Measurement News

September 1997 Issue #85

Wietse Marco Jurgen Hoornweg van Rij is a measurer in Manaus, Brazil. Here he takes a reading while measuring the route of next year's IAAF Marathon Relay Championship.

MEASUREMENT NEWS
#85 - September 1997

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IAAF SPONSORS MEASUREMENT NEWS

Readers will see a new logo on the cover of this issue. IAAF, in their support of road racing, has agreed to support the cost of printing and mailing *Measurement News* to all IAAF "A" and "B" level measurers. USATF continues to support domestic distribution.

We hope to see letters, articles, and general communication result from this, as measurement becomes more and more international.

International measurers - please write - this is your forum too.

TOM FERGUSON RESIGNS

Tom Ferguson, RRTC's Hawaii Certifier since 1985, has been in and out of hospital recently, and has concluded that it would not be right for him to hold on to a job he cannot effectively do. He has resigned as Hawaii certifier. Pete Riegel will take over until a Hawaiian measurer can be found to take the position.

Tom is out of the hospital now, but weak, and on a program of exercise which is expected to restore him to health. We in RRTC thank Tom for his long service to the sport, and wish him a speedy recovery.

WHAT WE LIKE TO SEE

Jim Zeigler writes:

" I am enjoying measuring and the newsletter. **Bob Harrison** has been very helpful! I hope all the certifiers are as thorough and dedicated as he seems to be."

A LESSON HARD LEARNED

A measurer recently wrote to a certifier, who passed it on the the Editor:

"Thank you for the fast turn-around of course certifications for the (big, important race). Everyone was pleased...initially. Unfortunately, it appears I have made a major error. Some of the athletes have been complaining about fast times (hard to believe, I know.) I went back over the paperwork and was unable to locate any errors. Still curious, I went down to the calibration course and remeasured. Short. I couldn't believe it. I told my taping partner and she couldn't believe it either. She insisted on another remeasure. Definitely short. We somehow omitted an entire 100' tape length yielding every course approximately 7% short. I have messed up on a *grand scale*.

What to do now? We will have to nullify all three certifications. I assume you have already forwarded those to Pete Riegel or his wife, whoever keeps the certification records. The state USATF record keeper has been notified and will notify the national level as far as any records that were (not) set. Any suggestions on how to handle this further would be welcome.

I feel like someone has kicked me in the gut. I feel like I let down thousands of top athletes. I'm sure they hate me. Hopefully, they will get over that. Hopefully, I will too."

ROAD RUNNERS CLUB OF AMERICA

1150 S. WASHINGTON STREET ★ SUITE 250 ★ ALEXANDRIA, VA 22314-4493
(703) 836-0558 FAX (703) 836-4430 RRCAoffice@aol.com

Don Kardong
President
c/o Lilac Bloomsday Association
1610 W. Riverside
Spokane, WA 99201
(509) 838-8784
FAX (509) 838-2922

June 30, 1997

Pete Riegel
3354 Kirkham Road
Columbus, OH 43221

Dear Pete:

We had a question come up at the recent RRCA convention business meeting, and I'm hoping you can answer it.

When course measurement was first standardized, it was a joint project of RRCA and TAC. As a result, certified courses were listed as "TAC/RRCA certified." At some point in time this was shortened to "TAC certified" (and later "USATF certified").

The RRCA membership is unclear as to why this was done. Many course certifiers have a strong RRCA allegiance, and they feel their time is spent on behalf of the RRCA, not USATF. The sentiment at the convention was that certification was developed and is implemented jointly by RRCA and USATF-affiliated individuals, and that the designation should reflect that.

I'd be interested in your viewpoint on this. Perhaps there's something we're not aware of that explains why the RRCA was dropped from the title.

Thanks for your time, Pete. All the best.

Sincerely,

Don Kardong
President, RRCA

CC: Henley Gibble

Don Kardong
President, RRCA
1610 W. Riverside
Spokane, WA 99201

Dear Don,

July 5, 1997

You've been a long time in the sport, and I suspect my answers to the questions in your letter of June 30 will be no surprise to you.

The certification system has been in operation since at least 1963. From then until 1982 certificates were carbon-copy sheets of paper signed by Ted Corbitt, the sole certifier. At the beginning he indeed had RRCA affiliation, and with AAU, which became TAC and USATF. In the late 1970's and early 1980's Ken Young was the only record-keeper the US had. His records were unofficial but reliable. He formed the *National Running Data Center*, which solicited and collected race results, and published, with wife Jennifer, a newsletter - *NRDC News*. It contained the latest records and also communicated with race directors and with a few state certifiers, recently appointed by Ted Corbitt, who was then overloaded with applications. In addition to records, *NRDC News* published lists of recently-certified courses.

Ken drafted the rules concerning road records and how they were kept for TAC (now USATF). In the early 1980's USATF took over the record-keeping (via *TACSTATS* renamed *Road Running Information Center*). Road racing records were now official federation-recognized for the first time. NRDC ceased to exist. In 1982 I began publishing *Measurement News*, as a sort of round-robin letter to US measurers, now distributed internationally. When NRDC went out of business, I began publishing lists of recently certified courses, and still do.

Bob Campbell was the first Chairman of the newly-formed "Road Running Technical Committee." The brainchild of Alvin Chriss, the committee was formed to assist the Records Committee to verify the validity of performances. Bob was shortly succeeded by Allan Steinfeld, who was followed by me in late 1984.

The first time a large US group of measurers got together to measure was in 1983, in Los Angeles, to measure the 1984 Olympic Marathon. Tom Benjamin was there, and he designed the first prototype of what became our standard certificate form. It has undergone changes, but its essence remains the same. A certificate lists the characteristics of the course and, on the reverse side, a definitive course map appears. A few early certificates carried the "TAC/RRCA Certified" heading, but never very many, and not for long. The heading was replaced a over a decade ago with the present "Recognized by RRCA" and the RRCA logo. I believe this more than adequately reflects any credit due to RRCA in operating the certification system.

During my tenure in office I have never heard RRCA express an organizational interest in participating in the activities of RRTC. It is true that some of our certifiers are members of RRCA, as am I through my club. However, I believe our principal allegiance is to the work itself, and not to the organization which sponsors it. It is simply a good and useful thing to do. USATF has valued our work in the most sincere way, by supporting it to the tune of about $20,000 per year on average. This covers the expenses of publishing *Measurement News*, the administrative expenses of the Chairman and two Vice Chairs, the cost of sending measurers to validate record courses, and money for instructional seminars in course measurement, several of which have been held at the RRCA Convention at USATF expense. USATF also partially supports the operation of the *Road Running Information Center*.

USATF is recognized by US law as the governing body of the sport of Athletics in the US, which includes road running. Many road runners have philosophical differences with this, but I don't intend to discuss those differences here. RRCA has no legal standing in the governance of the sport, either here or abroad. If certification and records are to carry real weight, USATF is the only game in town.

A final note - I am not aware that RRCA has ever offered monetary support to RRTC. I am sure you have heard the saying "He who pays the piper calls the tune." USATF has been a generous sponsor of the development of our outstanding system of road course measurement and certification. It serves ALL road runners, wherever they may be affiliated. We in RRTC are very grateful for USATF's support over the years we have been in the measurement game.

Best regards,

Pete

Copy: Henley Gibble

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

The Race Directors' Survey: Part XV

Adapted from a series by Harold Tinsley

What Race Functions Are Most Important?

A question near the end of the questionnaire asked, "List in order of importance ten race functions you consider the most important." This was an essay question with ten blanks numbered from 1 to 10, with #1 being the most important. There were obviously quite a few standard responses, but also several hundred different answers. I was able to fit these into 84 different categories.

Because the importance of a race function could be determined both by the number of times it was listed and by how high it was listed (i.e., the number of times it was listed as #1 or #2, etc.) it was a little complicated to develop a rating system. Under my scoring system, a function had to be listed on 15 questionnaires to be rated. Each function that appeared on at least 15 questionnaires was then assigned ratings points, which were calculated by totaling priority of importance for each listing and dividing it by the number of times listed (i.e. the lower the average number the more important the function). A narrative explanation of the findings appears below, followed by a table listing the rating points, number of times listed, and the number of number-one and number-two importance ratings received.

#	Avg.	#Times	#1's	#2's	Race Function
1	2.2	53	35	4	Safety
2	2.7	42	16	15	Accurately Measured and Certified Course
3	3.4	63	6	21	Accurate Timing and Scoring of Finish
4	3.9	16	2	4	Layout, Fast and Scenic Course
5	4.0	19	3	1	Finish Line Organization and Operation
6	4.2	17	2	1	Medical Support and Facilities
7	4.3	36	3	5	Aid Stations (8 #3's)
8	4.7	18	0	4	Runner Hospitality, Support & Satisfaction
9	5.0	24	1	2	Registration and/or Packet Pickup (7 #3's)
10	5.2	35	3	5	Race Volunteers
11t	5.4	32	5	3	Sponsors
11t	5.4	27	2	2	Publicity and Advertising
11t	5.4	26	0	0	Race T-Shirt
14	5.9	23	2	2	Post Race Refreshments
15	6.4	43	0	0	Awards (Start Early and over quick

Pete - MN readers may like to know their efforts are appreciated - Joe

for complete report, see Reed Race Management www.RRM.com

From David Reik

July 28, 1997

Dear Peter Riegel:

You wrote me back on May 13. I wanted to do some research in old MNs before I responded.

You ended your letter by writing: "If you are unhappy with my unilateral ways, as I suspect you are, please suggest how you would rather see things." Earlier in the letter, you wrote: "I do act in a unilateral manner. However, I never act in a way that cannot be reversed if the policy should turn out to be a bad idea. That is why I try to put each 'unilateral' action in MN. In that way anybody who feels that I have done something stupid can say so." My suggestion is to reverse the order: First explain the new procedure in MN, see what the reaction is, and then make the new procedure an approved one if the reaction is favorable.

This is more or less what you did when you changed the minimum calibration course length to 300 meters. The new minimum length came about as a result of considerable discussion in MN over a number of years. On page 9 of the October, 1985, issue of MN, you set up a "test to determine value of startup wobble," and wrote: "It may also show the effect of using shorter-than-standard calibration courses." In the February, 1986, issue, Bob Baumel's response to the request for start-up data appeared. He mentioned, on page 13, a "short cal course experiment back in Apr 83." Starting on page 19 of the same issue, a long article by Bob Baumel appeared entitled, "Effect of Surface Roughness on the Accuracy of Bicycle Measurements." On page 3 of the April, 1987, issue, you quoted Bob Thurston as having written: "Bob Baumel's paper confirms some of my hypotheses and I will try and collect more data. I have a hunch we may have to go with shorter cal courses so they can be close to and more similar to race courses." You inserted a note which reads, in part: "I have used a short cal course on two occasions. . . . Given the opportunity, I still use full-size courses unless prevented by circumstance." On page 3 of the January, 1987, MN, you announced a "new temporary experimental policy -- short cal course may be used until further notice by RRTC regional certifiers only." You specified that "one careful cal course measurement is OK." This was your directive indicating what documentation was required: "Show the general location of the short cal course on your course map, and note on the certificate the length of the calibration course that was used." On page 18 of the January, 1988, MN, Jennifer Hesketh Young wrote: "I sincerely think you are making a mistake by requiring only one measurement of the shorter calibration course." You disagreed. On page 9 of the March, 1988, MN, you published a letter from Bob Edwards in which he wrote: "I think that all the standard calibration course paperwork should be required for the 1000' courses." You disagreed. On page 13 of the January, 1989, issue of MN, Jennifer Hesketh noted, in the minutes of the December 1, 1988, meeting of the RRTC, that: "Those present expressed considerable support for the shorter calibration course." When the 1989 revised version of "Course Measurement Procedures" appeared, it specified the minimum cal course length to be 300 meters, but, contrary to the 1987 "experimental policy," the book specified two measurement, not one, and, on page 10, specified that "you must submit an 'Application for Certification of Calibration Course' form, along with all your measurement data (including the 'Steel Taping Data Sheet' if course is measured by steel tape), whenever you lay out a new calibration course."

You wrote, in your May 13, 1997, letter: "When I assumed the office in 1985 I found that there were no political procedures in place, and I have acted ever since as though I was Tsar." You listed "shorter calibration courses" as one of your "contributions," You wrote, referring to those "contributions,": "None of the above were done democratically. They were my ideas, and after some consultation with others, I promulgated their use." In the case of the move to shorter calibration courses, I think you behaved a lot more democratically than you gave yourself credit for in your letter.

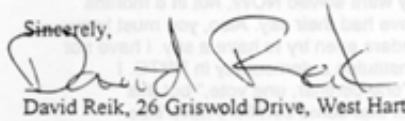
Since you became chairman, you have only intermittently appeared to behave in a Tsar-like manner to me. An example of very un-Tsarlike behavior on your part was your publication, on page 24 of the January, 1988, MN, of a letter by me which advocated more democracy in RRTC. I argued that democratically arrived-at decisions were good because "then, whatever the decision finally arrived at, people will feel it was arrived at justly, and will not be able to blame it on the muddleheadedness of one individual." I might have also written that people are going to be more likely to work hard for a program if they think they have a say in how the program operates. In your letter, you wrote: "This job of mine is very much a one-man show." I don't think it is a one-man show.

The instance involving the Jim Gerweck solo measurement of the cal course confused me because Jim submitted documentation which he said conformed to written instructions by you which I couldn't recall having seen. The procedure Gerweck used certainly wasn't the procedure described in "Course Measurement Procedures"; the "Steel Taping Data Sheet" wouldn't work for it. I didn't see that his measurement conformed to the requirements of any program I felt myself to be part of, so I sent his documentation to you.

You seem unsure whether you believe in democracy or not. In my note to Gerweck which he passed onto you, I wrote: "I don't think it's healthy for Riegel to be making unilateral changes to agreed-upon procedures." You responded by writing: "I have to both agree and disagree with you. It is true what you say. I do act in a unilateral manner." Apparently, what you disagreed with was my statement that such "unilateral changes" were unhealthy for the certification program, although you wrote, in the same letter: "It would be nice if everything could be done in a democratic manner . . ." and you asked for suggestions on how things in RRTC could be made more democratic. In the same letter, you seemed to be characterizing your past behavior as having been more "Tsarlike" than it, in fact, was.

Despotism is convenient, and we all have a desire to be absolute rulers, not namby-pamby recorders of the common will, but democracy is better for the long-term health of an organization. I think, most of the time, your behavior has shown that you agree.

Sincerely,



David Reik, 26 Griswold Drive, West Hartford, CT 06119

August 1, 1997

Dear David,

I am impressed with the scholastic effort that you applied to the question of the degree to which I am dictatorial. I am not sure whether you advocate any particular action on my part at present.

I would like to clear something up. At no time did I advocate only one measurement of a calibration course of any length, without a check. If I wrote that I did, I was wrong. I believe in checking everything.

The forms you see in the book are directly descended from forms I designed when Ted Corbitt made me the Ohio certifier. I knew I would be receiving measurements from different people, and I wanted to make it easier on them and me by making a monkey-see, monkey-do thing out of it. The old Corbitt forms were difficult to understand. At no time was it ever my intention to say "this is the ONLY way." I have always been prepared to deal with people who want to do things in a slightly different way. Usually by the time they are done, they wish they had done it by the book, but I let them do what they want.

And, as far as I am concerned, all measurements should be treated the same way. Most people will do things in the standard way, because that is most convenient. However, there are times when the standard way is not possible. For instance, when your helper does not show up, and you need a calibration course NOW, the solo method can be used. It may not be in the book, but if sufficient checks are present I can see no reason why it should not be used. Aside from its absence from the measurement book, can you see anything wrong with it?

I believe that the standard way of measuring a calibration course is better, in most cases, than the solo way. But either can be OK if sufficient checking takes place. I used the solo method in Brazil a couple of weeks ago because I was not certain that my helpers fully understood where to hold the zero.

The Gerweck calibration course data had all the elements needed for certification. Everything had been measured twice, the proper temperature correction was made. The only thing that was absent was adherence to the "book" forms, which require a second person to hold the end of the tape at zero. I don't think it should require a big stretch for you as a certifier to take responsibility for certifying what was a reasonable job of measurement.

I hope there is never a time when we must all act in lockstep. The day that happens is the day we stop learning.

I believe more in competence than in rules. I want to avoid setting things in concrete.

When I act unilaterally, it is usually because I or somebody else has a problem they want solved NOW, not in 8 months after the MN readers have had their say. Also, you must know by now that few MN readers even try to have a say. I have not yet figured out what constitutes a democracy in RRTC. I suppose we could say "one certifier, one vote," but this ignores the very real fact that some certifiers have little measurement knowledge beyond the pages of the measurement book, while others understand the underlying principles better. I am inclined to pay more attention to informed opinion than to a blind "vote."

I keep squinting at the horizon to find a trace of my successor. I have had enough fun at this job, and I would like to pass it on to someone else. How he handles it will be up to him, not me. But I will not pass it on gracefully to someone who comes to the job with only political qualification. Votes are nice, but competence is better.

So far I have not seen a successor. Maybe soon I will start an outright search for one. There is a lot of work involved in being a Tsar.

It may well be that Craig Masback will find me unacceptable. He will have a major say as to whether I keep this job. I am appointed by the USATF President, but the desires of the Executive Director have great weight. I was interviewed by Ollan before I was appointed by the TAC president. I'm sure Ollan's opinion had something to do with it.

Thanks for keeping in touch. I enjoy your letters.

Best regards,

Pete

Tadeusz Dziekonski went to Kosice, Slovakia to measure the IAAF World Half-Marathon Championship course. He sent this photo. His posture interested me, as he seemed a bit stretched. I asked him, and he replied "I was trying to point the 1980 year because in that year I took part at the 50th Kosice Marathon - 2:34:13. Tomorrow I will run my 140th marathon, in Poland. Also, I hope to run 100k this year."

Memorandum

To: *Pete Riegel*
From: *Doug Loeffler*
Date: *08/21/1997*
Subject: *Certification*

I need some guidance please. I had a phone call awhile back from a guy in North Florida. I returned his call and he told me that he was going to measure a marathon course and wanted to know how to go about it. I gave him a basic description of how we do it and information on where to get a counter and book. As I always do I suggested that he call me after he reviewed the procedures so we could discuss it before he measured. I don't want to insult anyone's intelligence but I explained that many first time measurers make mistakes and that I can often help them avoid these mistakes which can save a lot of time.

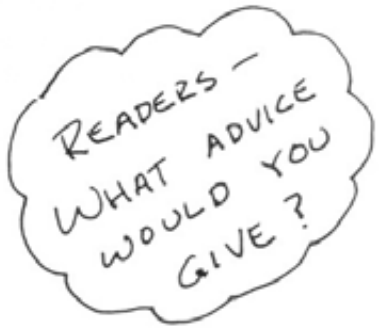
Then I got another call from him. When I returned it he told me that the measurement was complete and asked where he should send the paperwork. I asked him a few questions and soon learned that there were two riders, himself on the lead bike and someone on a second bike. Upon further questioning he told me that the second rider did not record his counts at the marks of the first rider. It seems that he put down a second set of marks and at the end point of the course (the finish I believe, because they rode backwards) the second rider had to go past the stopping point of the first rider before he reached the (calculated) marathon distance. I informed him that the second man was to record his counts at the marks the first man put down. He told me he didn't understand this and didn't see anything about such a procedure in the book. I explained where it said this in the book and told him to send his original data to me and I would try to extract enough data to enable me to certify the course.

About a week later I received his application, filled out as if there was no problem whatsoever. He then called and told me that he was mistaken. The second rider did record counts at the first riders split points. I said "fine", send me your original field notes, which he apparently isn't willing or able to do.

So should I issue the cert. since I can't prove he didn't measure correctly?

Thanks

Doug



MNForum - Status Report

From **Jim Gerweck**

MNForum, the online adjunct to Measurement News, began operation on June 22, 1997.

Since then, numerous postings, between one and four a day, have been received, collated and sent to all subscribers. The average frequency of MNForums has been about every other day. Currently there are about 65 subscribers, with 50 of these being "charter" members, the rest additions since the service began.

Submissions have come from many sources, and among the topics covered have been:

Moving a start/finish line; effects of temperature/water on calibration figures; responsibility/liability of measurers for short courses; fees for course measurement; course marking methods; solid tires; and numerous personal tales from the world of measuring.

One of the advantages an electronic forum like MNF enjoys over the printed word is the immediacy of exchange, and an initial posting will often elicit several responses and counter-responses in the next few days. This is what we had hoped for when MNF was conceived and instituted, and so far it has lived up to its promise.

MNF is a free service to anyone who is interested, and current subscribers include race directors and members of the media as well as the measurement community worldwide.

All it takes to become a subscriber is access to email. Simply send to **MNForum@aol.com** with "Subscribe MNF" in the subject heading box, and you will be added to the list. Postings on any subject related to measurement are also welcome at the same address.

I really enjoy doing MNF, and can't wait to see what each day's postings bring. It's fun to try to be able to group related pieces together, too, creating a mini electronic newspaper. My AOL bill will probably increase, but perhaps USATF can pick up part of that tab. That really seems to be the only expense, save my own time, but that's more than compensated for by the "editorial privileges" I enjoy (seeing things first, etc).

Back in the winter I wrote you that I had learned more from a few issues of MN than from many years of measuring courses, and I think I can repeat that statement with regards to MNF. I hope it has been (and continues to be) equally enlightening and enjoyable to those who read it, and that the continuing lively dialogue serves to better the measurement community.

Best regards,
Jim

TIDBITS FROM MNFORUM

Three Tough Measurement Situations

Indiana Version

Subj: Measurement from Hell
Date: 08/06/97
To: MNForum

Last week I had a measurement to do in Indianapolis, a 3.5 hour drive from Columbus. It was an uncomplicated 10k. I figured I should be able to finish it in the available daylight and get home the same day. I left home at 8:30 AM, met the race director at noon. He mentioned "Oh, by the way - we have a 5k too. Can you work that in?" I said I could - race directors often have an unmentioned extra they want you to work in. He also said he was curious how long his old course was. No problem, says I, I'll check it out. He showed me a series of historical old faded start lines along the starting route.

I found that the old New York Street 300 m calibration course, measured by Mike Wickiser in 1991, was still there. I had used it before, and was glad I didn't have to lay down a new one. The nails were right where Mike's reference distances said they were.

The race course could only be ridden from start to finish, because of one-way traffic. Thus I could not lay out splits on the first ride. I had to use the first ride to find out how long the course was, and adjust my starting point to correspond to the correct start line. I picked a "Speed Limit" sign as a good arbitrary starting point. I also collected data from a couple of the old painted start marks, and measured the course.

When I was done, I calculated the length of the course and found I needed to add 26 meters to the "Speed Limit" start to make 10 km. I did this, and then did my second ride, this time laying out and documenting the split points.

When I was done, I had a whopping disagreement of 30 m or so between my two measurements. I scratched my head, and did a lot of figuring. I was getting tired, it was hot, and my head wouldn't work properly. And darkness was approaching. I wondered if I'd finish up in one day after all. I finally found that when I calculated the length of my first circuit, I had used one of the old paintmarks as a zero, rather than the "Speed Limit" sign. When properly calculated, my agreement was within 1 meter, but too late to do me any good. So, it was out for a third ride, this time to move all the marks 57 m forward, and x-out the former marks.

Dark was coming, and I didn't have time to do the 5k that day, so I holed up in a hotel and finished it up the next morning.

Lesson - It's possible to try to take TOO MUCH data. I could have measured out the course, established the start line - and only then measured how far the new start was from the former start. Instead I cluttered up my data sheet with numbers I didn't need.

It was not my finest hour.

Pete Riegel

Pennsylvania Version

Date: 97-08-16 10:55:57 EDT
From: MikeWicksr
To: Riegelpete

Just sent a batch of certs to you this AM. Note the Robinson Circle course (PA96017MW). Boy do I feel foolish. Not only did I blow the ID# on original OH96017MW, but I got East & West crossed at a turnaround. They probably would have had some really fast times if Jim Wolfe had set the course up according to the cert map. He caught my goof up pretty quick. None of the nails and paint were where the map said they were. We discussed the course and all is set right, finally. This was something like your Indianapolis experience except I finished the calibration in the rain. With no hotel to put things right at, I finished up in a local bar and drove home with the course right but wet notes and sketches for locations. No excuses here, I simply did got into a hurry and should have stayed until the darned thing and all my notes were right.

Best to you & Joan,

Mike

Great Britain Version

Subj: MNF20Aug97
Date: 97-08-19 21:24:53 EDT
From: MNForum
BCC: Riegelpete

Victory from the jaws of defeat?

Last weekend I nearly experienced a 'Measurement from Hell', see Pete Riegel's story MNF 7 Aug. In fact I think I have recovered a successful outcome, at the very least I know the course is not short. And I had a brilliant day out cycling.

The road race was a '35.6' mile loop over Dartmoor in Devon, with the start/finish at Princetown high on the moor. Local measurers had turned it down for various legitimate reasons, and I offered to drive over the 40 miles from Exmouth where I was on a weekend visit to my parents. Contour counting of the map had shown 1350m of ascent and the same descent. That makes the average gradient (up or down) of 4.8%. But the worst prospect was five crossings of the River Dart Valley. On three of these between mile 5 and mile 10 the gradients averaged 15% for distances of about half a mile. In the weeks leading up to the trip I bought a new lower gear set for my bike. It seemed very impressive: lots of pedalling for very little movement, but unfortunately there was nothing near Abingdon to test it on. Once faced with the long hills on Dartmoor I found that, whereas I had calculated average slopes of about 15%, the road signs on the hills warned of 20 or 25% slopes. These must have been the steepest parts where the contours are closest, I quickly learned what every serious cyclist must know. You can ride a few hundred metres up a very steep hill, fairly smoothly, and then the lactic acid hits your legs, and the oxygen debt your cardio system. You have to stop for a recovery of a minute or two and

then go again. It was just like running hill reps. I felt I could have made the intervals longer by getting out of the seat and standing on the pedals, but the wobbling and changed weight distribution would play havoc with my measurement, so I did not. I did consider walking up and using a separate walking calibration. Although I know roughly how large this is from my experiments, I had not done a walking pre-calibration, and anyway it would make havoc of my carefully prepared list of counts for the splits. As the day wore on I got slower and slower so that I was using my lowest gear on anything that was significantly uphill. The day also got hotter, but I stuck to it and with stops for refreshment etc. took 5.5 hours to complete the course, a good bit slower than the fit runners will take. The views were great, and it seems to me that it must be by far the hilliest road race in the South of England.

So the hills I overcame, but the potential disaster occurred around mile 5 when the page of my spiral bound shorthand notebook on which I had written my pre measurement calibration details got partly torn off the notebook which was held by rubber bands on a writing board affixed over my handle bars. Noting what was happening I very carefully detached the page folded it and placed it in my trouser pocket (without wobbling). Later the same thing happened with an earlier page in my notebook(not from this measurement). I saved this page also, but at a stop I discovered that the first page with the calibration details had fallen out of my pocket somewhere en-route! This discovery was made at the 20 mile stop. I hesitated to tell the three members of the race committee who were so excellently looking after me, one car in front and one behind as I inched up the hills.

I knew I had calculated the calibration constant and had twice checked it very carefully and I still had a written record of the result at the top of my measurement page so I had complete confidence, but what of the details? I had also lost the results of the calibration course layout, but I could of course remeasure that at the finish. As I cycled along I found I could remember a lot of details on the lost sheet. In particular I could remember each of the 4 readings to the mm on my 50m tape which I used to layout the 200m calibration course, and also the total length to the nearest cm. At the finish I added the readings together and found they equalled the remembered total length (before corrections) of 199.96m . I also remembered the temperatures and the average cal ride count, but not the decimal. This checked with the working constant I had written down, so I reconstructed the decimal.

The final reconstructed results in my report are:
Cal course length: 49.9805+49.993+49.9935+49.995=199.962m, End correction= -4x6mm, Tape Temp 17C so temp correction = - 3x11.6x0.19996mm. Corrected cal course length = 199.930m
Pre measurement cal at 15.2C, average of 6 rides = 2260.9 counts, working constant=18217.4counts/mile
Post measurement cal at 23.7C, average of 4 rides = 2257.6, finish constant=18190.8counts/mile

The post calibration was 0.14% smaller than the pre calibration value. Of the 26.6 counts change of constant, the 'average temp coeff' of 120 ppm per C which I have measured for this tyre would give rise to a change of 18.5 counts. The remaining 8.1 counts change may well be hysteresis effects in the tyre. I cant fit 8.1 counts to any likely error in the reconstructed data. I remain very confident that the working constant which I used was correctly calculated. Being the larger constant, it gives a measure of protection against the course being short due to the wobbles on the hills, and possible calibration constant changes on steep slopes, a subject which has not to my knowledge been systematically investigated. (I don't like using this argument, since in general I would say that a course unnecessarily long is not desirable, but I am trying to put the best face on a bad situation)

The count change on the pneumatic Michelin Tracer tyre was not unexpected, I knew I would be in for a large temperature rise, from my premeasurement calibration at 0645. I took both this tyre and a solid Greentyre to the course prepared to use either. On my way into Dartmoor I inspected one of the roads and saw a bit of variability of surface texture. What clinched the selection of the pneumatic, was the variable texture of the road surfaces in Princetown. Indeed I subsequently found some rougher sections in the country lanes. With a solid tyre I would have been laying out these rougher sections short. I did plan to apply a temperature correction to the pneumatic data, but as noted above I am more comfortable hiding my hill wobbles and slope effects behind the extra distance added by the rising temperature, which I estimate from the temperatures recorded at the splits to be 40 to 50 yards, on top of the SCPF of 60 yards.

There are few straight, reasonably level roads on Dartmoor. I could see from the map that the most promising place was in Princetown itself. Even here I guess the slope was about 1%. Parked cars at 6am, however, restricted the possibilities, and since I feared later in the day that more cars might park, I chose a section where I could recalibrate on the pavement(sidewalk in US) if necessary. These fears proved groundless and I was able to recalibrate on the road. 200m is marginal for a calibration course, but I am confident by getting 6 consistent rides(with 0.5 count range), reading to one decimal place and keeping the count from ride to ride I obtained an adequate calibration. A 200m course does depend on a smooth startup and stop to the ride. I find starting and stopping adds 3cm to the distance recorded by the Jones counter. On a 200m cal course I will thus measure a constant to be larger than that for a very long cal course by 0.015%.

As I final hilarious note, at exactly five miles by the bike, the race director's car reported 5.2 miles, the trailing car reported 4.9. An interesting discussion developed with me probably blinding them with the technicalities of car tyre diameter variation. This pattern repeated almost exactly to one decimal place every 5 miles. With the race director gradually getting more and more agitated as he realised that his 35.6 mile course, modelled to be a very hilly version of the Two Bridges 35.35 mile race in Scotland was going to be short. I predicted that we were heading towards 34.2 miles, based on this calibration of his car against my bike (he had driven the course sometime in the last couple of weeks). It actually turned out to be 34.1243 miles. I argued that I would recommend 15 minutes addition due to hills for the purposes Road Runners Clubs Standards. Phil Hampton, the race director and holder of the world 50 mile track best time in the 1970s, argued that he never used to have any problem with sprinting up hills and talking at the same time so that a 15 minute addition due to hills was excessive. I begged him to increase the race cutoff time from 6 hours to 7.5 hours so that I could have ago next June, but that is barely running. I think it will be a successful well organised event in a marvellous location.

Mike Sandford
m.sandford@lineone.net

PUZZLE OF THE MONTH

When I rubbed the lamp the Genie said "what do you want this time, Pete?" I said, "I am in need of mental stimulation, and I am hard up for a puzzle to put in *Measurement News*." "No problem," says the Genie, "here you are" - and he hands me a card inscribed as follows:

Constant = 11000 counts/km
Count at Start = 49000
Count at Finish = 23972
Count at Start = 99163

I said "what this?" and Genie says "It's your puzzle, dummy. A measurer takes a count at the start of the course, and takes another count at the finish. He locks the wheel and rides back to the start. Figure out how long the course is. I've made it easy by giving you the day's constant."

"Hold on," says I "it looks like the 5 digit counter has rolled over. What about the missing digits?" The Genie says, "That's part of the puzzle. Here's the rest -

Measurements agree within .0008 of each other.
Course is the one which is closest to being a standard metric length - a multiple of 5 km, up to 100 km, or a marathon or half-marathon.
What is the length of the course, and what final adjustment is needed to make it right?"

MEASUREMENT OF 4TH IAAF AMAZON GOVERNMENT WORLD ROAD RELAY CHAMPIONSHIPS MANAUS, AMAZONAS, BRAZIL

I got the word about the trip about a month before, in a phone call from Henk Koolen, the Executive Director of CBAT, the Brazilian Athletic Federation. He said there was to be an IAAF World Championship Road Relay next year, and could I come down and measure the course? I said yes, and he set up the ticket. I had it in my hand two weeks before I left, a nice contrast to the last-minute panic situations common to these kinds of trip. I left Columbus at 3 PM July 9

At 7 AM on the 10th, in Manaus, I was met at the plane by Euclides Jose de Almeida Cavalcanti, who is in the technical department of CBAT. He took me to the Tropical Hotel, and said the rest of the day was mine, to rest. He showed me some maps and we talked about the course enough so that I could be mentally prepared for the next day's work. We were to meet the next day to measure the course.

Next morning I was picked up at 8:30 and taken to the course. We toured it. It was quite simple, being a 2500 meter loop which the runners would circle 16 times. A 17th lap on a 2195 meter loop would complete the marathon distance. The loop was to be run on either side of the central divider of the Estrada da Ponta Negra, with three turning points to be cut through the median as needed. The southern turning point was fixed, and would not move. It was marked with a nail and washer in the central divider, marking the center of a half-circle of 4 meter radius on which cones would be placed to define the turn. The two northern turning points were considered as adjustable. Their centers were marked with stakes driven into the dirt of the central divider. Arcs of 4 meter radius had been painted on the roadway.

Wietse, Pete, Paulo after the measurement in which everyone had good agreement

I believed the best way to measure the course was to ignore the turning radii, and calculate them mathematically rather than try to actually measure around them and across the median. At each turn I marked points, one on each side of the median, which lined up with the center point, and 4 meters from it. These points would be used as data points.

I laid out a 300 meter calibration course on Estrada da Ponta Negra near the start/finish of the loops, using the solo method where the tape is hooked over succeeding nails. I double-checked all readings, but paranoia drove me to do a complete recheck 6 days later, which confirmed the initial layout within 2 cm.

Those who measured the course were:

Pete Riegel - Columbus, Ohio, USA
Wietse Marco Jurgen Hoornweg van Rij - Manaus, AM, BRASIL
Paulo Silva - Porto Alegre, RS, BRASIL

Paulo ready to take a count

I had brought a Goodyear foam-filled wheel with me, but after I gave it to Paulo he discovered a soft spot in it where the rubber had not completely filled the tire. Thus it was junk. We used Wietse's bike, which had a thin, high-pressure tire.

I calibrated the bike, rode each loop of the course twice, and recalibrated. This took about an hour. Then Wietse repeated what I had done, and finally Paulo measured. I was puzzled at Paulo's riding outfit, which seemed to be khaki bathing suit and leather street shoes. I learned later that Paulo's luggage had been misplaced and he was making do with what he had. He was hoping the baggage would catch up as he was enroute in two days to Havana to measure a course.

We sat down at the hotel and compared notes. All three of our measurements agreed within 30 meters for the full marathon, and showed that each of the two western turn points needed to be moved a meter or two to slightly lengthen the course. This movement of the center points, and remarking of the pavement, will be done by Wietse.

I prepared neat handwritten copies of the results of the measurement, a definitive USATF-style course map, an IAAF Measurement Certificate, and a diagram showing how the turning points should be moved. Euclides made copies for CBAT. I told him I would be double-checking the work when I got home. Fortunately the computer calculations came out the same as those done on site.

In addition to checking the course I recommended that race management reexamine the order of the relay events. As planned, relay teams would run lengths of 5, 10, 5, 10, 5 and finally 7.195 km. I suggested that the 7.195 km event be run first, as this would permit the short loop to be used for the very first lap, closed when the last runner passed through, and never thereafter used in the race. If the 7.195 km event is run last, lapped runners and lap-counting difficulties are likely, in my view, to cause problems.

Pete

MANAUS TOURIST NOTES.

After I got installed in my room I tried to sleep, but couldn't manage it, so I went to the lobby and signed up for a City tour just to get oriented. The Tropical Hotel is 10 km west of the city center, on a stretch of six-lane highway called Estrada da Ponta Negra, which parallels a beach of the same name. The area is being developed for the upwardly-mobile, and three huge condominium buildings were in varying stages of construction, facing the Rio Negro which is 8 km wide at Manaus and gives a fine view.

The tour took me to the Opera House, the municipal buildings, and the market. The buildings were fine, but no more exciting than pictures in a book. The market, though, was the treat of the day. First we went to a huge open shed where people were offloading bananas from trucks and wagons. I couldn't believe there could be enough people to buy them, but was told that as the day went on the prices would drop, and by 5 o'clock all the bananas would be gone.

Next we went to another market, across the street, and wound through narrow passages between small stalls containing every conceivable kind of fruit and vegetable. Emerging from these passages, we encountered a number of big tables where dozens of grinning butchers were hacking away at huge pieces of meat. Meat was piled everywhere. Very few flies were in evidence - it was not at all buggy in Manaus. Finally we encountered the fish tables, with heaps and heaps of absolutely fresh Rio Negro and Amazon fish laid out. There was a huge variety, and the mixture of the raw meat and the piles of fish was quite beautiful to see for someone who enjoys eating both.

The Tropical Hotel is a huge rambling place, considered "5 star" and very nice. My room had a small balcony where I could put my feet up and have a beer or read. I had a lot of time for that, as the measurement work was done early in the trip, and I had 4 days remaining until I went home. While sitting on the balcony I spotted a couple of big black spider monkeys racing up a tall tree, then diving off into a lower tree, just like National Geographic. Also saw a couple of agoutis (like a big squirrel with long legs) and a 2 foot long iguana. These animals were just cruising around the hotel grounds near the border of the nearby forest.

Early morning coffee on the balcony was nice, just before sunrise when things were still cool. I was contemplating one fine early morning when, from above, I observed a golden stream arching out from the floor above. I called out "Bom dia" (good morning) but got no reply. This seemed to me an excellent way to begin the day.

The hotel ran tours. I had already gone way up the Rio Negro on my first time in Manaus, and I wanted something short and relaxing. Lago Salvador is just across the river from the hotel. The half-day trip includes the boat ride, a guided walk in the jungle, a canoe ride, and some time on the floating bar, where one can swim. Shortly after I got there, having walked in the jungle, I was asked if I wanted to stay all day. Since I had a meeting with Henk that afternoon I declined. So at 12:30 I was taken for a solo ride back to the hotel.

I was shown fine hospitality by Euclides. He took me to his home for dinner (we ate Chinese takeout), and again had me over to his sister's home on Saturday for the afternoon barbecue, where a big turtle was the featured dish, along with some fine fat Amazon fish - very tender when eaten with the fingers, the meat plucked directly from the fish. And the beer and company was fine too. Everybody seemed to be having a fine time - I know I did.

A couple of days later I repeated the same tour to Salvador Lake, but this time skipped the 1 hour jungle walk and spent the extra time canoeing around the lake all by myself. It was great to have the little kids away in the jungle and out of earshot. I could hear all sorts of birds and animals making wild noises as I paddled. Having worked up a sweat, I returned, tied up the canoe, and had a swim and a read. Very restorative and relaxing.

It is interesting to see the similarities between foreign places. If one peels away the "Green Hell" romanticism, one finds Manaus, a city of 1.5 million (just like Columbus) sited on a wide body of water. From a seat in a boat the surrounding forests could just as well be Canada. There is nothing in the far view which tells you where you are.

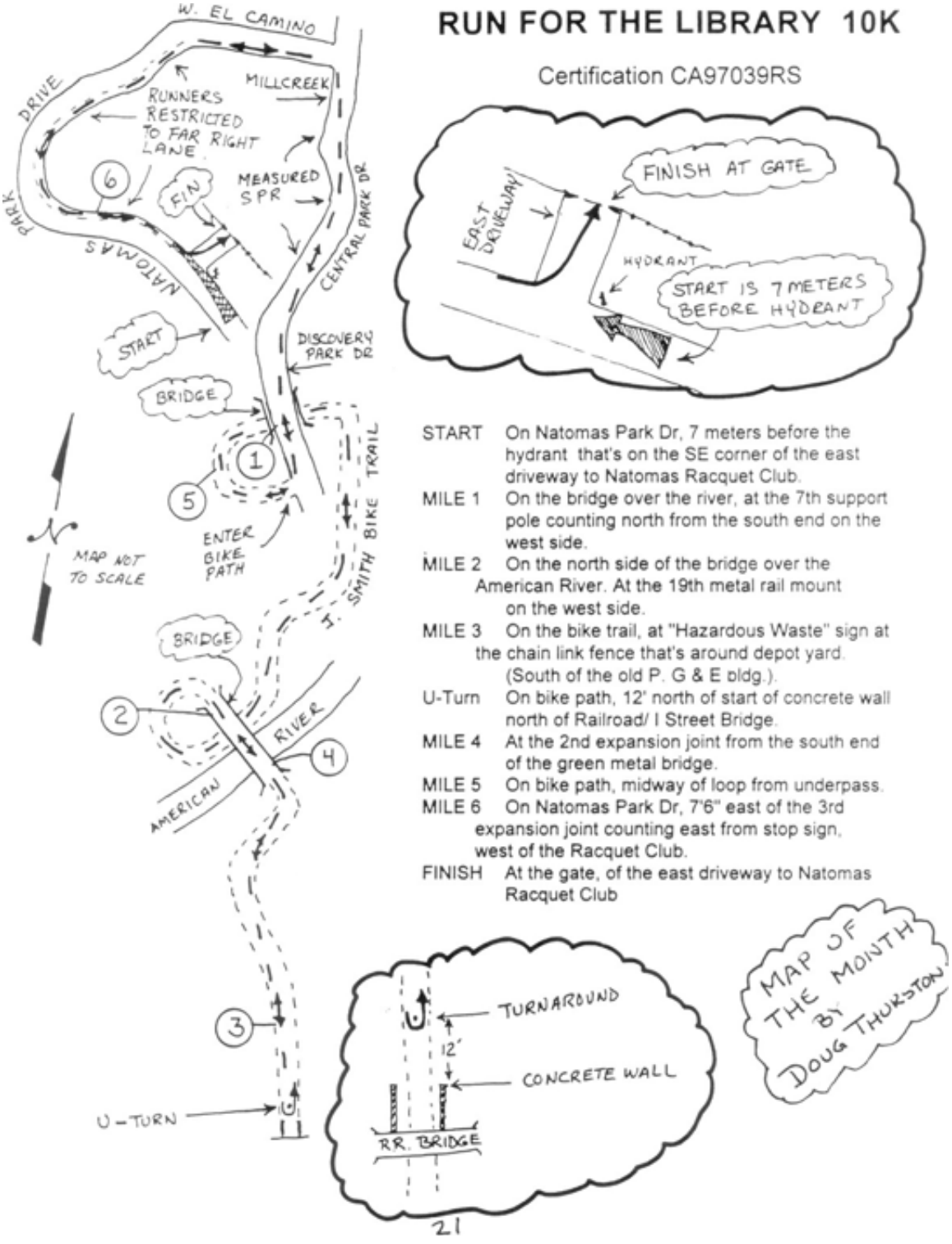
You get a good clue from the heat. Manaus, located barely south of the Equator, has uniform days of 12 hours year round. The arc of the sun lies to the north in their "winter" and to the south in the "summer." It is generally rainy in the first half of the year and dry in the last half. The two hottest periods are at the equinox times (March and September 21) when the sun is directly overhead. At these times the temperature may reach 35 to 40 C (100 F), and the humidity is usually around 80 percent. I was there in March at a race and it got so hot that the fire department hosed down the grateful crowd with a water mist. On this most recent trip the temperature was 25 to 30 C (mid 80's F), with high humidity. The level of the Rio Negro was beginning to fall as the rains drained away. The river rises and falls about 12 to 14 metres (50 feet) over the course of the year. That's a lot of water for a river that is 8 km wide.

Most of the things which make the Amazon romantic and adventurous are not available to the casual traveler. You will not see anacondas and jaguars lurking behind the trees, nor catch fleeting glimpses of Indians. All that is deep in the forest, far from tourist paths.

A cynical and well-traveled friend of mine once said, decrying the homogenization of the world "There are only two kinds of cities in the world - those where the McDonalds have palm trees, and where they don't." To an extent it is true - the world the traveler sees now is much more like his own that was the case before TV and jet travel.

RUN FOR THE LIBRARY 10K

Certification CA97039RS



START On Natomas Park Dr, 7 meters before the hydrant that's on the SE corner of the east driveway to Natomas Racquet Club.

MILE 1 On the bridge over the river, at the 7th support pole counting north from the south end on the west side.

MILE 2 On the north side of the bridge over the American River. At the 19th metal rail mount on the west side.

MILE 3 On the bike trail, at "Hazardous Waste" sign at the chain link fence that's around depot yard. (South of the old P. G & E bldg.).

U-Turn On bike path, 12' north of start of concrete wall north of Railroad/ I Street Bridge.

MILE 4 At the 2nd expansion joint from the south end of the green metal bridge.

MILE 5 On bike path, midway of loop from underpass.

MILE 6 On Natomas Park Dr, 7'6" east of the 3rd expansion joint counting east from stop sign, west of the Racquet Club.

FINISH At the gate, of the east driveway to Natomas Racquet Club

MAP OF THE MONTH BY DOUG THURSTON

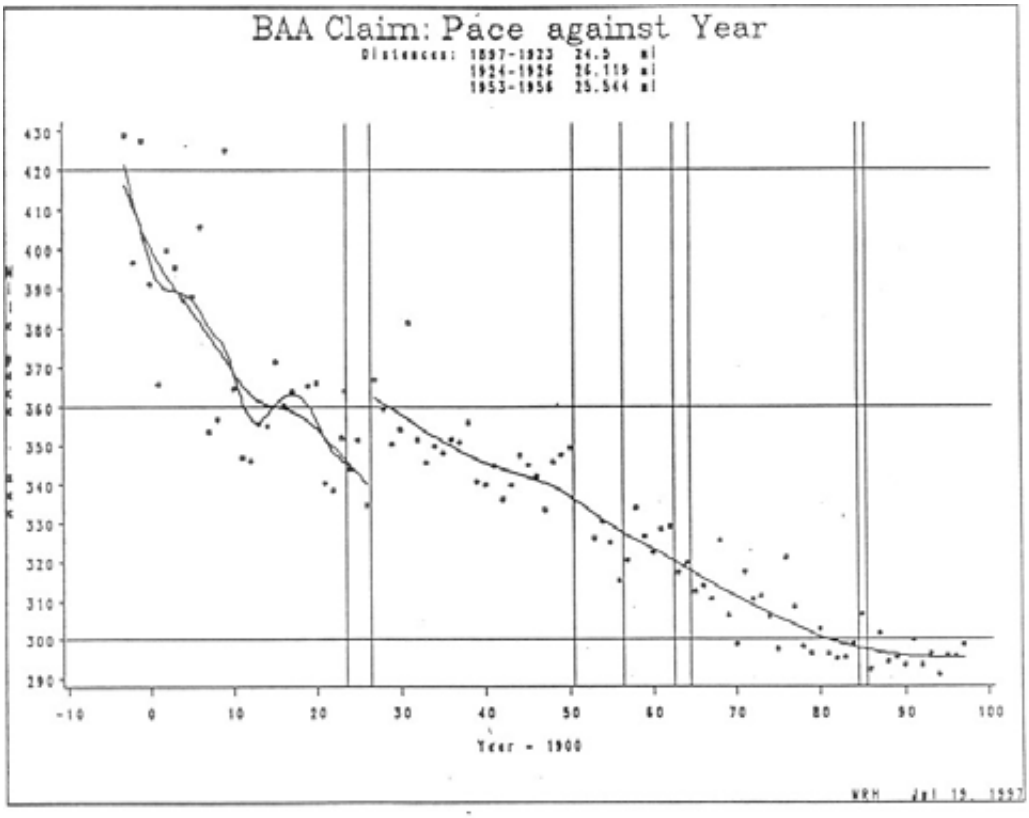
Length of the Boston Marathon

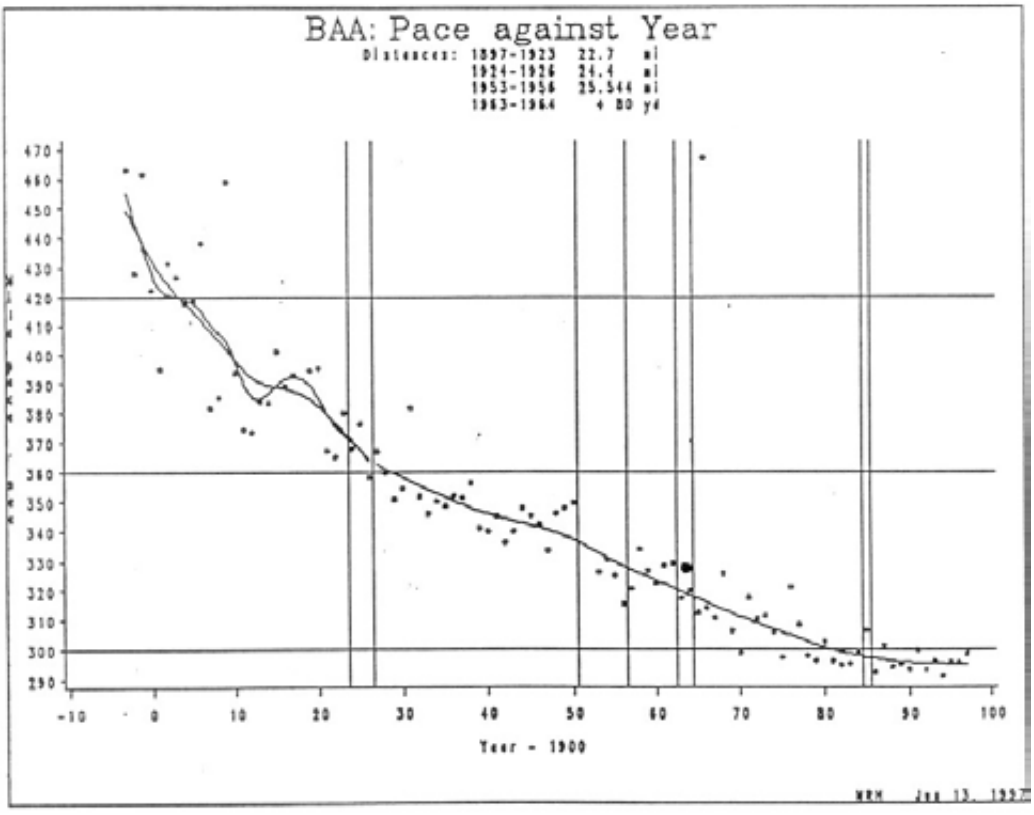
This is the second successive MN in which JFD has claimed that the 1896 Olympic Marathon (OM) was originally intended to be 48 k. I don't believe it but am always willing to learn, so have asked for his source. I have the Marathon - Athens distance as only 37 k but the course was probably longer than this. However, the organizers surely had the idea that it had to start at Marathon and finish in the stadium. The 40-k distance had to have been settled for some time before the race. Arthur Blake of the Boston AA (BAA) surely knew what he was getting into long before he left the US. Also, Gyula Kellner (Hun) ran a solo pre-Olympic 40-k fitness trial in 3 hours at Budapest. Of the four foreigners who ran in the OM he was the only one to have run the distance before and the only one to finish, being 3rd, in 3:09:35. Incidentally, the winning time is now given as 2:58:50, though the 2:55[:20] that JFD gives was widely reported then. There were also great variations in the times reported for the 1900 and '04 Oms.

The first US marathon was from Stamford, CT to the Columbia Oval on Sep19, 1896. It was won in 3:25:55 3/5 by John J McDermott, who went on to also win the inaugural BAA Marathon, 1897, in 2:55:10. Both races were reported as 25 mi at the time. The earlier race may have been slightly long. The early BAAs were definitely way short. The BAA race may well have been as much inspired by the earlier US race as it was by the OM. Certainly John Graham, the coach who accompanied the BAA team to the 1896 Olympics, was at Columbia Oval on Sep 19, where I speculate he met Herbert M Holton. These two, after deciding that a route following Paul Revere's ride crossed too many railroads, measured the original BAA course using a cyclometer or two, stopping at 25 mi. Even the BAA came to realize that their early course (1896-1923) was not that long. Today they list it as 24 1/2. Presumably they believed this when they added about 1.7 mi at the start for 1924, to keep their race an OTrial. The 24/1232 (exactly 24.7) that JFD gives was reported by others (I have also read 24.8). It may pertain to the 1924-26 course! The earlier course was known to be well short by midwesterners, especially in St Louis and Chgo, by 1907. When NYers gained such experience, they, too, realized that the BAA was well short.The only credible distance I have seen given is 23.1 mi. Adding 1.7 to this gives 24.8. Clearly the Finns were also laughing. Albin Stenroos, the 1924 OM Champ, basically said so before he ran the 1926 BAA. Although the first official measurement of the course, the week before the 1927 race, added only 125 to 185 yards (usually now listed as 176, or exactly 0.1 mi), the ongoing reconstruction appears to have added more than a mile to the distance. Anyone who scoffs at this statement should do so while viewing the accompanying graphs of the winning BAA pace (sec/mi) over the years. These graphs have separate interpolations fitted for 1897-1926 and for 1927-. The top graph is obtained from what the BAA maintains are its historical race distances, while I obtained the second graph by decreasing the 1897-1923 distance while keepingthe 1924-26 distance 1.7 mi longer, until the interpolations matched. Not even I believe that the early course was quite that short. I still go with the 23.1, being the only credible distance measured and reported.

I encourage readers to make their own graphs of such information. Again I'd be interested in discussing this in more detail with anyone interested.

Malcolm R Heyworth (JHeyworth@aol.com)
6647 North Loron, Chicago, IL 60646-2709


BAA Claim: Pace against Year
Distances: 1897-1923 24.5 mi
1924-1926 26.119 mi
1953-1956 25.544 mi
Year - 1900
WRH Jul 15, 1997


BAA: Pace against Year
Distances: 1897-1923 22.7 mi
1924-1926 24.4 mi
1953-1956 25.544 mi
1963-1964 + 80 yd
Year - 1900
WRH Jul 13, 1997

Marathon History

Jean-Francois Delasalle (MN of Jul, 1997, p 4) repeats the legendary account of Pheidippides in its modern form. Many years ago I came to believe and write another version, having four ancient primary references, all Greek, meaning I'll omit the ancient Roman variations.

Pheidippides's 440-k run in 490 BC from Athens to Sparta and back to beseech the aid of the Spartans in fighting the invading Barbarians is mentioned in Herodotos's *History*, 6th Book (Erato), 102-120. This mention was primarily to explain the origin of the Festival of Pan. It also explained why the Spartans appeared at Athens after the Battle of Marathon, but runners were mostly so taken for granted that writers simply omitted mentioning how such events were arranged.

Herodotos did not mention who was first back to Athens with the news of victory at Marathon. Rather, this is not mentioned in extant literature until more than five centuries later, when Plutarkh recorded in an exhibitionary speech (Were the Athenians More Famous in War or in Wisdom? in the Moralia collection) that Herakleides of Pontikos (the Black Sea) had recorded that Thersippos of Eroeadoea/ Eroeadae/Eroea/Eroievs (presumably an ancient Atheniandeme anyway) had been the messenger. There is no record of his words, nor his demise, but the battle did not appear over. He would simply have continued to the ancient Athenian port of Phaleron (a total distance from Marathon of nearly 52 k!), with 90 percent of what was left of the Greek army hot on his heels, to greet the Barbarians who were sailing there after the Battle of Marathon. The Greeks then successfully prevented the Barbarians landing at the port.

However, this being an exhibitionary speech, Plutarkh then mentioned a fictitious "Evkles" (literally "great fame" or "well renowned" or "true glory") who personified the messenger and did die upon delivering his message,though what that message actually was and to whom he really delivered it remains an integrally ambiguous part of Plutarkh's rhetoric. We can't even be sure he was speaking about Marathon here. He wanted his audience to believe,as they were predisposed to do, that Evkles, the warrior with the appropriate name (a Mr Goodwrench!), experienced the ultimate glory in dying upon delivering the news of their victory. Plutarkh also recorded, in his *Life of Aristeides*, that, after the Battle of Platea (479 BC, eleven years after Marathon), Evkhidas had run about 120 miles from Platea to Delphi and back (returning before sunset!) to fetch fire to purify the Greek soil. Upon his return he collapsed and, shortly thereafter, died, thereby becoming a real personification of Evkles.

Finally, about seventy years later, Lukian (A Slip of the Tongue in Salutation), apologizing for a faux pas committed while drunk the previous evening and doing so while he seemed either still drunk or suffering the hangover, became the first to write that Pheidippides had been the one to announce the victory at Marathon to the Athenian elders and fall dead. Lukian thus became the first writer to borrow Pheidippides from one story and meld him to either the fictitious Evkles or the real Evkhidas but as the Marathon messenger.

The first writer to further meld Pheidippides's real run, from Athens to Sparta and back, with Lukian's confusion, of having Pheidippides as the Marathon messenger and dropping dead upon delivering the message, was not ancient but the poet Robert Browning in his *Pheidippides*, 1879. However, even he said in his colophon that he was melding stories (he did it elsewhere, as did others). This is the modern version, taken literally more in the US than England. Tom Derderian, on p xxii of his *Boston Marathon*, writes, "In the 19th century every cultured European student knew the neat, compressed story of Pheidippides's sacrfice." This is quite untrue. It became true only this century.

In summary, the Marathon messenger was Thersippos. He did not drop dead as Evkhidas did at Platea eleven years later. I'd be only too happy to continue this discussion in greater depth with anyone interested.

Malcolm R Heyworth (JHeyworth@aol.com)
6647 North Loron, Chicago, IL 60646-2709