

Measurement News



January

1996

Issue #75



RRTC got its first look at the Olympic Marathon course at the USATF Convention. The group was guided along the course by Jack Grosko, who has the measurement responsibilities. A group validation of the course will be held on May 25 and 26. Pictured above are (left to right): Bob Baumel, Wayne Nicoll, Ryan Lamma, Jack Grosko, Andy Beach, Mike Wickiser, Pete Riegel, Tom McBrayer (kneeling). Photo courtesy of Tom McBrayer.

MEASUREMENT NEWS

#75 - January 1996

* * * * *

APPOINTMENTS

At the recent USATF Convention, **Wayne Nicoll** announced that **Paul Hronjak** has been appointed as Certifier for North Carolina. Welcome aboard, Paul.

Bob Letson, pioneer Southern California measurer and Certifier is hereby appointed National Certifier (Final Signatory). This appointment is long overdue.

CORRECTION

Dan Brannen and **Bob Letson** were inadvertently omitted from the list of IAAF "A" measurers in last issue. This has been corrected. They are already on the IAAF list as A's.

E-MAIL FOR THE EDITOR

I have bitten the bullet, and am now equipped to get e-mail (Email, E-Mail, email, e-mail - is there a standard term?) and do other wondrous things on the internet, although at this time I am a rank beginner. In any case:

Pete Riegel's address is: Riegelpete@aol.com

A NEW FINISH LINE MANAGEMENT PROGRAM

Roger Bradshaw has written and produced a new race management program. It does all the chores including original data entry, label printing, race results, and other things. It's called **The Race Director**. Roger sent me a demo disk to play with, and I found it not difficult. The manual is well-written and clear. However, my opinion is of limited value because I am not an experienced finish line person. Depending on the response to this notice, Roger may send you a free demo disk. You should contact Roger at:

Roger Bradshaw
Race Management Systems, Inc.
120 S. Division
Fremont, MI 49412

616-928-2536 (8 to 5, eastern time)
616-924-6874 (home)

SLIPPING STANDARDS

Several certifiers have, upon retirement, been accorded the title National Certifier, or "Final Signatory" as a recognition of their capabilities and as a reward for past service. This allows them to issue certificates for courses they measure themselves. In some cases our trust was misplaced, as a few are not adhering to our standards. They have been warned that their credentials will be revoked if the situation continues.

DATA PRESENTATION

Last month **John Disley** urged the adoption of a uniform standard for data presentation. At the time I did not understand what he was getting at, but clarity has surfaced. Basically, I agree that it is good idea if **all measurements** are presented as including the 1.001 Short Course Prevention Factor. In the past, we have shown validation measurements without it, so as to show "true" distances. This can lead to confusion, and **in future I will present all measurements as including the 1.001, whether validation or layout.** This should promote clarity, as all measurements will appear in one standard way. The perplexities associated with the 1.001 will always be with us, but since using it is now the worldwide standard, let's use it. In addition, since the international standard uses the average constant, I'll use that as well, as it gives a more accurate (if less safe) measurement. **In the US we recommend that the larger constant be used.** This is safer and more conservative, giving more protection against shortness, but it tends to distort comparisons when some riders have a large calibration change while others do not.

On US validations, the standard measurement data (including 1.001) can be interpreted thus: If we measure a 10 km course and get:

- 10,000 m - The overall distance checks out exactly as it was intended, including full SCPF.
- 9990 m (10,000/1.001) - The layout was not good, but the course was not proven short.
- 9985.02 m (10,000/1.0015) - The course is considered as proven short.

We will continue to use the present validation forms for USA internal purposes, as they apply only to the very specific case of a post-race validation measurement, and not to things like where the splits may lie and other characteristics of the course.

I have used the standard presentation in the data and calculations for the prevalidations of the US Men's and Women's Olympic Marathon Trials elsewhere in this issue.

OLYMPIC MARATHON MEASURERS

To date, the following people have expressed an interest in coming to Atlanta to participate in the measurement of the Olympic Marathon: Bernie Conway (CAN), Woody Cornwell, Jean-Francois Delasalle (FRA), John Disley (GBR), Tadeusz Dziekonski (POL), Julia Emmons, Zean Gassmann, Hugh Jones (GBR), Tom Knight, Doug Loeffler, Rodolfo Martinez Figueroa (MEX), Jack Grosko, Tom McBrayer, Wayne Nicoll, Ted Paulin (AUS), Ed Prytherch, Gerry Rahill, Pete Riegel, Don Shepan, Mike Wickiser, Jay Wight, Bob Woods, Dave Yaeger (CAN).

The measurement will take place on Memorial Day weekend, May 25 & 26, 1996. Hotel rooms will be provided (sharing with another measurer) but food and transportation are the responsibility of those who come. Bikes will be provided. Interested people will be contacted as soon as plans are developed sufficiently.

Minutes — Road Running Technical Council USATF 1995 National Convention — Atlanta, GA

1st Meeting — Wednesday, November 29, 1995

Attending: Bob Baumel, Andy Beach, Norm Brand, Dan Brannen, Jim Brown, Woody Cornwell, Roger Dann, Norm Green, Phil Greenwald, Finn S. Hansen, Basil Honikman, Linda Honikman, Paul Hronjak, Jim Knoedel, Justin Kuo, Ryan Lamppa, Bob Langenbach, Carole Langenbach, AC Linnerud, Mary Anne McBrayer, Tom McBrayer, Ed McGinnis, Carol McLatchie, Al Morris, Wayne Nicoll, Dave Oja, Rick Recker, Joan Riegel, Pete Riegel, Allan Steinfeld, George Tillson, Mike Wickiser.

The meeting was called to order by Pete Riegel at 20:35. All present introduced themselves. The following officers' reports were given (Only summaries are given here, as more complete written versions appear in January 1996 *Measurement News*):

Vice-Chairman East, Wayne Nicoll

Wayne said things are going very well in the East. He particularly commended the work of Woody Cornwell, certifier for Georgia where this Convention was being held. Also, during the past year, Bill Belleville was appointed new certifier for Pennsylvania, and Paul Hronjak has just been appointed certifier for North Carolina.

Vice-Chairman West, Tom McBrayer

Tom lauded the Santa Barbara seminar (July 6-9), which included both a measuring seminar and demonstration of the state-of-the-art ChampionChip race scoring system. He also said Southern California certifier Ron Scardera deserves a medal for remeasuring the Disneyland Marathon while that event was in progress. Tom himself led a pre-validation measurement of the Men's Olympic Trials Marathon course in Charlotte, North Carolina. In the West, although many states maintain a high level of certification activity, some of the less populous states are inactive.

In his home state of Texas, Tom has defined a new category of measurers who have earned his complete confidence. Currently, this class contains two people: Andy Beach of Dallas and John Ferguson of Austin. These people send Tom only a course map and certificate data—no other paperwork; then Tom assigns a certification number and issues the certificate. (See additional discussion on this subject later in these minutes.)

Course Registrar, Joan Riegel

As of November 15, RRTC had certified 1011 courses in 1995, predicting about 1100 to 1200 by year's end. The total number of certified courses on file (as of Nov 15) was 13940.

Joan made two special pleas to certifiers. First, she asked certifiers to send courses in a **timely** manner. Some certifiers have apparently sat on certificates for months before sending them in. This has led to embarrassing situations where Pete and Joan were unable to supply a requested certificate even though the requestor specified the exact course number.

Secondly, Joan asked for **greater neatness** in filling out certificates. Some certificates are filled out in handwriting or printing that is hard to read. That's shoddy treatment of measurers and race directors, causes inaccurate data entry, and reflects badly on the certifier. (One possible solution is greater use of computer-filled-out certificates—see discussion later in these minutes.)

Finish Lines, Ryan Lamppa

Ryan emphasized the importance of “doing the little things” in putting on a quality race. He noted the continuing challenge of obtaining all necessary information from race directors (chasing down signatures, etc.). He did say, however, that it’s getting better.

Referring to the Santa Barbara seminar mentioned earlier, Ryan said the ChampionChip was very impressive, the only problem being a question of cost. He also expressed appreciation for the measurement portion of the seminar, as he had no previous experience in course measuring, and this helped him learn what it’s all about.

Validations, Mike Wickiser

Validation activity in 1995 was somewhat higher than the previous year. Twenty-seven certified courses or splits were validated this year. Five of these were found to have been significantly short. Statistically, this is very similar to validation results of previous years. Unfortunately, one of the courses that failed validation this year was a high-profile case involving world-best times, namely the Lilac Bloomsday 12 km in Spokane, WA.

This case was embarrassing because the course found short had been measured by the Final Signatory certifier for Washington state, Mike Renner. Discussion has appeared in Oct '95 *Road Race Management* and Nov '95 *Measurement News*, and additional detailed analysis by Mike Renner will appear in Jan '96 *Measurement News*. While the 1995 course was the one found short on validation, the original measurer (Renner) realized that the same error applied to the '94 course as well; thus, the '94 and '95 courses were *both* about 50 meters short. The problem arose in 1994 after bridge construction between the 4 and 5 mile marks. Renner adjusted the course based on measuring between those two marks; unfortunately, he apparently failed to locate the course’s original 4-mile mark correctly. (More discussion of the Bloomsday case occurred later in the meeting—see below.)

On a different topic, Mike Wickiser reported that on the weekend following this Convention, Amy Morss (New York state Certifier) would lead a pre-race validation measurement of the course that will be used for the Women’s Olympic Trials Marathon in Columbia, SC.

Road Running Information Center, Basil Honikman

Basil spoke more about tests of the ChampionChip system at the Santa Barbara seminar conducted by RRIC. Participants tried to “break” this system, but couldn’t. Basil thinks it will revolutionize the sport if they can reduce the cost. Current plans involve selling chips to each runner at \$25 each. Two companies that market this product in Europe (one Dutch, the other German) have split up. This type of system has the potential to record individual starting and finishing times for every runner. Andy Beach pointed out that a similar system developed by Texas Instruments has been used at the White Rock Marathon.

Bloomsday – Potential for Lawsuits?

This was our first formal agenda item. In the wake of the Bloomsday validation failure, Pete Riegel wondered whether measurers and certifiers could get sued for large amounts of money (maybe lose their house, etc.) for making a mistake leading to denial of a record. (In the Bloomsday case, we were lucky that the race winners did not have finalized contracts with shoe companies involving time bonuses.) Pete said that Bob Hersh advises carrying an “umbrella” insurance policy to cover such eventualities.

It was suggested that the insurance obtained with a USATF race sanction provides some protection to race officials against such mistakes. Possibly, this protects certifiers against mistakes made in the course of their official duties as certifiers, although it probably won’t protect

measurers who have been paid for their services. Also, a question was raised as to whether a personal umbrella policy would protect against mistakes made while providing a service as part of a business arrangement.

Aside from the possibility of lawsuits, several other comments were made about the Bloomsday validation result. Dan Brannen suggested that a pre-race validation would have eliminated the chance of failing validation after the race. Pete Riegel stated, however, that RRTC would get swamped if we received many requests for pre-race validation. Carole Langenbach noted that because Bloomsday hired the state certifier, they thought they were *already* as safe as could be.

Wayne Nicoll asked whether certifiers are getting too relaxed about letting people adjust courses without full remeasurement. The problem in the Bloomsday case was apparently a failure in re-locating the original 4-mile mark. Such errors are likely because we generally don't spend as much effort documenting intermediate splits as start and finish points. Even when original splits *can* be re-located exactly, it's not safe to assume that each split-to-split interval has its correct nominal distance (unless that interval has been certified). We should always retrieve the original paperwork, and check the original measurements of all intervals, and see where the original final adjustment was made. (Possibly, Mike Renner did all these things for Bloomsday.)

International measurement organization

Pete Riegel explained that IAAF administers road course measurement by dividing the planet into four regions. These include Oceania, Asia, Africa, two portions of Europe, and North & South America. Pete is in charge of North & South America. IAAF's goal is to certify a suitable number of "Class A" measurers, and then require that all races on the IAAF calendar be measured by an "A" measurer.

Pete noted, however, that when one of these "Class A" measurers goes to another country to measure a course, conditions are often horrible. The measurer arrives in an unfamiliar country with barely enough time to do a single measurement of a course initially laid out by local measurers. Sometimes the original course turns out to be accurate, but often it needs a large adjustment—which local race organizers may not be agreeable to applying! Nevertheless, the course has now been "measured" by a Class A measurer, and all is assumed to be well.

Pete contrasted this with the USATF system where we do not certify measurers; however, we concentrate on checking each other's work, resulting in extremely credible results, especially where records are involved. It is not reasonable to treat the work of any individual (even a "Class A" measurer) as infallible. We all make mistakes, as illustrated by the recent Bloomsday situation. (Note that Bloomsday measurer Mike Renner is as good a measurer as anyone, as proved in 1987 when the previous Bloomsday course was validated by Bob Baumel and found to be extremely accurate.)

Appropriate SCPF for courses of short nominal distance

For several years, we've been concerned that a disproportionate number of courses seem to be failing validation at shorter race distances such as 5 km, so maybe the Short Course Prevention Factor (SCPF) should be greater than our standard 0.1% for these short-distance courses. Actual measurement error is probably a combination of effects proportional to the course distance and other effects independent of the course distance; thus, the *total* error, expressed as a percentage of course distance, is probably greater for shorter-distance courses. However, an SCPF on such a sliding scale would be difficult to implement in our measuring instructions. Unfortunately, no new ideas on this topic were presented during the discussion at this meeting.

Olympic Marathon Group Measurement

Somewhere between 38 and 39 km of the 1996 Olympic Marathon course have already been measured by Atlanta measurer Jack Grosko and Georgia certifier Woody Cornwell. The remainder of the course will be tied down in the coming months. A group measurement will take place on Memorial Day weekend (May 25-26, 1996) to determine the final adjustment and pre-validate the course. Pete stated that participants in this measurement will need to pay their own transportation, but bikes and hotel accommodations will be provided. Woody Cornwell answered questions from meeting attendees about various aspects of the Olympic marathons such as times of day, degree of shade, nature of turnarounds, relationship with race-walk courses, etc.

Measurement and Certification on the Internet

Basil Honikman is preparing World Wide Web pages for the LDR portions of USATF. These pages will provide information on RRTC and RRIC, including the certified course list, road running records, etc. [This web site may well be operating by the time Jan '96 *Measurement News* is distributed. However, its URL was not known yet as these minutes were prepared.] Basil said he undertook this project due to concern that commercial enterprises were already providing race information and results over the Internet and threatening to make us redundant, so we need to get *our* message onto the Internet.

Bob Baumel was also concerned that we need a presence on the Internet. As an interim measure (before we have our own web site), Bob prepared a quantity of material about RRTC and RRIC and sent it to Dennis Rears, author of an existing World Wide Web site called *The Running Page* (<http://sunsite.unc.edu/drears/running/running.html>), which had already included some material on USATF. As these minutes are being written, Rears has posted some basic contact information for RRTC and RRIC on *The Running Page*. Meanwhile, much of the material that Bob prepared has been incorporated into Basil's web pages.

Several major races have World Wide Web pages. Joan Riegel pointed out that the Columbus Marathon has a page (<http://www.columbuspages.com/marathon>) obtained by tacking onto a web site for the City of Columbus. Mary Anne McBrayer noted that the Houston Tenneco Marathon has a page (<http://sportsworld.com/cache/event/event:317/>) obtained through the commercial Sportsworld service operated by Mike Burns.

USATF currently has a web site (<http://www.usatf.org/>) although its content is still somewhat limited at this time. We're sure that once Basil's USATF/LDR pages are operating, the central USATF site will provide links to our pages.

Quality Control – Computer Generated Certificates

Pete Riegel repeated the plea made earlier by Joan Riegel for greater neatness in filling out certificates. Most certifiers still fill out certificates by hand, although a few do it by computer. Some of the handwritten certificates look really good, but some are difficult to read and reflect poorly on the certifiers.

Pete related some history of computer-filled-out certificates: Bob Baumel designed our present "standard" certificate in 1992 (and modified it slightly in 1993) on his Macintosh. Blank (paper) copies of this form were distributed to all certifiers, but Bob and several other certifiers who own Macs fill out their certificates electronically using his template. In 1994, John DeHaye designed a certificate template using WordPerfect for Windows that basically duplicates the appearance of our standard form; this version has been used by several PC owners (including Pete himself) to prepare certificates. [Note: Tom McBrayer was preparing certificates by computer even earlier than Bob Baumel, but Bob's version became the "standard" form in 1992 after he and Pete and Wayne collaborated in redesigning the content of our certificates.]

Bob Baumel then explained that he had spent much of the past few days designing several *new* templates for filling out certificates by computer. Bob said his goal was to provide templates for all major word processors, to fill out certificates that would all look equivalent to our “standard” form. He figured it would be adequate to support four word processors: Microsoft Word for Mac, Microsoft Word for Windows, WordPerfect for Mac, and WordPerfect for Windows. Bob’s original electronic certificate was done using Word for Mac. He has now added two more templates: for WordPerfect/Windows, and MS-Word/Windows. The WordPerfect/Windows version is really DeHaye’s version, which Bob enhanced a little bit. The Word/Windows version was derived from Bob’s original Word/Mac version by importing it to Word/Windows and cleaning it up in that environment. (Bob is still working on a WordPerfect/Mac version.) Copies of the new templates were distributed to several of the certifiers present.

Course Cutting Warnings

Course cutting had been discussed during each of our past two Convention meetings, and it arose this time also. In the USA, we generally measure courses along the shortest possible path *within the road* (or street), but some runners, especially from other parts of the world, take a more liberal interpretation and cut corners using sidewalks or other off-road surfaces. Thus, if the course has been measured within the roadway, it must be made clear that this is the allowable running surface, and runners who take illegal shortcuts must be disqualified. Last year, George Tillson suggested including a statement to this effect on certification maps.

This year, George announced that he had included such a statement in the instructions provided to runners on race day in their race packets. (This was in the Race with Grace 10 km, a race with about 500 participants.) It was generally agreed that this was preferable to placing such statements on the certification map—because many more runners see these race instructions than the certification map, and also because such a statement on the map can crowd out other important information that should be on the map.

Paul Hronjak asked whether we might be affected by a change in the rule governing disqualification for cutting inside the inner boundaries of lanes on a track. (Rule 65.6 has been amended to remove any consideration of whether the runner gained a “material advantage” by such cutting.) Phil Greenwald noted, however, that the “unfair advantage” provision for road running is stated in Rule 134.4, and no change to this rule was under discussion.

Tom McBrayer’s New Class of Measurers

Tom’s statement that he elevated two measurers in his area to a status where he no longer requires them to send measurement paperwork (They just send him maps and certificate info) generated mixed reactions. Some felt this to be a suitable reward for measurers whose work is consistently first-class, and a welcome reduction in workload for the certifier. Others felt somewhat uneasy about it. Pete Riegel said he had offered a similar arrangement to two measurers in his area, but the measurers themselves declined, saying they would rather have their work checked! The general feeling seemed to be that an arrangement of this sort is acceptable as long as the certifier and measurer are both comfortable with it.

This meeting was adjourned at 22:30.

2nd Meeting — Thursday, November 30, 1995

Attending: Bob Baumel, Andy Beach, Norman Brand, Woody Cornwell, Roger Dann, Sharon E. Good, Norm Green, Jack Grosko, Dave Gwyn, Finn S. Hansen, Paul Hronjak, Carol Kuo, Justin Kuo, Ryan Lamma, Bob Langenbach, Carole Langenbach, AC Linnerud, Mary Anne McBrayer, Tom McBrayer, Sally Nicoll, Wayne Nicoll, Rick Recker, Joan Riegel, Pete Riegel, George Tillson, Karen Wickiser, Mike Wickiser

Pete Riegel called the meeting to order at 20:03. As has become traditional, there was just one official agenda item for this second RRTC meeting of the Convention: announcement of the winners of the RRTC Measurement-By-Pacing contest. This was our 9th such contest, since the first one in Honolulu in 1987. The course this year was a challenging double-loop around Suntrust Plaza, including a short portion of the Olympic Marathon course, and designed by Georgia certifier Woody Cornwell.

Woody presided over presentation of the awards. First-place winner was Carol Kuo, and everybody speculated as to her secret because she was also the first-place winner last year and had won second place in 1991! The second-best measurement this year was achieved by Basil Honikman, but he was not present at this meeting, so the second-place award was presented to Wayne Nicoll. Justin Kuo received the third-place award.

Turning to other business, Wayne Nicoll described the courses for the Olympic Race Walks, which will include a 2 km loop for men and a 1 km loop for women. Bob Baumel mentioned that he had brought some more floppy disks containing his new templates for electronic certificates, as well as his older software for calculating results of course measurements. Several of these were distributed to attendees.

Officially, this meeting was adjourned after just 15 minutes, at 20:18. However, a smaller group led by Jack Grosko remained until about 21:30 to discuss strategy for the upcoming Olympic course measurements. Eight of these people reconvened at 08:00 on Saturday morning, December 2, to tour the Olympic Marathon course. This group consisted of Jack Grosko, Pete Riegel, Bob Baumel, Ryan Lamma, Wayne Nicoll, Tom McBrayer, Mike Wickiser and Andy Beach. Using two cars, they drove the entire marathon course to examine the roads, locate reference points, determine possible sites for calibration courses, etc. Also, led by Wayne Nicoll, they stopped to examine the race-walk site. Final measurements of these courses will take place on Memorial Day weekend, 1996.

Minutes prepared by Bob Baumel, RRTC Secretary.

E-MAIL ADDRESSES

If you would like your e-mail address here, let the editor know. This list will be expanded, and will appear in each issue of **Measurement News**. Typography of addresses is exactly as it appears in what was sent to the Editor.

Bob Baumel (OK Certifier, RRTC Secretary)
Bernie Conway (Canadian IAAF "A" Measurer)
Andy Beach (TX measurer)
Pete Riegel (RRTC Chairman)
Tom Knight (WY certifier)

bob42195@aol.com
BERNCONW@VILLAGE.CA
abeach@ti.com
Riegelpete@aol.com
tdk@leland.stanford.edu

**1995 RRTC Measurement-by-Pacing Contest
USATF Convention - Atlanta, GA**

Official Distance: 689.76 meters

		Estimated Meters	Meters Error	Percent Error	Place	
Carol	Kuo	689.94	-0.18	0.03	1	First Prize
Basil	Honikman	689.38	0.38	-0.06	2	* Late! No prize!
Wayne	Nicoll	690.48	-0.72	0.10	3	Second Prize
Justin	Kuo	690.87	-1.11	0.16	4	Third Prize
Karen	Wickiser	691.07	-1.31	0.19	5	
Jim	Brown	686.44	3.32	-0.48	6	
Bob	Baumel	686.14	3.62	-0.52	7	* Bob's written estimate was 636.4, but he did not include the calibration course as part of the contest. Measurement hereby revised.
Paul	Hronjak	694.15	-4.39	0.64	8	
Roland	Tolbert	695.28	-5.52	0.80	9	
Mike	Wickiser	696.49	-6.73	0.98	10	
Pete	Riegel	697.78	-8.02	1.16	11	
Norm	Brand	699.67	-9.91	1.44	12	
Tom	McBrayer	679.23	10.53	-1.53	13	
Wayne	Armbrust	702.60	-12.84	1.86	14	
George	Tillson	706.50	-16.74	2.43	15	
Finn	Hansen	708.70	-18.94	2.75	16	
Andy	Beach	658.45	31.31	-4.54	17	
Dave	Gwyn	721.13	-31.37	4.55	18	
Sal	Corrallo	620.00	69.76	-10.11	19	
Bob	Langenbach	783.20	-93.44	13.55	20	* Bob said he miscounted by 100 steps, and would surely have not been off by more than 5 meters were it not for this mistake

This year's contest went smoothly and without incident, as everybody was able to find the calibration course and read the map correctly. Thanks, Woody, for an excellent course!

Carol Kuo was also last year's winner. It has been rumored that she checks Justin's measured courses on foot.

Norm Brand abandoned his traditional eye-in-the-sky approach due to invisibility of the contest course from a high hotel window.

Basil Honikman earned second prize, but arrived late, after the prizes had been awarded. He said he was not heartbroken, and was very brave about it.

To assist the contest judge and measurer, Woody Cornwell, George Tillson also submitted his answer in fathoms and chains.

Pete Riegel caught a glimpse of the correct answer while preparing the contest flyer, but he claims he ignored it and honestly interpreted his data as he obtained it. Do you believe this?

Bob Baumel lamely claimed that the calibration course was not marked with arrows, thus did not include its length in his estimate. His protests were heard with great sympathy, and his estimate revised above.

Bob Langenbach said he had miscounted his steps by 100, but in the absence of calibration data his measurement cannot be corrected. Of course, he noticed this after the true answer was revealed. Hmm.

PERCENT ERROR RECORDED IN RRTC PACING CONTESTS

		1987	1988	1989	1990	1991	1992	1993	1994	1995
Wayne	Armbrust								1.15	1.86
Bob	Baumel	0.07		-3.03	-0.91	2.63	-0.72	-1.03	-1.18	-0.52
Marcia	Baumel	0.02				4.37				
Andy	Beach					-5.36	-2.42			-4.54
Michael	Blanchard						1.14			
Bob	Boal				27.76	-0.19	-4.33	1.72	2.75	
Haig	Bohegian				6.72					
Norm	Brand	41.61	8.07	0.80	-0.90	9.56	-24.63	-4.00	-6.84	1.44
Dan	Brannen		-0.21							
Margaret	Brooke	-6.52								
Nick	Brooke	-6.61								
Jim	Brown			0.36						-0.48
Frances	Childs					10.46				
Felix	Cichocki	2.14	0.76	6.51	0.99			-1.89		
Sal	Corrallo								-11.38	-10.11
Robert	DeCelle				187.61					
John	Dunaway			4.58						
Miriam	Gomez		-3.86							
Sharon	Good								3.13	
Barb	Grass					-1.11	12.17	-0.60		
Bill	Grass					-0.83	-3.73	-2.57		
Dave	Gwyn	-3.33		4.91	0.65	1.86	-10.20		0.63	4.55
Ben	Hablutzel	-3.05								
Finn	Hansen	3.31	4.16	-1.02	4.28		-0.07	-1.04	2.05	2.75
Bob	Harrison								-0.83	
Walter	High						-3.34			
Basil	Honikman			5.67	-1.22	-29.89	-0.17	1.35	2.52	-0.06
Linda	Honikman								3.28	
Bard	Horton				-0.47					
Jim	Jacobs				28.14					
Alan	Jones			0.01	1.27					
Clain	Jones				0.09					
Bill	Keesling					22.29				
Tom	Knight	1.50								
Carol	Kuo					0.72			0.34	0.03
Justin	Kuo			17.14	-1.61	0.07	-2.85	40.21	-1.09	0.16
Bob	Langenbach	-0.66		3.50		-0.93	0.33	0.42	-0.52	13.55
Carole	Langenbach						1.76		-2.23	
Mel	Lemon								157.85	
Tom	Mayda				-0.21					
Mary Anne	McBrayer	-2.91	0.14	4.06	-1.69	0.61	2.54	2.40		
Tom	McBrayer	-3.66	-2.38	-1.48	-0.90	3.07	-0.43	0.52		-1.53
Dick	Mochrie						-6.11	2.13		
Wayne	Nicoll	-1.11		-10.34	0.54	-2.55		1.32	-1.26	0.10
Ron	Pate				-7.62					
Rick	Recker	-0.79	-2.22	-0.17	-1.96					
Joan	Riegel		1.74	-3.35	-1.40	2.28		-1.17		
Pete	Riegel	-1.00	0.95	0.08	-0.52	-1.25	-0.39	0.13	-0.99	1.16
Bruce	Robinson								4.00	
Larry	Schloss			2.07						
Don	Shepan								-0.82	
Jim	Skelly								0.15	
Jim	Smith	0.86								
Christine	Steele						-1.83			
Phil	Stewart								6.48	
Stephen	Tabb	0.62								
Bob	Thurston		0.84							
George	Tillson								-1.65	2.43
Peter	Torres, Jr.				33.21					
David	Troy					18.38				
George	Vernosky				27.30	-1.49	-4.68	1.31	0.50	
Karen	Wickiser				-1.53		-5.02			0.19
Mike	Wickiser				2.49	0.22	-0.86	2.36	-0.00	0.98
Median		-0.72	0.76	0.58	-0.06	0.42	-1.83	0.47	0.15	0.18
Average		1.14	0.73	1.68	11.54	1.50	0.58	-6.82	6.24	0.66
Std Deviation		10.16	3.13	5.41	36.84	9.45	1.46	3.74	31.13	4.37

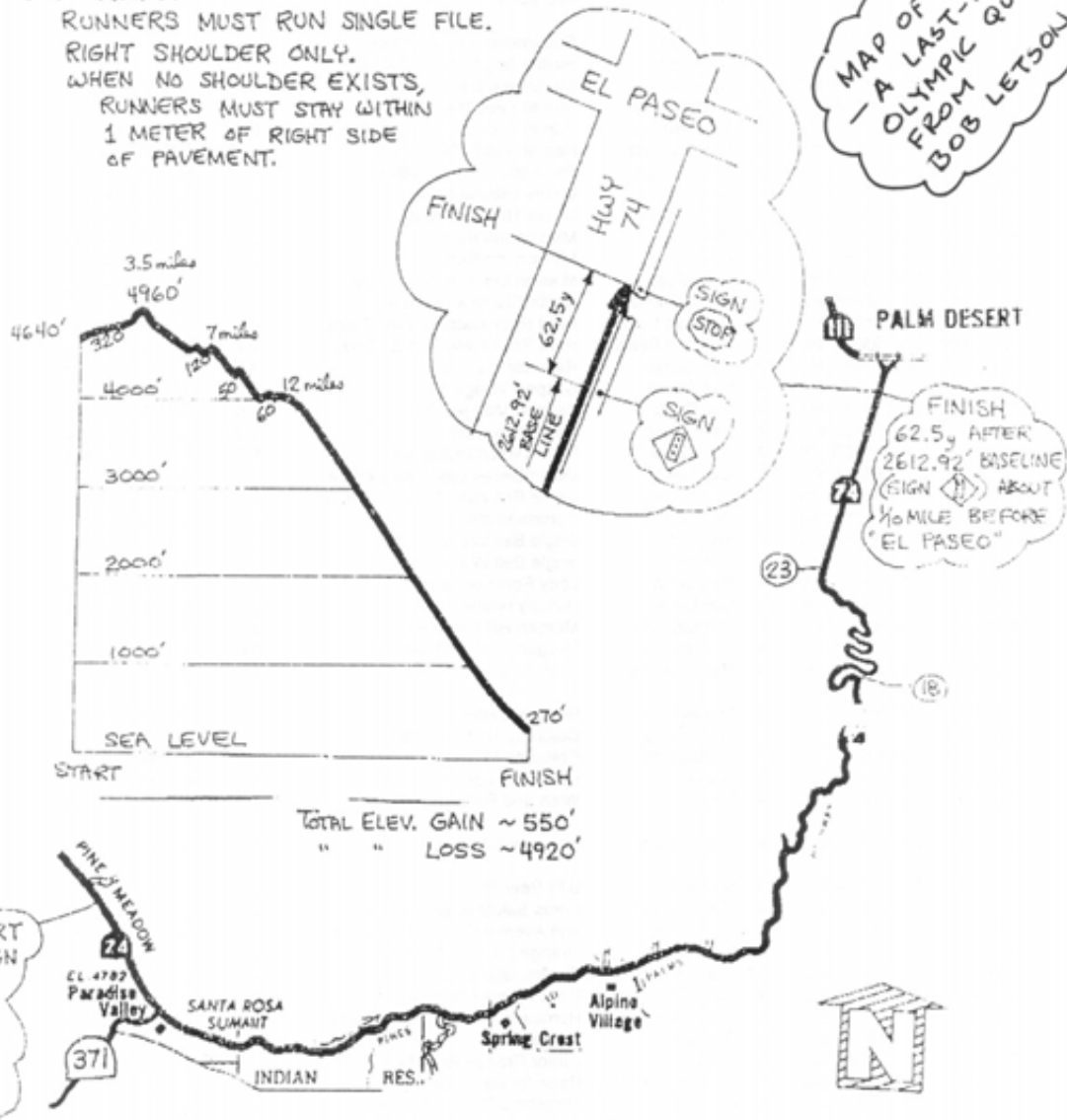
PINES TO PALMS MARATHON

PINE MEADOW TO PALM DESERT, CA
HIGHWAY 74

CONSTRAINTS:

RUNNERS MUST RUN SINGLE FILE.
RIGHT SHOULDER ONLY.
WHEN NO SHOULDER EXISTS,
RUNNERS MUST STAY WITHIN
1 METER OF RIGHT SIDE
OF PAVEMENT.

MAP OF THE MOUTH
- A LAST-MINUTE
OLYMPIC QUALIFIER
FROM
BOB LETSON



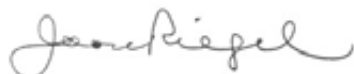
COURSE REGISTRAR REPORT

We listed 1,011 new courses as of November 15, 1995. This brings our total number of courses to 13,920 since 1982. In 1994, we listed fewer courses than normal (1,033). If the present trend continues, we should regain our former level of about 1,100-1,200 courses per year.

A plea for neatness: Some of the certificates we receive are filled out in handwriting or printing that is not easy to read. This makes accurate data entry difficult. More importantly, the measurer who has labored over his measurement receives a messy certificate and the race director receives an illegible document. The certificate also reflects the work of the certifier. Solution: Use a pen that does not skip. Write or print legibly. Use a quality copier. Believe it or not, some certificates are framed and displayed. Your work reflects upon the entire committee.

Requests for about 80 certificates were answered. Most were easy to find. However, occasionally we could not find a certificate for which the requestor had a course number. This was explained later, when we received large piles of certificates from certifiers who had waited months to send in their certificates. Please complete your paperwork promptly, so I can respond to requests in a timely manner. We can't do a good job without up-to-date information.

To those who sent in notes of support during the year, my sincere thanks. I love reading your sticky notes. Let me know whenever I can help you.





Douglas L. Loeffler
Florida State Certifier, IAAF/AIMS Validator
1399 W. Royal Palm Rd.
Boca Raton, Florida 33486 USA

407-997-2080 (Phone)
407-997-2110 (Fax)

November 13, 1995

To: Pete Riegel-3354 Kirkham Road- Columbus, Ohio 43221-1368

Dear Pete,

I'd like to offer comments on several topics:

Bloomsday

In MN issue 74 you asked for comments on " how we might improve "(to prevent courses being found short upon validation). Even though I was involved in the Bloomsday matter there is considerable information about the actual measurement and course adjustment that I do not have, so I am making a few assumptions. As you said in your article we are all going to make mistakes and in many cases those mistakes are not going to be detected until a validation fails. I, like you, have made errors during measurements, some of which I caught and some that I probably haven't. Review of the paperwork by someone else is not the solution. Even if someone were checking my documentation these errors probably would not be detected. If I get confused during the measurement and make such an error and don't catch it myself, there will be nothing on paper to flag it for someone else.

The one area that could possibly benefit from discussion is the adjustment of existing courses. It has always been my understanding (and probably not based on any written instruction in Course Measurement Procedures) that any adjustment to a previously certified course should be made from a certified point. If only the total length of the course is certified (and none of the intermediate splits) then an adjustment must begin from either the start or finish. Just because a course has been measured and certified to be of a certain total length does not mean that each intermediate split has been adjusted to be exactly a mile, kilometer, etc. This can be a daunting requirement for something like a marathon. Who wants to re-measure an entire marathon because of an adjustment to a short segment of the course? But my understanding also includes the belief that we can get around this requirement by measuring the section of the course that will be removed and also measuring the new section to be added. By measuring both segments we assure ourselves that we are adding back the same amount that we removed. It is not even necessary to begin and/or end such a measurement at a previously established split point. You can choose any two points that are common to both the old and the new segments.

Perhaps this is the way the adjustments were made to the Bloomsday course but the correspondence leads me to think it was not. There is Mike Wickiser's indication that the 4 mile mark had been paved over and may have been improperly re-established. This leads me to believe that at the time the adjustment was made the original course was not available to enable a measurement of the section being removed for comparison with what was being added. In that case it may have been advisable to re-measure the first 4 miles to accurately re-establish the 4 mile mark since it was to be the basis of the adjustment to the total course length.

IAAF

I have read and reread John Disleys letter of 30 October and your reply (both MN #74, page 25 and 26) and remain confused about point #2. It seems to me that Johns point is that IAAF does not have a requirement to have a course certified prior to the race. Rule 165 is quoted on page 4 of the manual and states in part "...and the length of the course should have been certified in advance..." (emphasis mine). Page 14 of the manual clarifies this even further under the paragraph "Best Performance Set On a Non-Certified Course" when it states that "it will be necessary for a post-race measurement to be made." It is clearly possible to avoid pre-race certification because provisions exist to measure after the race and to accept records if the course is not short. The problem comes in item 3 on page 15 which says that in a post-race measurement "The 1.001 SCPF will not be added." Therefore an organizer (of a marathon for example)who has his course certified before the race will get a course that is $42,195 \text{ m} + 42.195 \text{ m (SCPF)} = 42,237.195 \text{ m}$ total length, whereas the organizer who avoids a pre-race certification can have his course set up at 42,195 m and presumably get faster times and a post-race validation. The wording in Rule 165 should be changed from "should" to "must".

Best regards,



Doug Loeffler

USATF RRTC VALIDATIONS

1995 ACTIVITY REPORT

November 29, 1995
M.A. Wickiser Validations Chairman

M.A. Wickiser

Validations conducted

DATE OF RACE	DATE OF VALIDATION	TYPE OF RACE	DISTANCE ADVERTISED	NIMONAL DISTANCE	MEASURED DISTANCE	PERCENT DIFFERENCE	COURSE ID #	COURSE NAME	MEASURED BY	VALIDATED BY
04/09/94	04/28/95	ULTRA 50M	50M	80467.20	80353.74	-1.41 PA	94005 RE	North Park 50 Mile	COURTNEY RIEGEL	RIEGEL
04/09/94	04/28/95	ULTRA 50k	50k	50000.00	49933.20	-1.34 PA	94004 RE	North Park 50 K	COURTNEY RIEGEL	RIEGEL
11/04/94	04/23/95	R/W 5k	5k	2500.00	2500.07	2.43 MS	93005 RH	Picayune Fall Class 5k RW	LEE	NICOLL
05/07/95	07/29/95	LDR 12k	12k	12000.00	11950.12	-4.16 WA	95003 MR	Lilac Bloomsday	RENNER	LOEFFLER
04/09/94	08/28/95	LDR 10M	10M	16093.44	16121.38	1.74 OR	90012 LB	Pear Blossom 10 Mile Run	GUSTAFSON	BARRETT
06/19/95	08/27/95	R/W 10k	10k	10000.00	10018.24	1.82 OR	93004 LB	USATF 10k Race Walk	ZEMPER	BARRETT
09/10/94	09/14/95	LDR 12k	12k	12000.00	12021.68	1.81 AR	92003 DLP	The PRU 12k	POTTER	McBRAYER
09/16/95	09/14/95	LDR 5k	5k	1000.00	1000.47	0.47 TN	95014 RH	Eastman 5k Racewalk ***	CHANEY	NICOLL
10/15/94	09/23/95	LDR 50M	50M	80467.20	80478.48	0.14 ME	85011 GN	Maine 50 Miller	TRACY	NICOLL
04/23/94	09/25/95	ULTRA 100k	100k	100000.00	100094.00	0.94 CT	89002 DR	Jack Bristol 100k	GUIDO BROS.	NICOLL
04/23/94	09/25/95	ULTRA 50M	50M	80467.20	80546.36	0.96 CT	89003 DR	Jack Bristol 50M	GUIDO BROS.	NICOLL
10/17/93	10/14/95	LDR 10M	10M	16093.44	16111.37	1.11 DC	93035 RT	Army 10 Miller	THURSTON	NICOLL
11/13/94	10/11/95	LDR 15k	15k	15000.00	14995.95	-0.27 NY	82002 TC	Stockade-athon	GOAT	NICOLL
03/11/95	10/14/95	LDR 15k	15k	15010.28	15010.28	0.69 IN	95004 DL	Gate River Run	ALDRIDGE	LOEFFLER
05/13/95	10/22/95	LDR 12k	12k	12000.00	12010.64	0.89 IN	95010 MW	Arts Festival 12km	STEGMOLR	WICKISER
06/25/95	10/21/95	LDR 5k	5k	5000.00	4998.90	-0.22 IL	95014 JW	Band on the Run	HINDE	WICKISER
06/04/95	10/21/95	LDR 10k	10k	10000.00	10020.28	2.03 IL	94053 JW	Park Forest Scenic 10 Mile Run	HINDE	WICKISER
06/04/95	10/21/95	LDR 12k	12k	12000.00	12023.71	1.98 IL	94053 JW	Park Forest Scenic 10 Mile Run	HINDE	WICKISER
06/04/95	10/21/95	LDR 15k	15k	15000.00	15022.99	1.53 IL	94053 JW	Park Forest Scenic 10 Mile Run	HINDE	WICKISER
06/04/95	10/21/95	LDR 10M	10M	16093.44	16115.37	1.36 IL	94053 JW	Park Forest Scenic 10 Mile Run	HINDE	WICKISER
09/24/95	10/22/95	R/W 15k	15k	15000.00	15009.48	0.63 IL	95059 JW	Illinois USATF North Region 15k	KNOEDEL	GRASS
12/10/94	10/27/95	ULTRA 50M	50M	3333.40	3326.21	-2.16 FL	93041 DL	Tallahassee Ultra Classic	DECKERT	HARRISON
02/17/96	10/18/95	LDR Marathon	Marathon	42195.00	42259.53	1.53 NC	94007 WN	Charlotte Observer Marathon ***	WHITE	McBRAYER
04/09/95	11/18/95	LDR 10M	10M	16093.44	16131.74	2.38 DC	95001 JS	Northern Telecom Cherry Blossom	SISSALA	THURSTON
04/20/94	10/15/95	R/W 10k	10k	10000.00	9992.77	-0.72 FL	94012 DL	10k Racewalk @ U.F.	WARD	LOEFFLER
04/20/91	11/18/95	ULTRA 100k	100k	13388.64	13420.14	2.35 CA	86021 CW	Ruth Anderson 100k '91	WISSER	WIGHT
04/15/95	11/18/95	ULTRA 100k	100k	13568.60	13593.82	1.84 CA	95008 CW	Ruth Anderson 100k '95	WISSER	WIGHT

Currently pending :

- NM 93009 FC North American Masters RW
- WI 90008 WG U.W. Parkside
- FL 88001 DL Tradewinds Park 2.5k Racewalk
- TX 84001 DM Jackson Five - O
- CA 86068 PR Carlsbad 5000

COURSES REVIEWED

- Freiloffer's Run for Women
- Houston Tennessee Marathon
- Examiner Bay to Breakers
- New Haven 20 km
- Humbolt Redwoods Half Marathon
- Sri Chimmoy Ultimate Ultra
- Gasparilla Distance Classic
- Suny Race Walk - Albany, NY

* Previous Validation Applies
 ** Course Accepted on Measuror's Credentials
 *** Pre- Race Course Check

BLOOMSDAY REVISITED

A letter from Mike Renner (typing by Pete Riegel)

Nov. 14, 1995

Dear Pete,

I have finally finished as much checking, re-checking, calculating, remeasuring etc as I am going to do for the present on the Bloomsday data. I know as much and as little now as I did when the bomb burst. Following are some certainties:

- 1) The course was measured in 1985 from start to finish, starting at the pre-1985 start and found to be 159' short; the course was lengthened at the start and 1,2,3,4,5,6 & 7 mile marks.
- 2) The course was re-measured in 1986 after some road-widening between the 1 and 2 mile points and found to be about 7' long; course was adjusted at the start and 1 mile mark.
- 3) The course was validated by Bob Baumel in 1987.
- 4) The course was re-measured in 1994 in the middle of a bridge-replacement project (the bridge over the Spokane River between the 4 & 5 mile points was being replaced by a new bridge parallel to the old one). The measurement was done over the old bridge, which measurement was necessitated by the approaches to the bridge having been changed and the road nearby on both ends of the bridge having been replaced. The segment between the 4 & 5 mile points was all that was measured, and the segment was found to be about 186' long. The course was then shortened at the start and miles 1, 2, 3, 4. The 4-mile point was on a segment of road that had been repaved, and the 4 mile mark was gone and had to be re-established by measuring to the landmark as mentioned in the paperwork, which paperwork is believed to be the "20' W of 2 water shutoffs" mentioned in 1986 (which is the only printed verbiage for the 4-mile point at that time). (The actual sheet used as reference for the 1994 measurement is one of the only pieces of notes I cannot find from all the Bloomsday measurement data)
- 5) The new bridge was completed in early 1995, and a remeasurement was done which showed the course to be about 18' short (again, the 4 to 5 mile segment was measured.) (Measurement was over the new bridge next to where the old one had been.) Start was adjusted, as well as 4, 3, 2, and 1 miles.
- 6) Doug Loeffler did a validation and found the course short.
- 7) Mike Renner and Bill Johnson did a re-measure in September and found the course short.

- 8) 1985, 1986, 1994 and first 1995 measurement used a certified 1/2 mile cal course on Assembly Street.
- 9) Bob Baumel's 1987 validation ride used a 300 meter short cal course set up by Bob on College Avenue west of Monroe St.
- 10) Since Baumel's 300 m course was gone for some reason, Loeffler had to re-establish a 300 m short cal course in basically the exact same place. This new Loeffler cal course was used to do the 1995 validation measurement.
- 11) Renner & Johnson re-measured 300 m short cal course and found it to be 1/16" off - their measurement vs Loeffler's.
- 12) Renner & Johnson used 300 m short cal course to do 1995 re-measure in September which found course to be short. 1995 September measurement was done Finish to Start to simplify things, even though dominant eye bias was a factor.

The above (and below also if I think of anything else in the course of this) basically sets the stage for a lot of trial and error messing around with figures to try and find some scenario that explains why the course is short but also takes into consideration the following:

- a) The 5-mile mark as established after the 159' adjustment in 1985 remained in the same place, marked with painted nail. This was on an entirely different stretch of road that was not repaved (thank God). The September 1995 re-measurement showed the 5 mile to be roughly 9 feet from the nail & paint mark (eye bias).
- b) The 4-mile mark established in September 1995 was within inches (maybe coincidence) of where the 4-mile should be using the 186' long & 18' short calculations from the 20' W of 2 water shutoffs...

HOWEVER, the fact still remains that the damn course is short, and the only changes made were as a result of supposedly finding the 1-mile segment measured (5 mile to 4 mile) long by 186' and then short by 18', so obviously this has to be part of the explanation.

I have almost every scrap of paper, cardboard - which works great for notes - and forms used on all the measurements. In them are counts, working constants, and guessed-at references for preliminary measurements (to get me close enough when I come back to tape-measure adjustments, so I could find my preliminary work), adjustment distances and to what landmark, and final taped-off distances from a final landmark

Going through some of this 10 years after the fact has raised some questions and given me a start for new theorization. I worked my way through the 5 or 6 different scenarios, made several trips out to the 4 mile point, and in each case came to a dead end.

I was going to write this several days ago but didn't for some reason. Yesterday it occurred to me that if the cal course on Assembly Street were short this would be a simple solution for what happened and yet take into consideration A & B above. (In 1994 I found the Assembly St. cal course had been re-paved - we apparently have an overzealous street-paving program in Spokane - and I had to re-measure from both end points to re-establish it.)

So this morning I drove out and re-measured and found the north end to be exactly where it should be and the south end to be approximately 15 feet long - due to using one sewer grating vs another as opposed to one nearby - to re-establish the marks.

However, 15' x 2 to get an extra 30' for the mile segment doesn't answer the question at hand (because it's in the wrong direction), and I'm faced with the same situation I had when I started-

- a) The course is short.
- b) It had to be as a result of a mistake in measuring in 1994 that (mistakenly) found the measured segment 186' long.
- c) I don't know how it happened.

After spending lots of hours on this, I am finding myself coming up with some theories for the second time - theories I had worked through & disproved. Obviously there must be some answer, but I haven't found it.

I am willing to send you a copy of as much of the info as you are interested in seeing, or - probably more practical - I can photocopy or re-write the pertinent parts and you can look at it. OR BETTER STILL - how about making this a puzzle of the month and let the certifiers work on it? I'm open to anything. Like I say, there must be a solution, but unless lightning strikes and a miracle occurs, I don't think I'm going to find the answer by myself.

Let me know.

Best regards,

Mike Renner



November 19, 1995

Michael Renner - 1605 East 19th Ave - Spokane, WA 99203

Dear Mike,

Thanks for the exhaustive recapitulation of the measurement history of Bloomsday. Like you, I can find no single action in the process that absolutely led to the short course. However, my guess is that the error probably stemmed from a mislocation of the 4 mile mark when it was re-established after the street repaving. It is possible that the 4 mile mark may have been incorrectly documented in the original (1986) measurement. The 1987 validation ride of Bob Baumel and you established that all marks were correctly spaced. The distance between mile 4 and mile 5 was 1612 m (Renner) or 1613 m (Baumel) - both very close to the 1611 m that is the length of a mile with 1.001 SCPF included. Bob's report did not mention that he checked the documentation locating each and every split, although he did check start and finish locations carefully. Note that checking the documentation of intermediate splits is not a required part of a validation ride.

This situation points out graphically the weakness of using a reestablished point as accurate. Your discovery of the error in the reestablished Assembly Street half-mile reinforces this. It's also weak to assume that the distance between two mile points is actually one mile. A better method of adjustment would have been to use only the five mile point as a reference. It is documented, and the nail is still there. The distance from 5 miles to the finish has not changed since 1986. In the 1987 validation ride you obtained a distance from 5 miles to the finish of 3960.01 m. Bob obtained 3962.85 m. Using the lesser value, and applying the 1.001 SCPF, we come up with a solid, certifiable distance from 5 mile to the finish of 3956.05 m, very close to the 3953.28 it is supposed to be. Not at all bad for an intermediate split.

It would be possible, of course, to begin at the five mile point and measure backward to reestablish the start. However, I think that the situation requires a full dress ride with no further adjustments. I would begin at the finish and ride toward the start, stopping at all of the old splits to mile 5 enroute and taking a count at each. Based on Baumel's and your work, you should find little difference between the finish-to-5 mile splits. Past mile 5 you should lay down new splits, all the way to the start. Then a second check ride, and take the lesser length as official. Document all points carefully. Your work should agree closely with Loeffler's.

This complete ride will reestablish the course as accurate, and will provide a brand-new basis for looking at the course. As time flies detective work becomes difficult, and it is difficult to recall exactly what one may have done years ago. The 1994 and 1995 courses are history. The 1996 course must be solid.

I note that your Assembly Street half-mile calibration course was repaved, and you re-established it in 1994 by measuring from reference marks to where the nails supposedly lie. Then you checked the course in 1995 and found it 15 feet too long, or 30 feet per mile. This points out the peril of re-establishing calibration courses from reference marks. Those reference marks are intended to help the measurer locate a nail in the pavement, or other physical reference point. If the nail is gone, the course should be completely remeasured. In these days of 300 m calibration courses, this is not burdensome. The use of the inaccurate calibration course should have resulted in the race course coming out longer, though, not shorter.

It is interesting to note that when Doug Loeffler checked the course he found the first two miles to be only 2.4 m longer than desired. This is only 8 feet difference - not the 60 feet that would have resulted from your using a calibration course that was 30 ft/mile too long. Another puzzler. But Doug's validation did establish that the shortness did occur somewhere between 2 miles and 10 km, which interval includes the 4 mile and 5 mile points.

As time goes by it is common for races to make slight changes to their courses, and it's likely that the same measurer will do the work. Adjustments can get out of hand, as we've seen from this. At the conclusion of any measurement, including one in which adjustments were made, it should be possible to reconstruct a complete chain of certifiable measurement data between locatable reference points, be they hydrants, drains, or nailed split points.

The fatal flaw in the Bloomsday exercise, in my view, was the use of the repaved 4 mile point as a solid reference. I may be wrong, but right or wrong it was a shaky procedure.

I'll put our correspondence in next MN and let the readers have a shot at it.

Best regards,

A handwritten signature in cursive script that reads "Pete".

copy: Mike Wickiser

DOUG THURSTON

4217 A Street
Sacramento, CA 95819

Phone (916) 457-1997
Facsimile (916) 457-1902

Dec. 31, 1995

Measurement News
c/o Pete Riegel
3354 Kirkham Road
Columbus, OH 43221

via facsimile

Dear Pete:

As a veteran race director and road runner, I wanted to thank you and your fellow measurers, certifiers and RRTC committee members for years of service to the sport. The work you all do is mostly in the shadows and, often literally, in the dark of night or early morning. The results of your efforts, however, are a bright spot in our sport. With the current cultural and political trend for less regulation and a return to a "more simple" time, I am pleased that you and the RRTC committee is as strong and steadfast as ever in maintaining high standards for course measurement and certification.

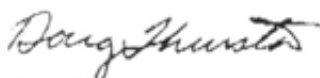
As a competitor, I have most of the 500+ road races I have completed in the past 15 years have been in Oklahoma, California, and Ohio, I feel comfortable with the times run on these courses as these states, in particular, are bastions for course certification.

As a race director, every measurer I have worked with has been delightfully accommodating and patient—and extremely talented. I have had the pleasure of working with many of the U.S.'s most prolific measurers including Pete Riegel, Glen LaFarlette, Ron Scardera, and Scott Hubbard. In particular, the time I spent with Ron Scardera in early 1995 with the Disneyland Marathon and 5 km reaffirmed the skills and abilities of many of your brethren. What Ron did on race day in remeasuring the Marathon course while the race was on was unbelievable! I know most if not all of the other talented measurers would have probably been able and willing to do the same thing. The talent across the country is impressive in both depth and scope.

I also want to give a hearty "Thank You" to you, personally, for *Measurement News*. I enjoy each issue and I am continually impressed with the quality of writing and the direct, effective communication style. The publication is interesting and informative to many fans of the sport.

Best wishes for another successful year of measurement and thanks again to all measurers and certifiers for their efforts. Keep up the great work!

Sincerely,



Doug Thurston
Race Director and Event Consultant

Tom McBrayer
Vice-Chairman West
Road Running Technicalibration
Council
USA Track & Field
4021 Montrose Blvd.
Houston, Texas 77006-4956
713-523-5679
713-523-5679 (FAX after tone)



October 19, 1995

Mike Wickhauser
Validations Chairman, RRTC
2939 Vincent Road
Silver Lake, OH 44224

Dear Mike:

Let me assure you the Men's Trials course in Charlotte is a good one. It's an attractive, rolling loop, virtually 100% asphalt, that starts and finishes in the downtown area. It should give our guys a taste of what's ahead in Atlanta. And it's long enough; finding out, though, was scary. Here's what happened.

Paul Hronjak and I toured the course on Tuesday afternoon (10.17.95) with Danny White. Danny is the Technical Director for the Men's Trials (and the people's marathon as well) and he also measured the course in 1994. This new course was given a "shakedown cruise" last January, hosting the national men's championship. It worked and worked well. We noted the start, finish, and turn-around areas. All were well-marked in accordance with the map.

A 1000' calibration course (NC94004WN) had been laid out on a sidewalk adjacent to the finish. Due to a slight curve on the north end of the course, we decided on a temporary on the same sidewalk, but in a straight section. (It's easy to understand why the course was located here: it's the only spot available!) We had no way to check the original. The temporary was measured at 228.139 meters.

After a few brief hours of sleep, we were back at the calibration course and rode four (4) precalcs on both the temporary and the 1000.' Agreement was not good so we went with the temporary.

The validation ride started at 2:20 AM with a single police escort. Traffic was extremely light and we were later joined by a second escort, just in time for the "against traffic" sections.

The plan called for readings at 10km splits which we did, and we also took a water/power bar/gatorade break just past the 30km mark. The ride was completed at 5:05 AM, 2 hours 45 minutes after the start. We recalibrated and returned to the host hotel.

Preliminary calculations showed the course to be woefully short. Like the manual says: Something's wrong; fix it! That's what we did and the culprit was - my old nemesis, the

temporary calibration course. As it turned out, the 228 m was actually 229 m. I had read the tape wrong! The new constant worked and the resulting distance was in good agreement with Danny's figure (and the 1000' calibration course). All's well that ends well. The Men's Trials are in good hands. With the proper timing, video, etc. any pending records should be verifiable.

Our thanks to our hosts, Mr. Don King of *The Charlotte Observer*, Danny White, our able guide, and the Charlotte-Mecklenburg Police Department.

And a very special thanks to Paul Hronjak. It was his first validation ride, at night no less, and he came through with flying colors. He was a real stabilizing factor.

Sincerely,



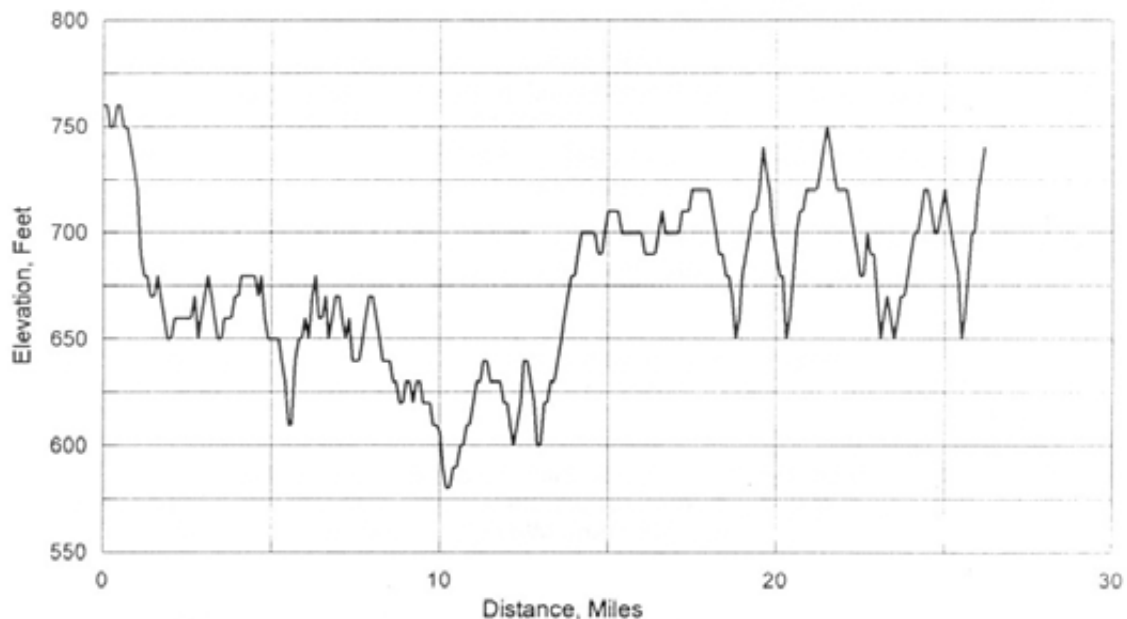
E. T. (Tom) McBrayer
Vice Chairman West RRTC

Encls:

cc: Pete Riegel
Wayne Nicoll
Paul Hronjak
Danny White

US Men's Olympic Trials Marathon

Course Profile



Based on information supplied by Doug Thurston - 31 December 1995

PREVALIDATION OF MEN'S OLYMPIC TRIALS MARATHON - CHARLOTTE, NC

Date: 18 October 1995

Measurers: Tom McBrayer, Danny White (original course measurer), Paul Hronjak

All calculations use average constant and include 1.001 short course prevention factor.

All distances are shown in meters.

Calibrations	Tom	Paul	Danny
Cal length, meters	229.139	229.139	304.8
Precal	2311	2303	3542
	2310	2303	3542
	2311	2303.5	3542
	2310.5	2303	3542
counts/meter	10.09403	10.06126	11.63236
Postcal	2315	2303	3542
	2313	2303	3542
	2315	2303	3542
	2312	2303	3542
counts/meter	10.10768	10.06072	11.63236
Day's constant, cts/m	10.10085	10.06099	11.63236

Measurements

Point	Tom Recorded Count	Tom Interval Count	Tom Interval Meters	Paul Recorded Count	Paul Interval Count	Paul Interval Meters	Danny Recorded Count	Danny Interval Count	Danny Interval Meters
Start	87800			39000			521300		
10 km	188827	101027	10001.83	139609	100609	9999.91	637605	116305	9998.40
20 km	289932	101105	10009.55	240283	100674	10006.37	754019	116414	10007.78
30 km	391117	101185	10017.47	340977	100694	10008.36	870446	116427	10008.89
40 km	492302	101185	10017.47	441686	100709	10009.85	986906	116460	10011.73
Finish	514476	22174	2195.26	463748	22062	2192.83	1012461	25555	2196.89
Total			42241.57			42217.31			42223.69

Supposed to be: 42195 meters
 Difference from best measurement: 22.31 meters

Note: McBrayer's initial count was recorded as 88300, but it is thought that 500 counts were lost.

Comparison from 10 km to Finish:

Tom	32239.75	
Paul	32217.40	This is good agreement.
Danny	32225.29	

Amy Morss
Sen. Tobey Hwy.
RR 2 Box 583
Temple, NH 03084
603-924-4164

Dec. 18, 1995

To: Mike Wickiser, Validations Chairperson, RRTC
2939 Vincent Rd.
Silver Lake, Ohio 44224

Summary Report WOMEN'S TEAM MEASUREMENT OF THE CAROLINA MARATHON
FOR WOMEN'S 1996 OLYMPIC TRIALS

Enclosed are copies of all the data collected during the validation ride, courtesy of Pete Riegel and his computer. This year, because Sally and Wayne Nicoll were unable to attend, I took the plunge as team leader. This report will summarize our experience, both technically and otherwise.

Larry Mattox as Executive director of the Carolina Marathon Association proved to be a wonderful host. He and his wife Cathy are totally involved in every aspect of the trials, and both made sure we were extra comfortable. They (and the marathon) provided us with our hotel rooms, transportation when needed, and wonderful meals. Ed Prytherch, as the course measurer, took care of the technical end of things, working out the police escorts, bikes, and calibration work.

The team this year was bang-up as usual. The riders were: Olympic trial measurer pro Betsy Hughes (this is her third one) FL; Elizabeth Longton (this is her second) KY; Carol McLatchie, USATF Athlete rep (she rode in Houston, but without a counter-- this year we're glad she had one!) TX; Ed Prytherch rode with a counter, but in the lead to help us with the course; Alice, Betsy's Mother was invaluable as our recorder, laying the cal course and numerous other tasks; and me.

The measurement ride was held the weekend of December 1-3. We had to be careful about our weekends to avoid football traffic. The weather cooperated and our timing was amazing.

Arrival times varied for all of us. I arrived on Friday afternoon and was met at the airport by Greg McMillan. Greg is a local grad student and who is fortunate enough to be able to work for the marathon through a grant. He is involved at every level, and is even the lucky one who gets to run the course over and over with the elite runners at something like a 6:30 pace! We saw Greg a lot over the weekend. Greg brought me to the hotel where I met Betsy and Alice (who also arrived Friday) in the lobby. We all shared a room, got cleaned up, caught up, and

ready for dinner. Larry met us at the hotel and took us out to dinner with his wife Cathy. This is where we learned that one of Alice's other daughters (and Betsy's sister) owned and lived in the very same house that Larry and Cathy presently own! Talk about a small world. We went to bed later than we should have, but then, we only see each other only every four years and had catching up to do.

On Saturday morning, Ed met us bright and early so we could lay a cal course close to the start/finish. The cal course he used for the measurement was too far away. Ed had picked out a quiet side street that was straight and uphill. The two measurements came out exactly 1000' (much to our disbelief) and we adjusted for temperature. That being done, we went back to the hotel for a great breakfast buffet (complete with grits!) and awaited the arrival of Carol and Elizabeth. We managed to sneak a run in, too. They arrived in time to meet with Ed at 1:00, so we could all go off and get fitted for our bikes. (Greg met them at the airport too). The bikeshop was Outspokin, where we met Brian Curran the manager and Andy (he was a hoot). They were wonderful there and let us pick out any bike we wanted. The counters were installed and we rode back to our hotel.

At 3:00 we met with Greg and Pete Werner who was nice enough to provide his van for the course tour. There were a fair amount of course restrictions, but Ed's map was quite clear. At this time they gave us a packet which I've included for you to see. We rode the course from start to finish, both on the tour and on the measurement.

We had a little rest time before we were met by Larry again for our big celebration dinner. We walked to a great Italian restaurant where we could load up on pasta for our ride. Larry and Cathy attended, Ed and his wife Marsha (a native central New Yorker--the only other one that talked like me--we talked shop), Greg, and we met Dr. Russ Pate, the president of the marathon association. It was then back to bed for a not too early ride in the a.m.

At 5:00 am we prepared to leave our room to meet the others in the lobby. As I began to wheel my bike out, my Jones counter broke! It's ancient and rusty, but by the luck of the draw I had an extra. I had brought it for Carol to use, but chance had it that Wayne lent her his at the convention! Thank goodness, because that would have been the end of me. And it was amazing it broke then and not on the ride. Anyway, we rode out to the cal course, it was cool and dark. It went ok, Betsy was concerned at the variation of her rides, but I assured her that was typical for an inclined course. Carol had to get 2 extra rides because something wasn't jiving, but we left ourselves plenty of time for things like that.

We went back to the hotel and were met by Ed, who did his calibration on his own and Brian from Outspokin, who drove his car and carried Alice as our recorder. We had T-shirts from the

bikeshop which we were proud to display. The police were due to meet us at 6:30 at the start and they were right on time. Unfortunately, I did neglect to check the start/finish points against the map (whoops only a minor detail), but plan to do it when I go back race time in February. We took off about 6:39 at about 50 degrees. Riding order was Ed, Betsy, Elizabeth, Amy and Carol. We had a police car in front and in back.

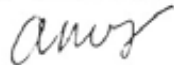
The ride itself went very smoothly. We did have to do some displacements because of cars parked and construction barrels. It was also tricky at times because of the restrictions. Some were obvious due to medians and oncoming traffic, but some weren't. We took 5K splits only because we had time constraints--my plane out was at noon. Alice would write down our numbers as we called them out and as a double check, we each wrote our own down. Our police escorts did an excellent job of covering us. They knew how to frog-hop an intersection so we all got through safely. It was a little tricky keeping up with Ed--he knew the course so well, and probably was more used to hills than some of the flatlanders, but all in all, we stayed together well. Fortunately we had a bathroom break around 8 miles at the Mattox home which is conveniently located right on the course! Alice and Betsy already knew where it was and had been delighted to see the old place the day before on our course tour. Dr. Pate took pictures through the army base, by then it was daylight and starting to get warmer. There was another quick food/bathroom-in-the-bushes break within the army base boundaries and then it was off to the finish. There we were met by Debra Curran the publicity person, and also a TV crew. They interviewed us, filmed us, and then numerous pictures were taken. It was then quickly off to the post cal and back to the hotel for a first stab at the numbers. Because my plane was due to leave soon, I could only roughly figure numbers, but soon realized that the course looked at least the stated distance, with our rookie Carol having the best ride. She was sure we'd be throwing out her numbers...

Quick goodbyes and thank yous were said and Larry packed me off to the airport. We were within 20 minutes of my departure, and after a panic attack of thinking I lost my ticket, I was off to cold New Hampshire. Everyone except Elizabeth left that day too. She kindly did much of the cleanup work, faxing numbers off to Pete, making important phonecalls to the Nicolls and Pete and making sure everything was tied up. Thanks Elizabeth--it was very hard to leave so rushed, but eased my mind to know everything was in good hands.

As the numbers turn out, the course is long enough that it was Pete's suggestion to take off 44 meters. There was also some question about the 25K, which appeared to be way off. It turns out that Ed realized that it was a mark they forgot during the actual measurement ride. He went back to put it in later and inadvertently put it about 1000 counts off. He plans to correct it before race day and to send me the new map. We will issue a new cert.

I want to thank the marathon committee again for everything. We all received beautiful sweatshirts, a South Carolina frame and a marathon pin. These items combined with everyone's hospitality and kindness made it a wonderful experience for all of us. Thanks, too, once again to these strong and beautiful women: Bets, Elizabeth, Carol and Alice. Without their continued support and gentleness, my job as team leader would have been much more stressful. It was agreed that Sally and Wayne's energy was one of the things lacking, but there's always 2000! Thanks to Pete and the RRTC for his financial, numerical, and analytical support. I look forward to being back in SC on Feb 10th to watch the race.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Amy Morss".

Amy Morss, Team leader
New York State Certifier

Validation Measurements
US Women's Olympic Marathon Trials - Columbia, SC

Measurers: Amy Morss - Team Leader
 Betsy Hughes
 Elizabeth Longton
 Carol McLatchie
 Ed Prytherch - Original Course Measurer

Calibration course laid out 2 December 1995 - 7:15 AM - 51F

First measurement:	1000.00 feet	Note: the agreement was exact. Two sets of marks were used.
Second measurement	1000.00 feet	
Average measurement	1000.00 feet	
Temperature correction	-0.10965 feet	
Corrected length	999.8904 feet	
	304.7666 meters	

All calculations use average constant and include 1.001 SCPF.
 All measurements are shown in meters unless otherwise noted

Note: The calibration course was sloped, so that rides one way were uphill,
 and in the other direction downhill. The effect is seen in the calibration counts.

Precalibrations: 5:40 AM - 48F - 3 December 1995

Ride	Amy	Betsy	Elizabeth	Carol	Ed
1	3013	3007	3440	3549	3084
2	3016	3009	3441	3553	3086
3	3013.5	3008	3440	3550	3085
4	3015.5	3010	3441	3553	3085

Average	3014.5	3008.5	3440.5	3551.25	3085
Cts/meter	9.901068	9.881361	11.30026	11.66401	10.13262

Postcalibrations: 10:20 AM - 58F - 3 December 1995

Ride	Amy	Betsy	Elizabeth	Carol	Ed
5	3008	3002	3436	3544	3081
6	3013	3008	3436	3550	3081
7	3010	3002	3436	3544	3082
8	3014	3006	3437	3550	3082

Average Count	3011.25	3004.5	3436.25	3547	3081.5
Counts/meter	9.890393	9.868223	11.2863	11.65005	10.12113

Change of Constant					
Counts/kilometer	10.7	13.1	14.0	14.0	11.5

Day's constant					
Counts/meter	9.89573	9.874792	11.29328	11.65703	10.12688

Counter Readings Obtained at Various Points

	Amy	Betsy	Elizabeth	Carol	Ed
Start (6:30 AM)	86400	10700	97510	848100	4000
5 km	135736	59935	153843	906199	54514
10 km	185341	109463	210474	964608	105336
15 km	234885	158925	267047	1022948	156055
20 km	284475	208407	323654	1081315	206774
25 km	333051	256895	379111	1138523	256482
30 km	383619	307361	436853	1198074	308220
35 km	433127	356752	493349	1256349	358863
40 km	482654	406160	549887	1314651	409552
Finish (9:30 AM)	504598	428037	574918	1340478	431996

Measured Intervals, Counts

	Amy	Betsy	Elizabeth	Carol	Ed
Start					
5 km	49336	49235	56333	58099	50514
10 km	49605	49528	56631	58409	50822
15 km	49544	49462	56573	58340	50719
20 km	49590	49482	56607	58367	50719
25 km	48576	48488	55457	57208	49708
30 km	50568	50466	57742	59551	51738
35 km	49508	49391	56496	58275	50643
40 km	49527	49408	56538	58302	50689
Finish	21944	21877	25031	25827	22444

Measured Intervals, Meters

	Amy	Betsy	Elizabeth	Carol	Ed	Shortest Split
Start						
5 km	4985.58	4985.93	4988.19	4984.03	4988.11	4984.03
10 km	5012.77	5015.60	5014.58	5010.62	5018.53	5010.62
15 km	5006.60	5008.92	5009.44	5004.70	5008.36	5004.70
20 km	5011.25	5010.94	5012.45	5007.02	5008.36	5007.02
25 km	4908.78	4910.28	4910.62	4907.60	4908.52	4907.60
30 km	5110.08	5110.59	5112.95	5108.59	5108.98	5108.59
35 km	5002.97	5001.73	5002.62	4999.13	5000.85	4999.13
40 km	5004.89	5003.45	5006.34	5001.44	5005.39	5001.44
Finish	2217.52	2215.44	2216.45	2215.57	2216.28	2215.44
Total, meters	42260.45	42262.87	42273.65	42238.71	42263.38	42238.57
Total, Miles	26.2594	26.2609	26.2676	26.2459	26.2612	26.2458

Desired Distance: 42195 meters

Measured Oversize

Meters	65.4	67.9	78.6	43.7	68.4	43.6
Feet	215	223	258	143	224	143

Sensitivity Of Solid Tyres To Road Surfaces

By M.C.W.Sandford, 22 Stevenson Drive, Abingdon, Oxon, OX14 1SN, United Kingdom.

30 October 1995

Introduction

When I heard that solid bicycle tyres were being made in the UK by Green Tyre plc, I was quick to buy one. Studying my results from over 100 calibrations and some 40 courses had convinced me that that the largest source of error in my measurements was temperature changes during the course of a measurement session. Indeed I found that with my pneumatic tyre I got a 0.1% decrease in calibration constant with a temperature rise of approximately 7C. Roger Gibbons told me that with his solid tyre imported from Holland that he had very consistent readings with a few 0.01% change from summer to winter.

The Greentyre is made to fit a variety of wheel sizes. It comes with a couple of ties and a spatula to ease it over the rim. I found it quite hard work, taking about 15 minutes to discover the right technique and to apply the force necessary to lever the inner circumference over the wheel rim. Once on it bedded in very nicely, and clearly could not be removed without destroying the tyre or the wheel.

At first it seemed to live fully up to expectations. Big bumps felt much the same as on a pneumatic tyre at 100 psi. The ride on a road with fine stone chippings embedded in the tar felt a little harsher. My first test was to measure the sensitivity to weight. When I took my weight off the bike and pushed it over the calibration course I obtained a 0.25% reduction in calibration constant. This was four times less sensitive than my pneumatic tyre which had given a 1% reduction. Clearly this would mean that the solid tyre would be four times less sensitive to variations due to wind, air resistance, and slope.

Next I carried out a series of calibrations to derive the temperature coefficient and study long term stability. Extrapolating my measurements, it was apparent that the temperature change to produce a 0.1% calibration change had increased to about 40C. But three adverse effects were also apparent:

1. A gradual bedding in or wear increasing the calibration constant by about 0.05% over 50 miles.
2. Possible irregular changes of about 0.03%.
3. A dependence of the calibration constant on the distance from the road kerb of up to 0.06%.

This note reports in detail on point 3. As will be seen it represents a significant limitation to the use of this solid tyre. Points 1 and 2 are still under study and may be the subject of a future report.

Description of calibration course, Long Tow, Abingdon.

My calibration course, fig. 1, has a leg on each side of a straight flat road. Each leg is 695.254m long and was measured in 1991 by a steel tape and checked in 1992 with an EDM. These differed by an average of 12 mm.

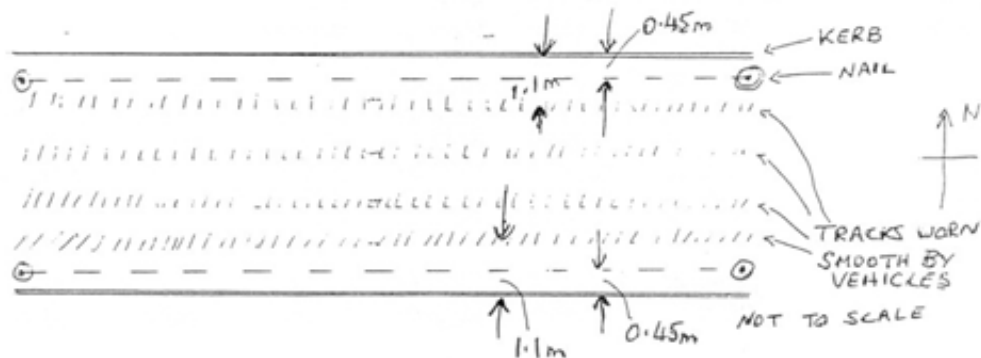


Fig. 1 Long Tow Calibration Course

The road surface was redressed in the summer of 1992, by spraying tar and rolling in stone chippings of average size 5 mm to 15 mm. Once I had exposed my marking nails which had been buried about 10 mm deep, I resumed calibration on the much stonier surface, but I noticed no effects on the calibration of my pneumatic tyre. Over the subsequent 3 years traffic has worn a pair of smooth tracks on each side of the road. The track closest to the kerb is about 1.1m from the

kerb and about 0.5 m wide. The position of my marking nails and the straightest possible line of a calibration ride is 0.4 to 0.5 m from the kerb. Vehicles have caused very little wear of the stone chippings along this straight line of the calibration course. The chippings have retained their sharp profiles. A cast of the profile was prepared by pressing a piece of Blutack, 40 mm by 60 mm by 6 mm thick, into the road surface using a piece of wood and my weight, 70 kg. The Blutack stuck to the wood and I sectioned it with a razor to produce fig 2. By contrast in the smooth track 1.1 m from the kerb the stones were worn smooth, and I estimated the undulations to be less than 1 mm.

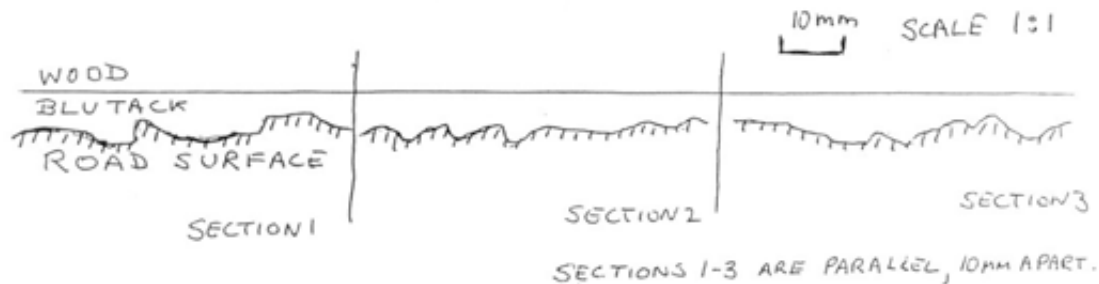


Figure 2 : Typical sections of road surface 45 cm from kerb.

The Tyres

The solid rubber tyre was a "Green Courier" from the Green Tyre plc of Middlesborough, Cleveland, TS2 1LH, UK. The size was 32-630 (27 x 1.25), mounted on a standard front wheel 630-17 (27 x 1.25). The tyre is 30 mm in width and the tread in contact with the road is a rectangular section 55 mm wide. The length of contact with my 70 kg weight in the riding position was 90 mm. This gives a contact area of 500 mm².

The pneumatic tyre was a new Michelin World Tour, 32-630 (27 x 1.25) with maximum pressure of 85 psi, but I always use it at 100 psi, set with the help of a gauge. The wheel is 18 x 630 (27 x 1.25). The tyre is 35 mm in width and the tread in contact with the road has a zig zag pattern with an average width of 7 mm (minimum 3 mm and maximum 11 mm). The contact length with a 70 kg rider was 100 mm, giving a contact area of 700 mm².

Measurements on Long Tow Calibration Course

Table 1. shows the results of riding the bicycle at different distances from the kerb with both the pneumatic tyre and the solid tyre.

For the pneumatic tyre, 110 cm from the kerb gives a count averaging 0.9 greater than 45 cm from the kerb. This is barely significant.

For the solid tyre 110 cm from the north kerb the count averages 4.3 (0.06%) smaller. On the south side the count averages 2.3 (0.03%) smaller. These differences are too large to be accounted for by the usual scatter in measurements.

With the solid tyre the difference is less marked on the south side. On close inspection it was noticed that vehicles have not worn as smooth a track there as they have on the north side. This observation provides additional confirmation of the effect as it shows that the variation depends on the degree of road surface roughness.

It should be noted that whereas as near a straight line as possible was ridden when 45 cm from the kerb, when 110 cm from the kerb the route taken edged out from the nail at 45 cm from the kerb to reach 110 cm after about 20m with the reverse procedure at the far end. This meant that a longer route was covered which should have given a larger count, whereas with the solid tyre a smaller count was observed. By geometry, I calculate the additional distance to be 2 cm or 0.2 counts, which is negligible.

Discussion and conclusions

I suspect that fortuitously I may have observed a rather extreme variation of road surface. The size of the stone chippings in the range 5 to 15 mm and the somewhat smaller gaps between the chippings up to 5 mm deep provide a surface that could be expected to produce the maximum effect through a close match to the tyre contact width which averaged 6 mm.

Tyre	Date	Temp C	kerb dist. cm	side	counts	
solid	20/8/95	31.5	45	south	7,697.4	
		31	45	north	7,698.1	Average=
		30	45	south	7,698.4	7698.1
		29	45	north	7,698.4	
		29	110	south	7,695.1	Diff = -3.0
		30	110	north	7,693.1	Diff = -5.0
pneumatic	28/10/95	10	45	north	7,575	Average=
		10	45	south	7,574.2	7574.6
		10	110	north	7,576.3	Diff = +1.7
		10	110	south	7,575	Diff = +0.8
		10	45	north	7,574	Average=
		10	45	south	7,576.5	7575.2
		10	110	north	7,576.3	Diff = +1.1
		10	110	south	7,575.2	Diff = 0
solid	29/10/95	12	45	north	7,701	Average=
		12	45	south	7,701	7701.0
		12	110	north	7,698.5	Diff = - 4.5
		12	110	south	7,699	Diff = - 2.0
		12	45	north	7,700.5	Average=
		12	45	south	7,700.5	7700.5
		11	110	north	7,697.2	Diff = - 3.3
		11	110	south	7,698.6	Diff = - 1.9

Table 1. Variation of calibration counts at different road surfaces

The calibration of the pneumatic tyre appears independent of the road surface. This may be due to the structure of the tyre which consists of a thin 2 - 3 mm layer of rubber on a fabric inner liner which is held in tension by the inner tube at 100 psi. The outer tyre appears to be anchored by 2 steel wires 1 mm in diameter, which I observe are embedded in the outer tyre at the point where it fits into the bicycle wheel. Using the pressure and the radius of the section of the tyre (0.7 inches) in the equation, force per unit length = pressure x radius, I calculate that the total tensile forces in the rubber and in the fabric liner to be 70 pounds per inch acting in the direction perpendicular to the direction of motion of the bicycle. Although the chippings will compress the rubber surface layer, the tension in the rubber and in the fabric liner distributes the deflection due to a chipping over a much larger area. I conclude that my pneumatic front tyre, supporting a weight of some 60 pounds, rides over the stone chippings with just the high points embedding in the rubber, and the high tension resists a sharp local deflection around each stone.

The Green Courier appears to be a solid piece of rubber some 30 mm deep. Sharp stones seem likely to embed much more deeply as the resistant layer, the steel wheel rim, is so much further away. The tyre effectively follows a slightly longer track by following the contours of the chippings more closely. This gives a higher count on the rough surface than on the smooth.

Fortunately the direction of the effect is safe. If I calibrate my solid tyre on the rough surface of my Long Tow calibration course, and then measure a course with a smooth surface I will lay it out long by 0.06% plus the 0.1% SCPF. However, if I check a course laid out by another measurer, it is possible that I may falsely find it under the specified distance.

Despite its low temperature coefficient, I can not recommend the Green Courier solid tyre for general use, because of its sensitivity to the road surface. I would expect other makes of solid tyre to show similar effects, if the effect is related to the basic structure of the tyre as I have suggested above. A spare wheel with a solid tyre could have a role kept in the measurer's car to guard against a puncture when measuring far from the calibration course. One could imagine changing wheels and completing the work on the solid tyre with just a post calibration which should be sufficiently accurate.

I conclude that there is a lot of interest going on in a measurer's bicycle tyre. If one understood it all, perhaps one could design a perfect tyre. I should be very interested to hear of other measurers' experiences, and whether they can confirm these results, or have results on other surfaces. I plan to layout a number of calibration course on different surfaces to investigate these effects more thoroughly using various tyres.

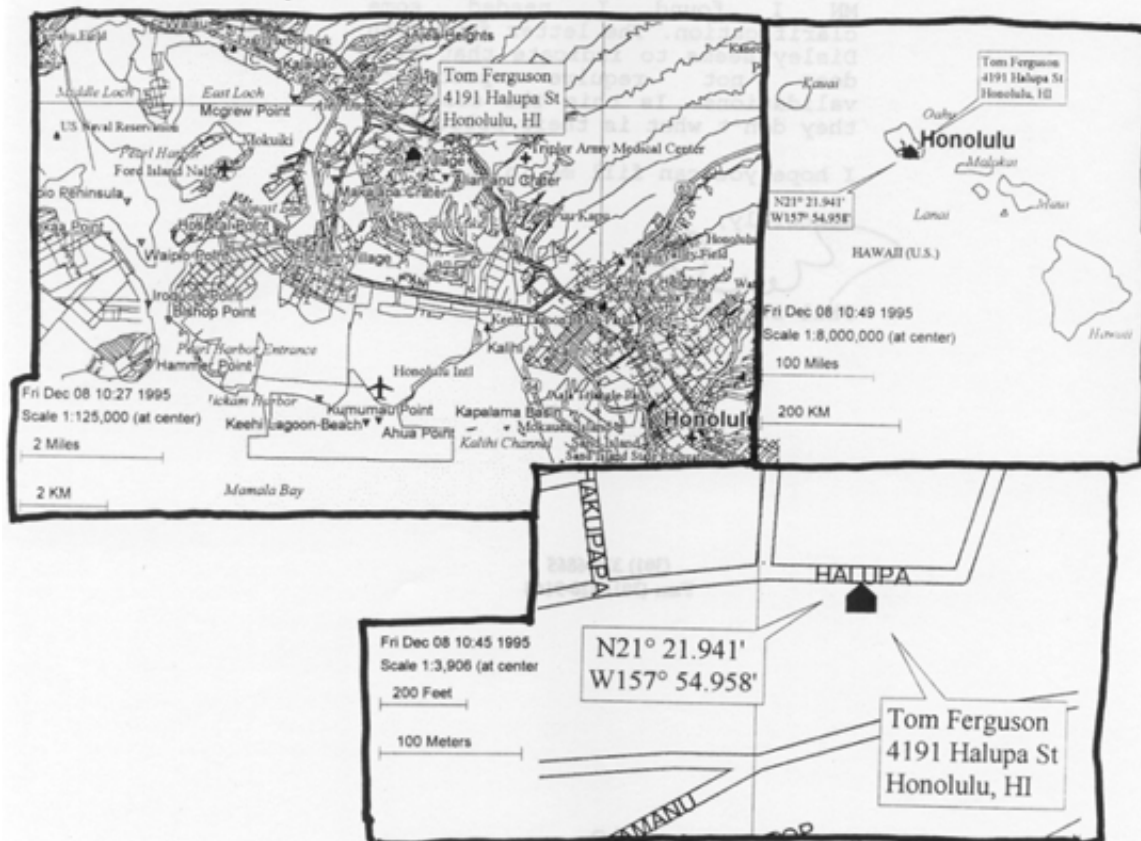
STREET ATLAS USA

I have acquired a new toy. The program name is **Street Atlas USA**, and it's a seamless map of the entire USA on a compact disk. The overall power of the thing is impressive.

If there's any US area in which you have interest, give me the center point and the radius of interest, and I can send you a map just for the fun of it. I think it will help me when I have to go someplace new to measure. I can arrive with maps in hand, which in some places is a great help.

It has the potential to deliver the background for a course map. The maps are to scale, with the scale noted. And a single-line map is OK if it's noted that the runners have the entire roadway throughout the course, and is supplemented with a S/F sketch and splits. I think it has potential.

The program allows you to add or subtract various details you may or may not want on the map, such as latitude/longitude and others. If you leave too much detail on some maps the system bogs down from lack of memory, but I've found my 8 MB of memory works OK, as long as I use the program with a fresh start with windows, with nothing else using memory. See the examples below using Tom Ferguson's house (located by the program) for an idea of what it can do. Cost is about \$60. Try your computer store or contact: DeLorme - Lower Main Street - PO Box 298 - Freeport, ME 04031 - 1-207-865-4171. Internet World Wide Web: <http://www.delorme.com>.



A note from

ROAD RACE MANAGEMENT

4904 Glen Cove Pkwy.
Bethesda, MD 20816

November 8, 1995

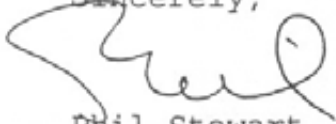
Pete Riegel
3354 Kirkham Rd.
Columbus, OH 43221

Dear Pete:

I trust this will reach you after Columbus is over. I hope everything went well. After reading the latest MN I found I needed some clarification. The letter from John Disley seems to indicate that AIMS does not require post-race validations. Is this the case? If they don't what is their policy?

I hope you can fill me in.

Sincerely,



Phil Stewart

(301) 320-6865
Fax: (301) 320-9164



November 14, 1995

Phil Stewart - Road Race Mgmt - 4904 Glen Cove Pkwy - Bethesda, MD 20816

Dear Phil,

AIMS and IAAF have not yet come to grips with the idea of officially recognized records, and of the complexities involved in writing rules to govern their recognition. At present, AIMS statistics are ably kept by Dave Martin, who produces comprehensive lists of AIMS race results. Unfortunately, not all of the courses on which the results are based have been measured to a standard comparable to the present modern one. AIMS has not yet attempted to call any of their times "records." AIMS has recently joined with IAAF to produce their twice-yearly publication **Distance Running**. This magazine has advertisements for races which appear on the now-joint IAAF/AIMS calendar of races. It also lists the names of those who are considered as official measurers, and accounts of athletes and races.

Great Britain and France have embarked on a program of measurer education, in which they teach beginners the ropes, guide them through the first few measurements, and gradually promote those who show talent. Both countries have an impressive stable of really good measurers. No race will appear on their federation calendar unless its course has been measured by an official measurer. But, if a record is set, there seems to be no provision for a remeasurement. I may be wrong. In France, I know that at least two validations have been done, one of which found the course to be short. Unlike the US, road racing in foreign countries is firmly in the grasp of the federations, and it is unheard of for a race to occur without federation blessing. Contrast this with the US, where USATF has control over only a fraction of races. Although many races get a USATF sanction, this is done mostly for the insurance, and there is no actual control of most races by USATF. So, we have a difference in philosophy between us and the rest of the world.

IAAF has considered the idea of official road running records, but I think it will be years before it happens. There are no rules in place as to exactly what constitutes a record. There is a sense that the race distances up to and including 10 km are "track distances," and that it would be "inappropriate" to carry road records for those same distances, even though that is where the majority of the racing occurs. Official road records may happen, but not soon. I am not holding my breath.

International measurement at present is without a rudder. A decade ago AIMS made it a condition of membership that each member must have its course measured by an AIMS vetted foreign measurer. This happens in the major races, such as London, Berlin, Rotterdam, Mexico City and some others. Their races are checked beforehand by a foreign expert, who also observes the race itself. And the validation measurements of these races usually confirms that the original measurement was OK - there is agreement. Many races don't comply with this requirement. Their results are listed anyway, leading to confusion.

When Carlos Lopes ran the WR in Rotterdam in 1985, the course had not been previously measured by an AIMS measurer. In spite of this non-compliance, it was given a post-race check and found OK. I believe John's position is that a race that does not follow the rules should not gain by so doing.

41

PLEASE REPLY TO: PETER S. RIEGEL, CHAIR, ROAD RUNNING TECHNICAL COUNCIL
3354 KIRKHAM ROAD, COLUMBUS, OHIO 43221-1368
HOME PHONE 614/451/5617, FAX 614/451/5610

There is no idea that a downhill or wind-aided course is any different from any other, on the international scene, with the exception of Britain and France. This question has not yet been addressed, probably because no one has yet had to wrestle with the question of what make a credible record.

The USA, Britain, and France are most advanced in measurement. USA and Britain have road records that are recognized by the federations, and France is either already there or nearly so. Where we differ is that the goal of IAAF seems to be to create a cadre of expert measurers who will measure every race on the calendar beforehand, and the measurement is then accepted as gospel. There is no idea that the course should ever be checked after a record is set. This, of course, is different from our US way of allowing anybody to measure, and accepting any course as certified whose measurement paperwork looks good. Most US measurers are self-recruited, and have no connection with USATF. They learn to measure by measuring. Those that enjoy the process continue to do it, and become skilled. In the IAAF/AIMS scheme they must first associate themselves with the federation, and only then may they train and become measurers.

Our method produces courses that are 95 percent non-short when checked, if measured originally by a USATF Certifier. The success rate is 85 percent when measured by others. When shortness occurs, it is usually small, and beyond the perception of any runner. But sometimes big mistakes are made.

I see nothing that indicates that foreign experts are any better than ours. In fact, the conditions of measuring outside one's own country are often miserable. An expert from one country may be called to measure a course in another country. The course has supposedly already been measured, and the remeasurement is considered as merely fine-tuning. In reality, the measurer often arrives with a single short weekend in which to do his work. This is not time enough to do the job right, unless the course somehow checks out OK, which is not always the case. Often the promised police protection is absent, or worse, obstructive. No maps are available. Language is a problem. People arrive late, or fail to show. The course is rarely correct, and usually requires a large correction. Organizers argue when they are told their course must be changed. There is time for only a single measurement, where we US people do two. I don't think that the IAAF/AIMS scheme produces courses that are equal to our level of quality. But the IAAF/AIMS idea persists that if a vetted expert measures the course, it must be considered as correct. That it most certainly is **not** correct is something IAAF/AIMS does not wish to hear. Without a system of post-race spot checks the quality of the IAAF/AIMS approach will never be known. A factory that operates without a quality control department will produce an inferior product.

Although our US system has a success rate less than 95 percent, the validity of our records must be considered as being 99 percent or better, since every record course is checked. Thus, our **courses** may be at 85 to 95 percent non-short, but our **records** are solid. Since IAAF/AIMS does not recognize records, one must question why they are making such an effort to measure? Certainly it is good to have accurate courses, but why set up an elaborate measurement structure if it all ends there?

Until IAAF/AIMS has a system in place that has strong credibility, I would take most non-US courses as questionable until proven. I wish it was otherwise. I am doing what I can to make our voice heard in IAAF, but other cultures and other histories are singing a different song. I remain optimistic. Progress is not made in a year. Things are better than they were ten years ago.

Best regards,



David B. Hall, Towson, Maryland, after some careful tests with actual doughnuts, wrote:

SIRS:

A little study of the problem indicated that there should be a maximum of thirteen pieces. This would have closed the matter, except that the next time I was at the grocer's I bought a box of doughnuts and discovered that the technical problems were as intriguing as the mathematical one.

Obtaining thirteen pieces involves carving out a slender pyramid with its vertex embedded in the body of the doughnut. After finding that reasonably predictable cuts could be made with embedded toothpicks as guides, I made my first full-scale section, only to discover that no trace of the two smallest pyramids could be found. (There were plenty of crumbs, but I suppose they don't count.) It turns out that the requirement that three planes be cut through a doughnut necessitates not only care in cutting but very thorough provision against movement of wedge-shaped pieces under pressure as successive cuts are made. In this case the parts containing the tiny pyramids had spread very slightly, but enough to escape the knife completely.

On my final doughnut, using steel skewers instead of toothpicks, I achieved complete success and obtained fifteen well-defined pieces. The pyramids were more than successful. By overzealously preventing the previous spreading I was able to get a little overlap instead. The two bonus pieces resulted from the fact that the hole was not very round and each of the first two cuts yielded a small but honest knob.

A very thin hula-hoop-shaped doughnut might make cutting easier, but this arrangement was discovered after the doughnuts were eaten and has not been explored.

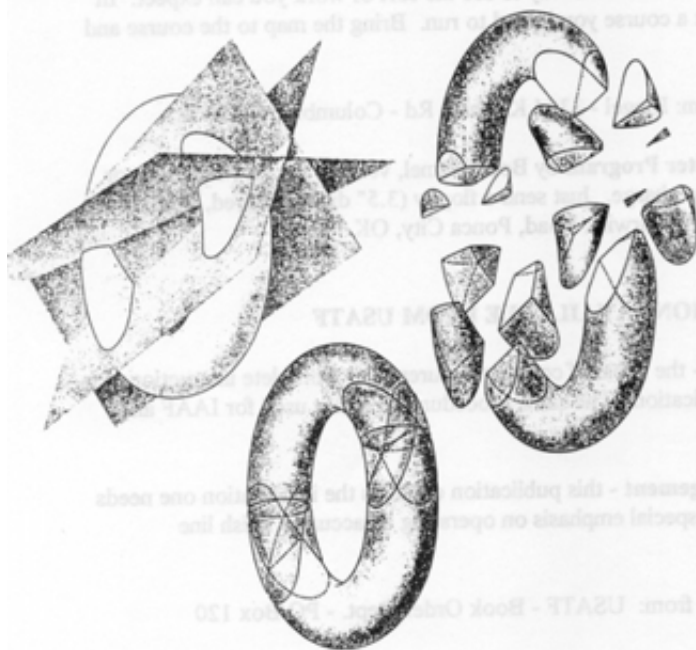


FIG. 63.
How to slice a doughnut into 13 pieces with only three plane cuts.

DOUGHNUT SLICING LAST MONTH'S PUZZLE

Pete Riegel - 48 (really dumb answer)

Bernie Conway - 8

Norm Brand - 10

Bob Letson - Infinite (using spiral cut)

Joe Kasile - Infinite (using weaving cut)

Norm Brand is hereby declared the winner, in spite of two absolutely correct answers to the puzzle as slightly misstated by the Editor. Although curved cutting of the doughnut was not strictly prohibited, three plane cuts could reasonably be implied, thus the award. Here is the solution, from **The 2nd Scientific American Book of Mathematical Puzzles & Diversions**, by Martin Gardner. Simon & Schuster, 1961.