresolved issues in a single meeting, and this will allow us to get our business done while requiring attendees to spend the minimum time at the convention.

## A BRITISH VALIDATION

Although validations are not required in countries where an expert measures the course once, a notably fast time was recorded at a race held in England. It was remeasured and found short. What action will be taken, and what effect this may have on British measurement procedures is unclear. See the report by Mike Sandford on the next three pages.

Until a worldwide standard is set for checking of courses on which records are set, perhaps, for now, we must rely on whatever publicity we can achieve through the measurer network, and on the willingness of the running media to accept it as valid.



# Measurement Report - Remeasurement of Welwyn Garden City 5 miles.

By M.C.W. Sandford. BAF Grade 1 Course Measurer, SEAA Course Measurement Secretary, 20 June 1997.

Ian Chalk contacted me concerning the procedure to be followed after a possible world best time and also a British best time for a five mile road race were run in the Puma Cell Welwyn Garden City 5 on 31 March 1997. The course was based on an 8 km course measured in 1988 (SEAA 88/055). In 1996 Ian Chalk approached Ray Tucker, BAF Grade 2 Course Measurer, to have the course adjusted to 5 miles, which would involve the addition of 46.72 m by adjusting the position of the start. Ray Tucker did this using the course map and start finish map provided by Ian Chalk, he also recorded the location of the mile markers by measuring from the start to four miles. The details of Ray's adjustments were submitted to the SEAA Measurement Secretary and Course Measurement Certificate SEAA96/027 was issued in March 1996. The Certificate was renewed for the 1997 race by me in February 1997.

After discussion with Ray and after consulting Roger Gibbons, I decided that the course should be remeasured by a grade 1 measurer, and I arranged to carry this out myself. I chose to make the measurement early on a Sunday morning in order to have quiet roads. Unfortunately Ian Chalk was not available to show me the course since he was working shifts on the 15 June 1997 when I chose to measure. Nevertheless I had a clear and apparently comprehensive report from Ray Tucker's 1996 measurement and I anticipated no difficulty in following the route as described therein. Mr Chalk confirmed to me that the whole of the left hand part of the carriageway was available to runners throughout the course and the runners were not allowed to cross the centre white line. This was as stated on the Ray's measurement report, except he qualified it with the words 'unless marshalls instruct otherwise'. I asked Ian whether the marshalls had allowed runners on the right hand half of road at any point and he said they had not. He also said the runners were kept to the road surface and were not allowed on adjacent verges/pavements.

I arrived at the course at 0430 on 15 June to find a very wet morning with some light fine rain which eased off later although the roads remained very wet throughout the measurement. I spent about 30 minutes driving round the course twice and aquainting myself with its features. I examined the road surface at several points and noticed that they were in generally very good condition right up to the curb stones which were present throughout the route forming an excellent boundary. In all places where the shortest line swung towards the right of the road there were centre line markings also forming a boundary.

There were two obvious locations for a calibration course; the dual carriageway section of Parkway, and in Valley Road. I rejected the former since I was concerned that it might be subject to traffic making it difficult for me to ride against the flow of the traffic during my calibration runs. Valley Road looked potentially quieter and I also thought I would not attract so much attention when riding against the traffic flow. Further I noticed that its surface was particularly smooth with fine stones which was representative of most of the course with the exception of the section along Parkway which had a surface using large stones designed for heavier traffic. I measured an absolutely straight section of Valley Road using my bike and found that it would accommodate a 300m calibration course. There was a steady slope which made it just possible to freewheel in one direction, but I judged that it was not too steep since I could readily ride the uphill direction in top gear without any strain.

## *Layout of Calibration Course*

I started taping the Valley Road Calibration Course at 0500. I used my 50m Rabone Silverline steel tape accurately tensioned at 5 kg using a Salters Samson spring scale. The hook end of the tape was placed over a PK nail hammered into the crack between two curb stones. I measured an end correction of -6 mm between the small dot in the centre of the nail head and the zero of the tape. At the other end with one hand I tensioned the tape and with the other held it in position over the head of a PK nail and took the reading. I then gently released all the tension and took a second reading. Finally I tensioned it a second time to 5 kg and took a third reading, again independently recording a the full reading of metres and millimeters. At each point I read the temperature on my bike's digital thermometer, and with a thermometer placed on the ground beside the tape.

| Taped length | First Reading at 5 kg metres | Reading at 0 kg metres | Second reading at 5kg metres | Temp on ground C | Temp on bike C |
|---|---|---|---|---|---|
| 1 | 49.9375 | 49.950 | 49.937 | 13 | 10.5 |
| 2 | 49.879 | 49.897 | 49.879 | 11 | 10.2 |
| 3 | 49.505 | 49.521 | 49.506 | 12 | 10.2 |
| 4 | 49.637 | 49.652 | 49.637 | 12 | 10.2 |
| 5 | 49.777 | 49.793 | 49.777 | 12 | 10.0 |
| 6 | 49.912 | 49.923 | 49.912 | 11 | 10.0 |
| **Total** | **298.6475** | **298.736** | **298.648** | **11.83** | **10.18** |

The reading at 0 kg tension was a useful check. In each case it was between 11 and 18 mm greater than when tensioned. The slight variability of the difference was due to the tape, which was supported for most of its length on the curb stones, sagging across side roads and drives.

Average length = 298.6477 m

End Correction = -6 x 6 = -36 mm (6 mm per tape length)

Temperature Correction = (11.83 - 20) x 11.6/1000000 x 298.6477 m = -28.8 mm (using ground temperature)

**Corrected length = 298.583 m**

The end positions were permanently marked with a washer and PK nail driven into the road about 6 cm from the curb opposite the crack between curb stones at which the ends of the course had been measured. The road mark could be contacted by the bicycle wheel, but I made the measurements by lining up the front axle and part of the bike frame over the nail. As a final check on the number of tape lengths, I counted the five intermediate nails as I removed them from the course. A map of the calibration course showing the exact location of the end points is attached.

### *Pre-measurement Calibration at 0627 - 0639*

| | start count | end count | difference | Temperature C |
|---|---|---|---|---|
| ride 1 (uphill) | 90235.8 | 93611.1 | 3375.3 | 10.2 |
| ride 2 (downhill) | 93611.1 | 96989.2 | 3378.1 | 10.2 |
| ride 3 (uphill) | 96989.2 | 00364.9 | 3375.7 | 10.1 |
| ride 4 (downhill) | 00364.9 | 03743.0 | 3378.1 | 10.0 |
| ride 5 (uphill) | 03743.0 | 07118.2 | 3375.2 | 10.1 |
| ride 6 (downhill) | 07118.2 | 10496.2 | 3378 | 10.2, 10.1 |
| | | **Average** | **3376.73** | **10.15** |

Pre-measurement calibration constant (without SCPF)= 11309.2 counts/km

### *Post-measurement Calibration at 0715 - 0725*

| | start count | end count | difference | Temperature C |
|---|---|---|---|---|
| ride 1 (uphill) | 99304.6 | 02680.2 | 3375.6 | 10.3 |
| ride 2 (downhill) | 02680.2 | 06058.4 | 3378.2 | 10.0 |
| ride 3 (uphill) | 06058.4 | 09434.2 | 3375.8 | 10.1 |
| ride 4 (downhill) | 09434.2 | 12812.5 | 3378.3 | 10.1 |
| ride 5 (uphill) | 12812.5 | 16188.2 | 3375.7 | 10.2 |
| ride 6 (downhill) | 16188.2 | 19566.5 | 3378.3 | 10.1, 10.2 |
| | | **Average** | **3376.98** | **10.15** |

Post-measurement calibration constant (without SCPF)= 11310.0 counts/km

**Average calibration constant = 11309.6 count/km (without SCPF)** This is within 2 counts of the constant based on calibrations performed on the Copenhagen Drive course under dry conditions in Abingdon before and after the trip to Welwyn Garden City.

### *Course Measurement at 0639 - 0712*

| Time | Temp C | Location | Counts | increment (counts) | increment m | lap total m |
|---|---|---|---|---|---|---|
| 0639 | 10.1 | S nail of cal course | 10496.2 | | | |
| 0645 | 10.0 | Start line | 29212.2 | 18716 | 1654.8773 | |
| 0646 | 9.8 | Finish line | 31303.9 | 2091.7 | 184.94907 | |
| 0655 | 10.1 | S nail of cal course | 54899.6 | 23595.7 | 2086.34258 | 3926.16895 |
| 0701 | 10.0 | Start line | 73613.9 | 18714.3 | 1654.72696 | |
| 0703 | 10.1 | Finish line | 75705.0 | 2091.1 | 184.89602 | |
| 0712 | 10.3 | S nail of cal course | 99305.4 | 23600.4 | 2086.75815 | 3926.38113 |
| | | | | | Two laps | 7852.5500 |
| | | | | | Start-to-Fin | 184.9226 |
| | | | | | **Total course** | **8037.47263** |

Ed. Note - 5 miles is 8046.72 meters

## Corrections

At two points during the ride, parked cars had to be negotiated. After I had completed the riding I measured with a steel tape the exact route I had used to negotiate the cars and from this calculated the extra distance traveled in riding around the cars. The details are shown on the attached figures. The correction is very small, 23 cm per lap, 46 cm in total. The corrected course length is thus 8037.47 - 0.46 = 8037 m = 4 miles 1749.4 yards. The course as certified for the 1996 and 1997 races was definitely short.

## Investigation of the reasons for the short course

I have discussed these results with Ray Tucker and we have discovered that the sketch map which he was given showing the 8 km start/finish shows a separation of 138m, whereas the sketch map which I have on file with the 1988 measurement shows a separation of 140.1 m. The measurement report from 1988 records that an addition of 2 m was made when the finish calibration constant turned out to be larger than the working constant. It therefore seems possible that the sketch map given to Ray was a preliminary one prepared by the original measurer before he went home to recalibrate his bicycle. This however only accounts for 2.1 m, a comparatively small fraction of the shortfall.

Going back to the original 1988 measurement it is clear that one measurement of the complete loop was done yielding a value of 3930 m (with the SCPF included). My present measurement gives a value of 3926.3 m (with out the SCPF). This difference accounts for the remaining discrepancy.

It is possible that the course may have changed since 1988 due to adjustments to the road boundaries. One possible location where this could have taken place is at the junction of Russelcroft Road and Valley Road, where there is a slip road for turning left, which both Ray and I have interpreted as being the obvious shortest route available to the runners. If this slip road was not present in 1988 then the extra distance could easily account for the difference in the measurements. However we feel this is unlikely since the original course map seems to show a smooth left curve at this point possibly indicative of the fact that the slip road was present and used in 1988. I should say that generally the area had the appearance of a mature residential area without signs of road improvements. Ian Chalk has confirmed that road boundary changes are unlikely to have been the cause but he will continue to check that aspect.

It is not absolutely clear what part of the road the 1988 course was measured on. The report only says "straight forward course". It is unlikely that this is the cause of the discrepancy since the present remeasurement, which has been done on a precisely defined line, could be readily be argued to be the straight forward way to define the course.

I have been unable to contact the original 1988 measurer. I will continue my attempts to do so in case he can recall any details which will help explain the measurements.

## Conclusions

**The course measured 10.6 yards short of the advertised 5 miles. The short course prevention factor (SCPF) for a 5 mile race amounts to 8.8 yards, so the remeasurement yielded a value 19.4 yards short of the a nominal distance for a 5 mile course laid out including the standard SCPF.**

To correct the course for future years 19.4 yards, which includes the short course prevention factor, should be added at the start or finish as shown on the attached plans of the adjusted start finish. The organiser will need to ensure the runners do not take short cuts across the verges or pavements at the road junctions.

Courses that are maintained for many years without full remeasurement are always subject to the risk of minor changes in road layout or even changes in the way the course director marshalls the runners. Race directors with their local knowledge need to be vigilant to ensure that absolutely nothing has changed since the original measurement. When an adjustment is necessary the course measurer may agree to base his work on the previous certified measurement, but he should inspect all the original course measurement report and satisfy himself that he fully understands the original report. If he has any doubt he should insist on doing a full remeasurement. Copies of the original measurement reports should be held by the race director. If race director does not have one, then the course measurer should not rely on the current race director's memory or what he has been told by a previous race director, he should obtain a copy from the area measurement secretary.

Subj: DelaSalle article in MN
Date: 97-05-29 08:54:55 EDT
From: KCYX
To: Riegelpete

Pete

I read J F Delasalle's article on road record standards with considerable interest. This of course provides a European perspective and understandably does not include much detail for a number of significant events that took place in the United States.

Around 1980, Ted Corbitt introduced the 0.1% short course prevention factor (SCPF), an extra distance that had to be included in the course before a certification would be granted. This established the foundation for record-keeping in that it gave a reasonable assurance that most well-measured courses would pass muster, i.e., not show up short on remeasurement.

It was shortly after this that the National Running Data Center initiated two validations of marks set on previously certified courses. These were validations of the Gasparilla Distance Classic 15 km in Tampa FL and the River Run 15 km in Jacksonville FL and were carried out by David Katz. I believe this was the first time a previously certified course was subject to an independent measurement check. Both courses passed muster and by now, more than one hundred race courses have been validated.

Also in the early 1980's, I received a lengthy phone call from Bob Hersh, chairperson of the Records Committee for The Athletics Congress. Bob asked me to draft a set of rules to govern the keeping of official road running records. This formulation included the allowable drop of 1 m/km and the allowable separation of (if I remember correctly) 10%, later lengthened to 30% that Delasalle refers to in his article.

It should be noted that there was considerable resistance to the allowable drop rule, especially by the Boston Marathon and, if memory serves me, AIMS did not disallow courses with significant (greater than 1 m/km) drop for record consideration. The acceptance of "aided" marks in addition to "standard" marks was a compromise made to insure acceptance of the rules governing and allowing official recognition of road running records in the United States. It was anticipated that such "aided" marks would eventually be dropped.

The road running record-keeping process established in the early 1980's in the United States has clearly demonstrated the feasibility of keeping road records, thanks to the many volunteers who carry out the many aspects of this process. I agree with Delasalle that it is time that the IAAF officially recognize road running records.

I apologize for the vagueness in dates. All of my records are packed in boxes for my upcoming move. I've found a great house to rent in Humboldt County, only 5 km from the ocean with logging roads and trails to train on. It is in an area called "The Lost Coast" where the beaches are virtually deserted and there are no tourists. My new address after 30 Jun 96 is:

Ken Young
PO Box 219
Petrolia CA 95558

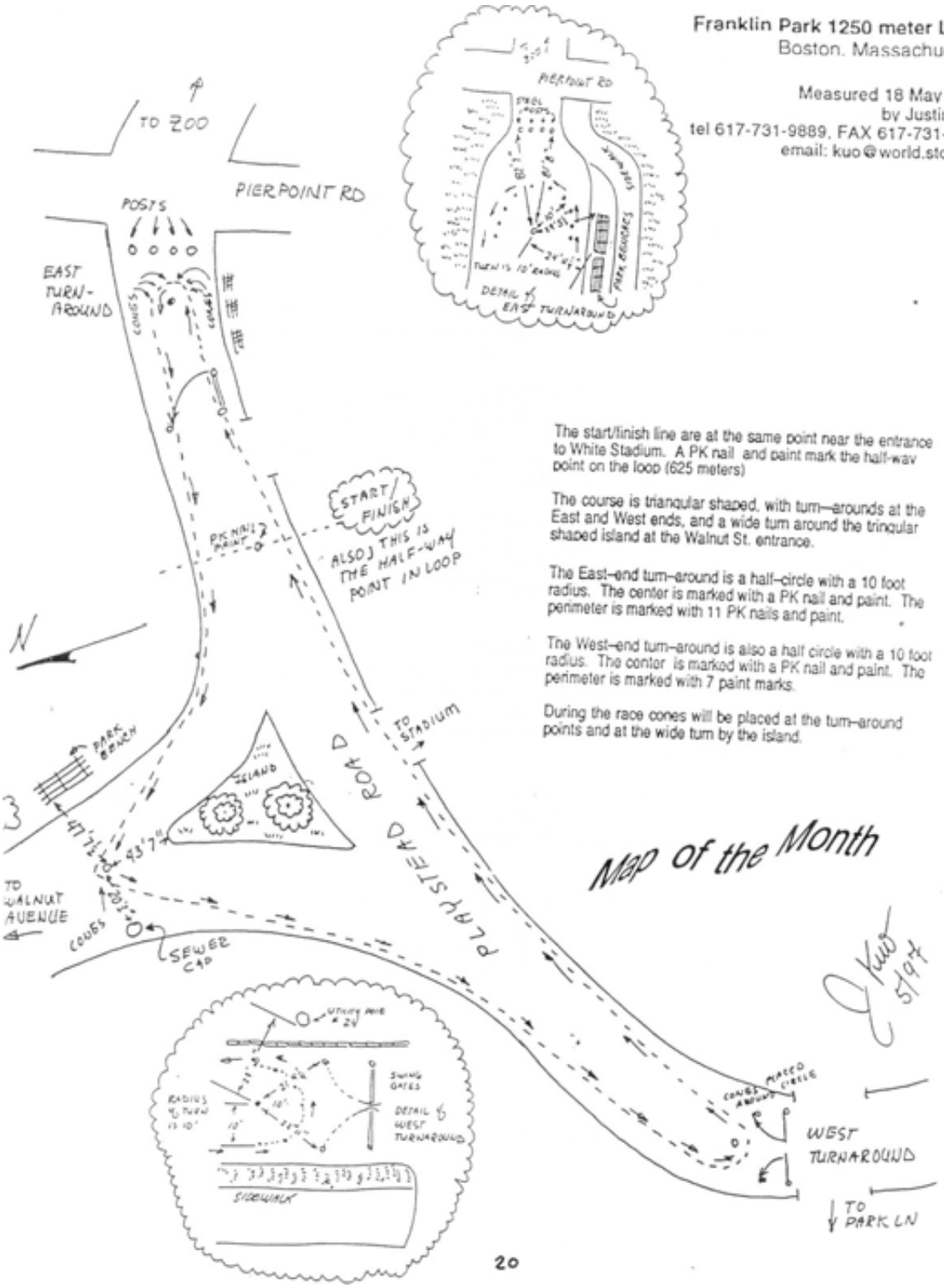
phone 707-629-3430

(There are no street numbers in Petrolia since there are no postal carrier routes.)

Ken

**Franklin Park 1250 meter Loop**
Boston, Massachusetts

Measured 18 May 1997
by Justin Kuo
tel 617-731-9889, FAX 617-731-9062
email: kuo@world.std.com




The start/finish line are at the same point near the entrance to White Stadium. A PK nail and paint mark the half-way point on the loop (625 meters)

The course is triangular shaped, with turn-arounds at the East and West ends, and a wide turn around the triangular shaped island at the Walnut St. entrance.

The East-end turn-around is a half-circle with a 10 foot radius. The center is marked with a PK nail and paint. The perimeter is marked with 11 PK nails and paint.

The West-end turn-around is also a half circle with a 10 foot radius. The center is marked with a PK nail and paint. The perimeter is marked with 7 paint marks.

During the race cones will be placed at the turn-around points and at the wide turn by the island.

*Map of the Month*

J. Kuo 5/97

# MEASUREMENT VIEW POINT

In the first issue of *CA* I was thanking SEAA measurers for the high standard of their reports. I stand by those thanks. However, I sometimes ask questions about the finer details of a measurement. I had a round with Mike Tomlins. Mike had sent in a report which prompted me to write the following to him,

*You are one of the very few measurers I have seen since I took over, who has given a documented check of the distance obtained by re-riding the course. The quality of your layout is brought out by the accuracy of the repeat ride, identical counts therefore less than 10 cm difference.*

*When I attended the seminar at Copthall in 1991, I came away with the very clear impression that it was part of the procedure to take two measurements of every course and to use the shorter as the definitive distance. I did this faithfully for all my courses and reported both measurements in my measurement reports filed with Roger Gibbons. After about 35 such reports during which I obtained excellent agreement marred only by the effect of temperature changes on my pneumatic tyre, I did drop the procedure and use just a single ride for measurement of a few courses of non-standard distance. I was a little surprised at the time that Roger Gibbons did not pick me up on this.*

*However, the IAAF booklet 'The measurement of Road Race Courses', says, "Although only one measurement is required by the IAAF, a second measurement serves as a check against mistakes." Formally then, only one measurement is required for the Measurement Sec to be able to certify that a course has been measured to IAAF procedures.*

*As I understand the USA procedures, the measurer MUST perform two measurements and report both to his certifier for every component of an overall course, i.e. including any offsets used to fix the start/finish relative to street furniture. I never went to that level, I just concentrated on remeasuring the major loop of a course.*

*Leafing through the 1700 reports which I inherited, mention of a repeat measurement is very much the exception. This of course does not mean that it has not been done, but the result is certainly not mentioned. I would welcome your thoughts about what guidance we should provide, and indeed how the tutorial seminars should be pitched on this subject.*

*I find it intriguing that a rider with experience and obvious care such as yourself, should feel it worthwhile to run a check, when novice riders send in their data with no checks mentioned in their report. Do you pick up occasional mistakes which makes the check worthwhile?*

Mike called me and his advice was that most measurers do make two course measurements as a matter both of necessity and good practice. The first, usually a layout, is not included in the measurement report since to do so would add to its complexity.

Also Roger Gibbons wrote to me,

*With regard to the writing up of the two measurements, I admit to doing things in about three different ways. In the early days when I was measuring every week in order to get the Norfolk courses measured, there were odd occasions when I made only one run. If there was no problem in positioning the finish, where I was pushed for time and where I felt I had had a good ride and had not deviated from the optimum line, I took just one ride. On most occasions I took two rides, but did not always record the worse one. Often I did both. The bottom line was always that my conscience would not let me leave the course feeling anything was wrong.*

I accept that a layout measurement is sometimes tedious to fully document if it comprises a number of separate measurements rather than a continuous ride. Also it may not use exactly the same start and finish points as the final measurement. Nevertheless, any measurer who wishes to document in his report the agreement or disagreement between his two measurements is welcome to do so, and I will read the result with interest, and also check to see that he has used the shorter of the two measurements for the final determination of the race distance.

I think I must have a rather bureaucratic approach to measurement reports. I am currently involved in correspondence with an experienced and valued measurer who routinely takes only 3 pre-measurement calibration rides and 1 or 2 post-measurement. I am trying to justify the IAAF standard of 4 rides before and after, and I am reluctant to admit exceptions. I will keep you posted if I am convinced otherwise.

However this measurer has another point,

*I have to say that while it is clearly important to maintain standards in course measurement, it is surely also important to recognise the knowledge and experience of measurers. In my view the whole process is over-bureaucratic; we ought to get away from the requirement for detailed form filling represented by the data sheet etc., and require only the submission of course information and a confirmation of accurate practice.*

I do not agree, perhaps because I am a bureaucrat, but I assure you I have picked up small mistakes. I should imagine novices welcome a check. What do readers think about asking experienced measurers to submit their data?

*Mike Sandford.*

Subj: E-mail
Date: 97-06-03 16:08:02 EDT
From: wglauz@mriresearch.org (Bill Glauz)
To: riegelpete@aol.com (Pete Riegel)

Pete, you may want to add my e-mail address to the list on the back page of MN.

One of my measurers asked me a question the other day and I do not have the answer. He said his tape is about shot and he is in the process of getting a new one. He noted that most places no longer carry steel tapes, they have fiber glass instead. Do you know anything about the characteristics of such tapes? Do they stretch too much? Temperature corrections?

Bill

*Dear Bill,* *June 4, 1997*

*I'll add your email address to the others on the certifier list.*

*I don't know where your friend is shopping for his tapes, but every chain hardware store I've seen carries racks full of Lufkin and/or Stanley tapes. A 100 foot tape commonly costs about $20. Unfortunately, all you will find at the hardware store are tapes marked in feet and inches. While they are accurate, I prefer decimal feet markings, which tapes are usually available at surveying supply shops.*

*Some years ago I investigated the accuracy of steel tapes, and discovered that US tapes are made to meet a US government specification, which sets a limit of 1/10 inch in 100 feet, or 2.6 mm in 30 meters. I had a conversation with someone in the manufacturing department at Lufkin or Stanley (I forget which) and he said they have no problem staying within that spec, and keep their machine set so that it is readjusted whenever the accuracy drifts to 2/3 of the limit.*

*At our USATF/RRTC measurement seminar in Phoenix, held in 1994, we did a rough comparison of all the tapes that people had brought with them, 19 in all, of which two were fiberglass. Results showed that all but one of the 17 steel tapes were within spec, and the other was borderline. The fiberglass tapes, however, were out of spec by about 10 times the average of the steel tapes.*

*In Brazil I once taught a class where somebody asked about fiberglass tapes. We went out with a steel and fiberglass tape and did some side-by-side pulls. The fiberglass tape was way off compared to the steel tape. Moreover, it was hugely sensitive to tension. As I recall, the fiberglass tape varied in length by almost two inches depending on the pull given, while the steel tape varied hardly at all. The students readily saw why fiberglass tapes were not suitable.*

*Although US steel tapes generally meet US specs, I had an experience with a Brazilian 30 meter tape in which I had an inexplicable difference in two measurements of a calibration course, measured once with a US steel tape and once with a Brazilian 30 m steel tape (see Measurement News, November 1996). I did a rough check and found that the Brazilian tape seemed in error. I sent it back to Stanley and they confirmed the error. They sent me back the Brazilian tape and a new US 30 meter tape. Oddly enough, the Brazilian tape is now my tape of greatest known accuracy, as it has been rigorously checked on Stanley's laser interferometer. With the proper correction, now known to me, I can use it to check the accuracy of other tapes.*

*As for temperature corrections to be applied to fiberglass tapes, I have never seen them specified and know nothing about them.*

*My advice for a US measurer is to use a US steel tape. They are cheap and available everywhere in the 100 foot feet/inches version. With a little shopping one can find 30 meter or 100 decimal feet tapes. Fiberglass tapes are no good for our purposes.*

*Best regards.*

*Pete*