

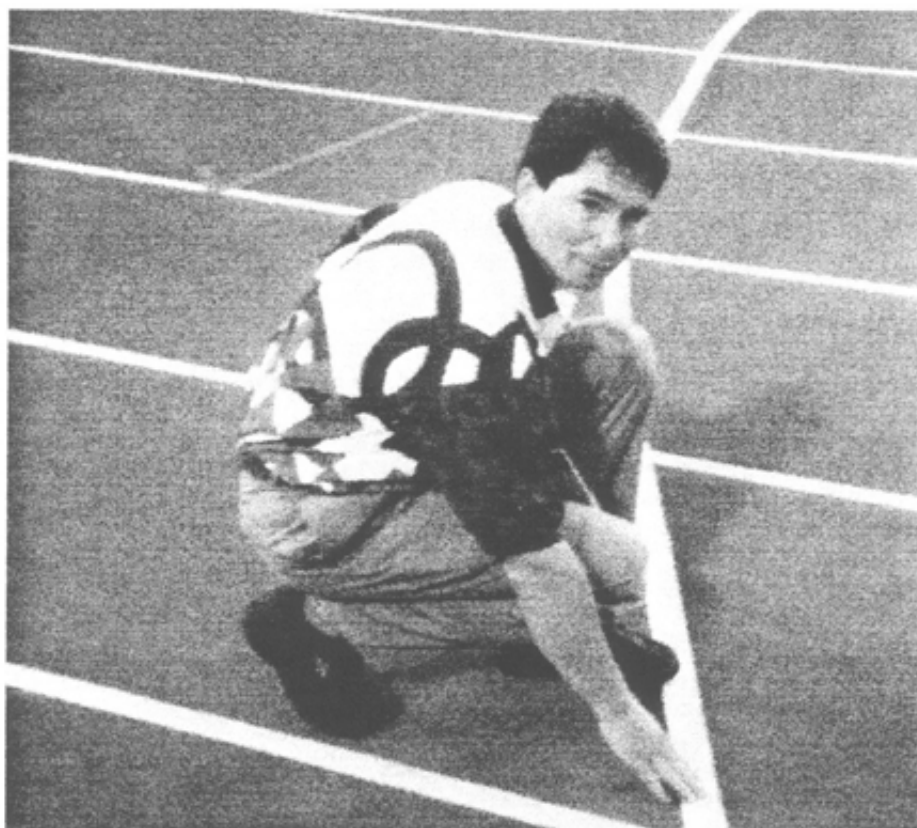
Measurement News



September

1996

Issue #79



David Katz, a member of the Olympic Marathon measuring team, came to Atlanta during the Games as a worker for Mondo, who built the track. Here he smooths the taped waterfall start line he laid down for the men's 50 km racewalk. David laid out the same line for the men's 20 km walk, and another in a different place for the women's 10 km walk. David's lines were stripped away after the starts of the races. **Wayne Nicoll** and **Joe Rogers** had earlier established the reference points at the inner edge of the track at which David's lines began.

MEASUREMENT NEWS

#79 - September 1996

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Norm Patenaude

Bernie Conway writes:

Pete, I was reading the Final Report Of The Measurement of the 1996 Olympic Marathon and Race Walks and noticed that at the 1976 Montreal Marathon course measurement Norm Patenaude was lead rider. I don't know if you knew Norm or not but I would like to pass on what information I have.

Last Winter Norm was struck by a snowplough when he was running home from work. He survived what would have killed almost any other person. Norm was an avid ultramarathoner and in good shape. Norm had recently moved to Orillia (Ontario) from Sudbury (Ontario). He spent quite some time in hospital and progressed from being in a wheel chair to being able to walk and then bike. I last talked to Norm in June at a race in New Hamburg. He had biked there from Kitchener-Waterloo area, a distance of about 30-40 km. He was telling me that he was going to be able to start running in a month. He wrote me a letter in July inviting me to run the 1/2 marathon in Orillia with him. He was the race director for the 1/2 marathon and marathon. He gave me his itinerary which indicated kayacking around the Killarney Islands in August, then a visit to Victoria, B.C. to see old friends, and then canoeing in Algonquin Park in September. About three weeks ago I received a phone call from another running friend, Marge Potter, indicating that Norm had been out riding his bike when he was struck from behind and killed. Norm was one of the earliest measurers in Ontario. He measured many of the races especially in Northern Ontario and was a founding member and president of the Ontario Roadrunners Association. The Paradise Lake Pacers, a running group in the Kitchener-Waterloo district is putting on the Horror Hill 15K Country Road Race which is "dedicated to the memory of Norm Patenaude who measured and certified the course".

NEW APPOINTMENTS

Wayne Nicoll announces the appointments of **Bill Belleville** as National Certifier (final signatory) for Pennsylvania, and of **Paul Hronjak** as National Certifier (final signatory) for North Carolina. Congratulations to Bill and Paul.

Olympic measurer and marathoner **Hugh Jones** has been appointed Secretary of AIMS, replacing **Andy Galloway**, who resigned 30 June. Andy carried the load for over a decade and 130 newsletters.

TEMPERATURE CORRECTION OF GROUP RIDES

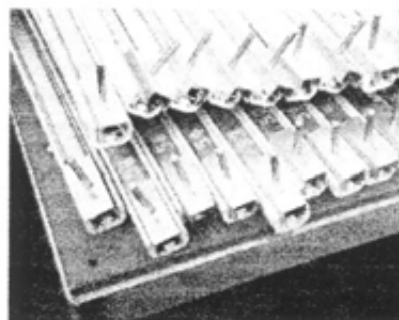
Mike Sandford (he is the guy who analyzed 2700 individual video frames of a calibration ride to measure wobble - see MN last month) has sent an excellent article on using group data to more closely determine actual length of a course. It may be hard going, but I urge you to make an effort to comprehend it. I think Mike is definitely on to something. His work may represent a major advance in the state of the measurement art.

OBSERVATION OF OLYMPIC MARATHONS AND RACE WALKS

A few days before the men's 20 km walk I examined the course, and saw that the painted nails were in place, and the little yellow marks showing the start and finish for the walks were still there on the track, and in the right place. I took MARTA out to the marathon turnaround, and saw that a new mark had been painted, complete with the proper arc. By my measuring wheel, it was 88 feet (26.8 m) closer to the start than was the original, very close to what we had recommended. Acting on the recommendation of **Jean-Francois Delasalle**, I also laid out a supplemental "stupid safety point" 200 meters up the road from the turnaround, to use as a turnaround in case a lap was missed in the stadium, as happened in Göteborg. The blue line was painted, and was in the proper place.

Before the 20 km walk, I met **David Katz** on the track. He was there working for Mondo, and he laid out beautiful and accurate curved "waterfall" starts for all three racewalks. I mentioned that our measurement data showed him riding **inside** the painted line on the track (although he did not), and that 26 out of 28 riders appeared to be closer than 30 cm to the line - assuming that the track was indeed 400m, as we took it to be from the surveyor's document. Many of the measurers were observed riding too close to the line. Measurers like to check things, and I discussed with David the idea of running a steel tape around the curb, just to check.

The track curbing was not yet installed, and if we were to do it we would have to do it early, just before the women's marathon start. The curbing was stacked on a handcart, each section numbered, ready to be placed into the sockets on the track. It was obvious that the job would not be easy, as the track curbing had a rounded cross-section, and it would be difficult to keep the tape in place going around the turns. Of course, we could have measured each of the individual pieces and added them up, but the sections were stacked in order, and not readily accessible to us.



As it turned out, I chickened out. I asked myself "what am I going to do with the data?" I fully expected the measurement to come very close to 400 m, but what was I to do if it did not? The Olympic events would be starting on the very day we obtained the information - too late to do anything about it if anything was wrong. If we measured it and got an unfavorable answer, it would be a terribly difficult secret to keep, yet if we said anything the whole track and field results would be marred. I decided to do nothing, as I saw it as unwarranted interference with the event. There was no reason to question the track certificate. But it was difficult to abandon my habitual skepticism.

I assisted the ACOG crews in setting up the racewalk cones. In this effort I was greatly aided by a book of photos sent to me by **Wayne Nicoll**. The photos showed how the course had been coned at the US Olympic Trials, which Wayne attended, and they were a great help to me. I observed the 20 km walk, and it followed the certified course.

On both marathons, a full three laps were run on the track at the start. The course was coned slightly differently than it was certified. On Clarke Street, after passing under the Fulton Street overpass, the certified route has the whole road. On race day the runners were restricted to the left side only, both going out and coming back. This added about 2 to 4 m each way. The corner of Clarke and Capitol Avenue was coned in a gentler curve than what we had measured, so that the runners ran about 3 to 5 m less than what was certified. The rest of the course the course was coned as certified.

When the lead vehicle reached the turnaround at Oglethorpe University, we stopped short of the turns and waited for the runners to emerge from Lanier Drive. Thus I did not observe the turnaround up close, but it seemed about right. I could not see what was done on Lanier Drive, but viewing of the video confirmed that the proper route was followed.

The women's marathon was easy to follow, as there were few people in the lead. At one point the leader ran to the wrong side (longer at that point), confused by the fact that there were two blue lines (one for "out," one for "back"), but she made a quick correction. Otherwise the proper route was run.

During the men's marathon there was still a substantial pack of people in the lead on Peachtree Road, which was coned up the middle. A few runners got on the wrong side of the cones, forced there by pack pressure. **Steve Bosley** (who was referee) and I judged that the course cutting was not intentional nor was significant advantage gained, but we took the numbers of the runners in case a protest was made. A couple of exhausted mid-pack finishers strayed to the inside of the cones separating lanes 4 and 5, 350 meters from the finish, and officials wrote cards up on them, and gave them to Steve. We agreed that we would do nothing unless a protest occurred. No protests were made. These minor incursions had no effect on order of finish.

We were annoyed at what we thought to be undue interference with the runners by TV motorcycles. Frank Shorter was on one of them, and we were disappointed that he could not do something to get the driver to back off. Many times the motorcycle seemed to be only a few meters directly in front of the leaders. We got on the radio, and tried to have them stay 20 m ahead, or close alongside, without success. The TV people seem to be interested only in getting good pictures, and are indifferent to any adverse effect they may have on the competition. But they are bulletproof, as it is politically and financially impossible to throw them off the course. This happens at most major races I've seen. I'm told the runners are pros and don't mind, but Uta Pippig was seen more than once waving the camera motorcycle to back off.



Julia Emmons with John Disley

I assisted the ACOG people in setting up the women's 10 km walk, and the men's 50 km walk, and they were walked as measured and certified.

Basically, all five events were conducted as certified, and as well as any I have seen.

A final note - When runners reached 39 km, our lead vehicle sped up and arrived at the stadium ahead of the runners. Steve Bosley and I walked down lane nine to the finish and watched the people finish to the roar of the crowd. It was intense and exciting. **Julia Emmons**, however, did not enjoy the same spectating pleasures. Instead, she remained out on the course as long as any runner remained in the race. This was responsible and professional, but not every race director could have resisted the temptation to enjoy the stadium finish. That the races went smoothly was a result of immense hard work on her part. ACOG certainly gave the ex-stadium events to the right person.

Temperature Correction of Group Rides

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

Aug 1996

Introduction

For an expert measurer, using pneumatic tyres, temperature variations are arguably the most serious contributor to measurement error. Recently I embarked on a series of measurements and experiments in order to understand the effect of temperature changes and to find a way to overcome them. This work is still in progress, but by chance I have happened upon what appears to be a new technique for analysing a simultaneous group ride in order to remove the effects of temperature variations. To explain the principles of the technique I will first describe a fictional measurement and its analysis. Next I will apply the method to two real group rides. The first is the puzzle set by Pete Riegel in the July issue of Measurement News, where he challenges the reader to determine Atlanta Olympic Marathon course length from the data obtained by 25 riders. For the second group ride I have had to go back to the data obtained by 13 riders on the 1984 Los Angeles Olympic Marathon. Because actual temperature measurements and intermediate calibrations were carried out, that group ride provides a critical test of the new method, and has confirmed its correctness.

Smith and Doe's Measurement

Imagine two riders, Smith and Doe, setting out to measure a 10 km course in Britain. Smith rides a touring bike with a thin pneumatic tyre on the front. Doe has a mountain bike with a fat pneumatic tyre. These riders are perfect riders and nothing disturbs the precision of their measurement except for the temperature variations arising from the changeable British weather. Their rides on a 1000 m calibration course gave the following constants:

	Temperature C	Calibration Constant counts/km	
		Smith	Doe
Pre Measurement Calibration	10	10,000	10,000
Post Measurement Calibration	14	9,995	9,990

When they arrived for the measurement there was a considerable delay when the first course had to be extensively modified. By the time that they were ready for the actual layout the temperature had risen to 18 C, although it was not recorded. We can calculate that Smith's actual constant was 9990 and Doe's 9980. Doe's measurement gave the shorter course, and so his counts were used to fix the finish position. The measurement data were thus:

	Smith	Doe
Counts	100,100	100,000
Length from Pre Measurement Calibration, m	10,010	10,000
Length from Post Measurement Calibration, m	10,015	10,010
Length from Average Calibration, m	10,012.5	10,005
Range (Length Post-cal - Length Pre-cal), m	5	10

The simultaneous measurement by Smith and Doe ended in a sudden downpour of rain. The two layout measurements were just consistent within the 0.1% variation allowed by the British procedures, so no further measurements were necessary. By the time the measurers had returned to their calibration course, the rain had stopped, the roads dried and the temperature after the passage of the cold front was a fresh 14 C.

To Smith it appeared straight forward, the constant for the day was the larger of the two calibrations, and in each case this was the pre-calibration. The lengths derived from this differed by 10 m which was just compatible with the permitted 0.1% so the shorter length was used for the final distance. However, the American Doe disagreed. For a start USA procedures require the two measurements of the course to be within 0.08%, or 8 m and there was 10 m difference using the pre-calibration constant. The temperature variation had been considerable as it warmed up in the course of the day, so wasn't the average constant more appropriate. The IAAF booklet on course measurement says that the average calibration constant shall be used to determine the Constant for the Day. In the USA the larger constant is recommended, although the average constant is permitted. Doe pointed out that even with the average calibration the two rides differed by 7.5 m and were therefore on the borderline of being invalid. The problem must be in the temperature variation particularly of his tyre which had expanded by 0.10% during the day. They set about calculating temperature coefficients for their tyres, and assuming linear expansion derived,

	Smith	Doe
(Precal Constant- Postcal Constant) / Precal Constant	5×10^{-4}	10×10^{-4}
Pre temperature - Post temperature, C	-4	-4
Temperature Coefficient of Calibration Constant, C ⁻¹	-125×10^{-6}	-250×10^{-6}
Temperature Coefficient of Expansion of Tyre, C ⁻¹	125×10^{-6}	250×10^{-6}

They had differed during the measurement by 100 counts i.e. 1000 in 10⁶, although when calibrating at 10 C they had had the same counts. Using the difference in their expansion coefficients they calculated that there had been a temperature rise of $1000 \times 10^{-6} / 125 \times 10^{-6} = 8$ C. With this temperature rise it was now possible to calculate corrections to the length of the course to allow for the calibration change, as follows,

	Smith	Doe
Counts	100,100	100,000
Length from Pre Measurement Calibration, m	10,010	10,000
Addition for 8 C temperature rise, m	$10,010 \times 125 \times 10^{-6} \times 8 = 10$	$10,000 \times 250 \times 10^{-6} \times 8 = 20$
Corrected length, m	10,020	10,020

With the aid of some algebra, Doe derived the following equation for the corrected length,

$$L_{corrected} = \frac{L_1 \cdot \Delta_2 - L_2 \cdot \Delta_1}{\Delta_2 - \Delta_1} \dots\dots\dots(1)$$

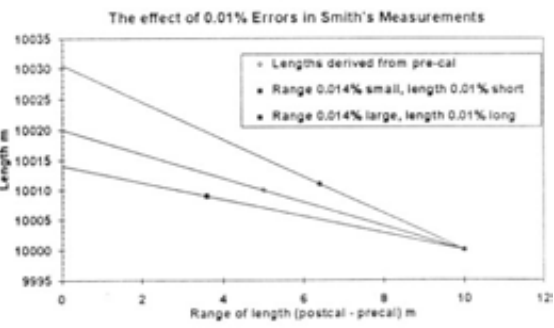
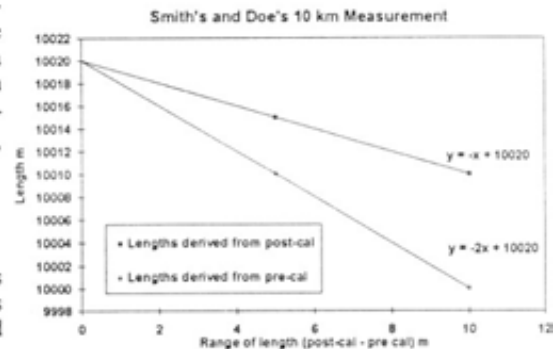
where L_1, L_2 are the respective lengths measured by Smith and Doe using the pre-calibration constant, and Δ_1, Δ_2 are the ranges of length for each rider calculated from the length derived using the post-calibration constant *minus* the length derived using the pre-calibration constant. The same formula can also be used to derive the corrected length from post-calibration derived lengths, but then the signs of the ranges Δ_1 and Δ_2 have to be reversed.

Meanwhile, Smith discovered a graphical way of deriving the same result, shown below. If the lengths derived from the pre-calibration constant are plotted against the post-cal - precal range, and joined with a straight line, extended to meet the y axis, then the intercept is the length which corresponds to a bike with no change of calibration constant, i.e. no variation with temperature. The slope of the line, m , can be used to derive the average temperature, T_{ave} , during the measurement, using the equation,

$$T_{ave} = T_{pre} - m(T_{post} - T_{pre}) \dots\dots\dots(2)$$

In this example, $m = -2, T_{pre} = 10, T_{post} = 14$, so $T_{ave} = 18$.

Smith next considered the effect of measurement errors. It was clear that being closer to the y-axis than Doe, errors in his measurements would produce greater errors in the corrected length than would the same error in Doe's measurements. He assumed a 0.01% standard error in all his own measurements, and assumed that the pre and post calibration errors would be uncorrelated. He thus calculated an RMS error for the difference of the pre and post constants of 0.014%. This gave the range = 5 ± 1.4 m. He assumed that the 0.01% error in his length measurement arose from the calibration and so would be correlated with the range measurement. Plotting this as seen on the right, he obtained the wide error range for the corrected result between 10014 and 10031 m, and he had had not even allowed for an error in Doe's measurement. The error is dominated by the error in the range which arises from the limited accuracy with which the temperature



coefficient can be determined from the calibration rides.

However, if one rider had a tyre with a small temperature coefficient, it could be corrected by a second rider with a tyre having a large coefficient. Alternatively a pair of tyres one with a negative coefficient and one with a positive one would also reduce the effect of the error in the range.

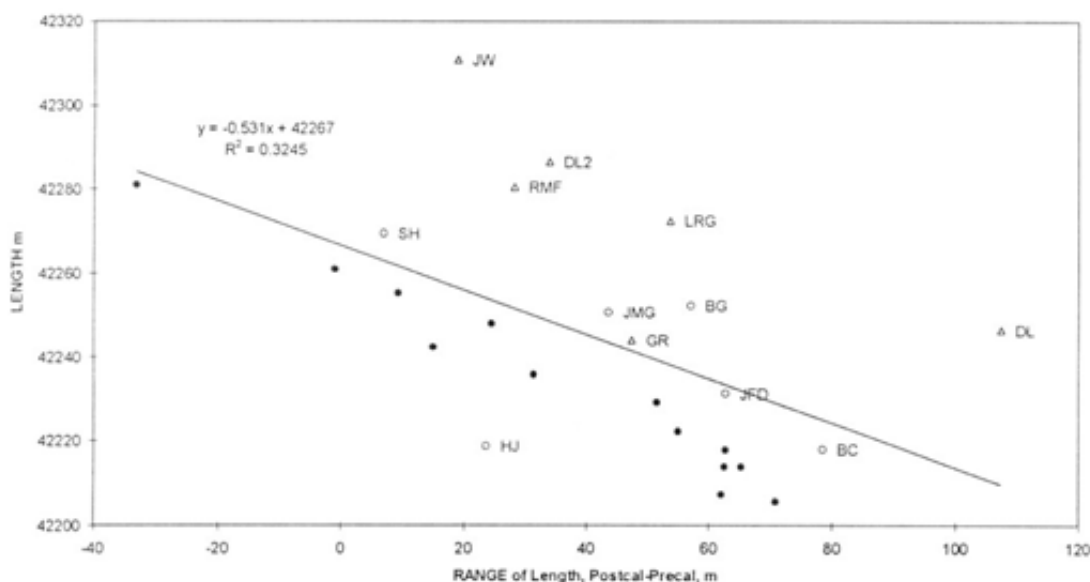
Application to the Atlanta Marathon Group Ride

Smith and Doe's method can be applied to solve the puzzle of the determination of the Olympic Marathon length, MN 78, p 4. Substituting in equation (1) the following for JD's tyre which contracted as it warmed and PR's which expanded,

$$L_1 = 42281.1, \quad \Delta_1 = -33.1, \quad L_2 = 42222.2, \quad \Delta_2 = 55.1, \quad \text{I obtain } L_{\text{corrected}} = 42259.0 \text{ m.}$$

Alternatively to obtain the best possible estimate it is necessary to consider an appropriate combination of all the data from the 25 rides, which can be readily done using the graphical technique on the whole set of 25 rides as shown in the chart below. The straight line fitted to all the data points gives a temperature corrected length, 42267 m. However, it is clear that some data points are more than 28 m longer than the fitted line. This implies an error of 0.06%. Clearly there was some problem with these measurements. I decided to exclude 5 of the measurements, plotted as triangles, on the grounds that they were outliers which did not represent the normal standard of measurement comparison, e.g. under good conditions my course measurements are repeatable to about 0.02%. Next I cheated by using some extra data from Pete Riegel which gave the range of variation within the calibration rides. One rider, GR, had an average range of 0.067% within the four rides of a calibration set. With such a large range the temperature calibration of this bike would not be precise enough to make accurate correction possible. There were three other riders with ranges above 0.04%. These were DL2, JW, and RMF. But these measurements had already been rejected on grounds of excessive length. This agreement between the two methods of identifying problem rides provided added confirmation that the procedure was sound. Excluding these 6 rides and replotting the data, I derived a corrected length of 42261 m, and this was my initial solution to the puzzle.

ATLANTA MARATHON MEASUREMENT: all 25 riders



However, I heard that the French measurers routinely exclude rides which differ from the median by more than 0.05%, and then use the median of what remains. The use of the median acts further to discount outlying data points. Inspecting the plot above, I observe that 13 points, marked with filled circles, fall very close to a straight line, with 6 points marked with open circles which seem markedly off, mostly on the high side with one on the low side. On the next page I have re-plotted the data and fitted a temperature correction line to the consistent 13 rides which gave a length of 42259.5 ± 2.2 m. These rides had a standard deviation of 4.5 m. I have added lines at ± 3 standard deviations. All the excluded points

lie outside this range. In fact the closest excluded point is at 3.2 standard deviations. The probability of this being an extreme value of a normal distribution is 0.0007, so the 13 rides do form a significantly different group from the excluded data points. Furthermore, the standard deviation of the set, 4.5 m, or 0.01% is consistent with my view of the repeatability of measurements, particularly when corrected for temperature variations as these data have been.

I developed this method to deal specifically with the Atlanta Marathon Puzzle, so it is not entirely surprising that it is very effective for those data. In order to prove the theory beyond all doubt, I looked for another group ride to provide an independent test. For various reasons none of the group ride data which I found in MN proved suitable. In many cases the scatter on the pre and post calibration rides was too high relative to the small temperature change and the small variation in temperature coefficient of the tyres used.

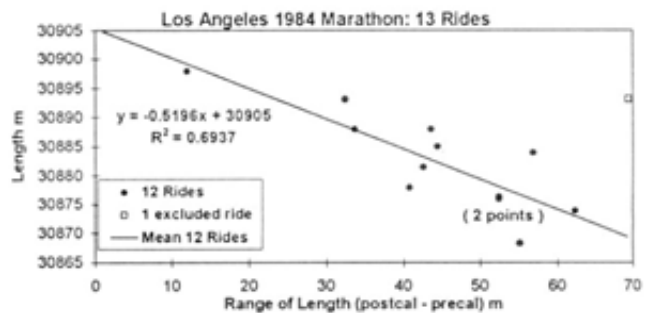
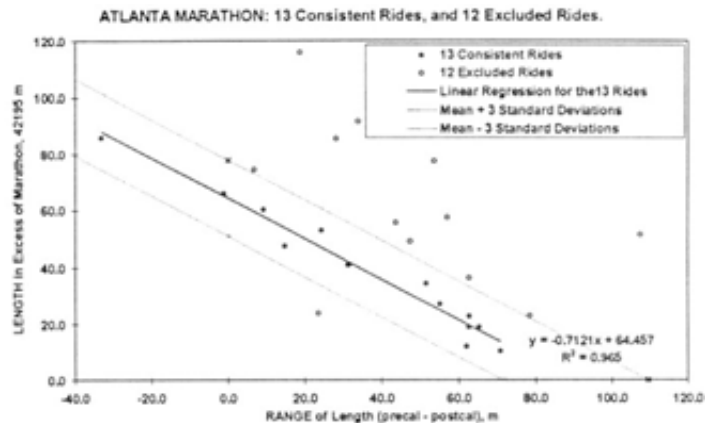
Application to Los Angeles 1984 Olympic Marathon Group Ride

Pete Riegel came to my rescue with the loan of the report on the Los Angeles 1984 Olympic Marathon measurement by a group of 13 riders. Following a similar argument to that used above, I excluded one ride since it lay significantly (> 4 standard deviations) longer than the regression line. Subsequently, I found in the report that this was the lead rider and at least three corrections had to be applied to his measurements. Even after these corrections, the report's analysis showed that his ride was about 10 m longer than the average. It is therefore not surprising that without any corrections I found it desirable to exclude it. The remaining 12 rides plotted below give a corrected length of 30905 ± 5 m, and a slope of -0.52 ± 0.11 . This result can be compared with the various analyses in the report which tracked the changing calibration constants during the course of the measurement using 6 intermediate baselines measured enroute. Five slightly different methods of analysis gave averaged lengths in the range 30909 to 30912. My value, about one standard deviation smaller, is consistent with these.

A second test would be to derive the average temperature from the slope of my plot. The report's data on temperature changes during the measurement are sparse. The pre temperature was 53 F and the post temperature was 71 F. Equation (2) gives the average temperature to be 62 ± 2 F. A second reference gives the post temperature as 80 F and this yields an average temperature of 67 ± 2 F. This can now be compared with the temperatures experienced during the measurement. For 12.7 km it was wet and 64 F and for 18.2 km it was sunny and 71 F. This gives a distance averaged temperature of 67 F in good agreement with that calculated from the theory if indeed the post cal temperature was 80 F. This test is not ideal because the possibility of an effect introduced by the wet roads, nevertheless my theory passes the test successfully.

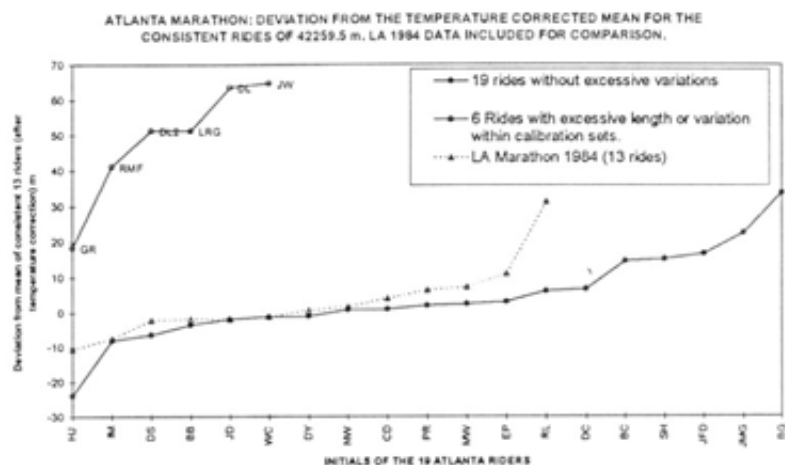
Speculation on the Causes of Variation

Up to this point I think my arguments have a strong basis in theory, supported by observation, and statistical analysis. I am now tempted to join the speculation on the causes of the variations. Such speculation is notoriously dangerous without proper tests of its predictions. In the Atlanta Measurement Report at least 6 of the riders have mentioned the uncertainties surrounding the determination of the Shortest Possible Route (SPR) by each rider. I have also had some



interesting correspondence with Hugh Jones, who deliberately rode within a 30 cm clearance of the curb, and into the gutter when appropriate. By contrast Dave Cundy favoured the shortest *practicable* route and giving the gutter/road edge some 30 cm clearance. With total of at least 7.5×360 degrees of turn outside the stadium a 30 cm difference of line on the corners amounts to at least 14 m over the course.

In the plot on the right, I show the distribution of the deviation from the mean for the different riders. For comparison I have included points from the LA group ride multiplied by 40/30.9 to correct for the different measurement lengths. The LA data are in fact quite comparable to the 19 Atlanta riders without excessive length or variations.



I now distinguish four groups of riders:

1. Six riders whose distances were excessively long or who had marked variation within their calibration sets.
2. One rider who competitively sought the minimum distance, without full regard to the 30 cm from the curb 'rule'.
3. A group of 13 riders who adopted a self-consistent line. I do not know exactly where that line was but I assume it was intended to be fairly close to the 30 cm 'rule', although perhaps somewhat degraded by the difficulty of performing well in a long echelon of riders.
4. A group 5 of riders who were somewhat more generous, perhaps where the gutter and road edge was rough.

I tentatively interpret the results as follows. I discount Group 1 because they had must have had problems with equipment or technique. I regard Groups 2, 3, and 4 as expressing three genuine views of what the SPR should be. Which view is 'correct'? I can not judge. Instead I now favour giving equal weight the views about SPR of the 19 riders. This gives a value 42263.6 m. The important conclusion for measurement theory, and perhaps practice, is what emerges from the data and the correspondence, i.e. the existence of a range of views about SPR amongst a dedicated and experienced group of measurers. Perhaps one may also comment that the ideal race course is one where there is a very clearly defined edge, with a good running surface right up to that edge. Then there should be no argument about the SPR.

Conclusions

I have described a method for the temperature correction of simultaneous group rides which does not require explicit temperature measurements or the use of intermediate baselines for calibration during the measurement. The method is sensitive to calibration errors so it needs either precise calibrations, or a large number of riders with different tyres to average over. It fits the Atlanta data very neatly. Applied to the LA data it gives a result consistent with a much more sophisticated analysis of the calibration changes. For Atlanta, ignoring 6 riders who had very excessive variations and lengths, and giving equal weight to the other 19 riders and their views of the SPR, I derive an average length of 42263.6 m. However, if I adopt a majority vote principle then the most consistent view of the SPR (by 13 riders) gives a length of 42259.5 m. It is clearly undesirable that such a range of views exist about the SPR, but this may be inevitable with the non-ideal nature of courses without physical boundaries at the edge of what it is practicable to run.

Finally, it has not escaped my notice that a single rider could use this method of temperature correction by fitting tyres with different coefficients on the front and back wheels, and adding a Jones counter adapted to fit the back wheel. He would, however, need to make more precise calibration measurements than is the normal practice in order to determine accurately the difference of lengths derived from the pre- and the post-calibrations.

I thank all the Atlanta measurers for their excellent report, and additionally Hugh Jones, Pete Riegel, and Norrie Williamson for most helpful communications.

ERRORS, OMISSIONS, ADDITIONS, COMMENTARY on the OLYMPIC MEASUREMENT REPORT

Final Adjustment of the Olympic Marathon Course

Several have wondered how the Olympic Marathon course came out to be 50-60 m too long, especially in the 35 km to 40 km portion.

I asked Jack Grosko. He said:

"Regarding the Edgewood measurement, I recently went back and wheeled off that segment at 876 feet, 200 feet longer than originally measured. It seems obvious that two 100 foot segments were dropped in error that day - a problem in the taping and recording method. This pretty well accounts for the excess found during the final check ride(s)."

Note: The Edgewood segment (between 35 km and 40 km) was under construction during the original bicycle measurements. It was measured later with a steel tape.

It accounts for 61 m of extra course.

Note: The final adjustment to the course was to shorten it by 53 m. Thus Jack and Woody's bike layout, layout, sans taping error, agreed with the collective wisdom of the group within 8 meters.

New Bronze Medalist

A stupid error in my section of the report awarded the bronze medal for shortest measurement to Jean-Marie Grall. Jean-Marie had a fine ride, but **Bob Baumel's** ride qualified for the bronze.

Calibration Variation

In my section of the report I produced a chart showing calibration variation of the riders. The units are wrong on the chart and on the accompanying graph. Variation as calculated is in meters, not m/km. Average variation on the 480 meter calibration course was about 0.23 m, or 23 cm from the lowest count to the highest in a series of four rides. Note that one "count" is roughly 10 cm.

Order of Riding

Some have mentioned that the order of riding may have had an effect on the way people perceived the proper line, and had an effect on their measurements. I have examined the photos which people sent to me in an attempt to reconstruct the order in which we rode. I know several people changed positions at some points in the ride, but generally we each occupied a describable position in the queue.

Here is what I think know of our order:

Grosko (guide - did not measure)
Riegel
Cundy
Cornwell
Grall
Delerue
Shepan
Yaeger



Jones
Delasalle
Lamppa
Grass

At this point the photos do not help much. Later in the queue (from David Katz) I have:

Wickiser
Katz
Hubbard

Last in line I think was Loeffler. Where were the Mexicans?

Olympic measurers - please send me what you know of your own position in the queue. Who was in front of you? Who was behind you? I will take the information and attempt to put together the order in which we measured. Then we will see what we can do with the information.

MAP AND PUZZLE OF THE MONTH

This month's map describes a calibration course that was intended for only one use. It's the calibration course used by the measurement team when measuring the 1996 Olympic Marathon course. We put in nails, but as I had no intention of using it again, did not do any sketching of the course nor any descriptions. When I received the reports from members of the French team (Delasalle, Delerue, Grall, Marechal) they included a beautiful map of the calibration course. Although the physical future of the course is uncertain, as post-Olympic construction may rip it out, it exists today, and it is probably the most steel-taped calibration course anywhere. It was a shame to let the beautiful map go to waste, so I certified it. I think there is a small error on the map. Can you find it?

PHOTOS NEEDED

As you can see from the several photos within this issue I have bought a scanner, and can now include more photos within the text. Presently they are a little fuzzy, as the quality is limited by the capability of my ink-jet printer. Perhaps a laser printer is in the offing. Formerly, when a photo had to be reproduced, I would have to get a halftone made, which cost about \$19 per picture. This limited the inclusion of photos to the cover.

Even fuzzy photos help decorate our pages, so if you have any sort of photos, send them to me. I'll return them when done. Also, if you have any experience with using scanners to best advantage, I'd appreciate tips to improve quality.

"TIGHT" RIDING VS "LOOSE" RIDING

When we have a group ride it is usual to have most of the measurements fall within a close span, but there are almost always a few outliers. Some may be marginally shorter than the group, but those that are longer are usually uncomfortably so. After these rides I try to find out what happened to cause the discrepancy.

The most common explanation for a difference is the statement "I rode the course loose, like a validation." Or, "I rode the course tight, like a layout." This difference makes me uncomfortable, as we have a clearly defined line to which we are supposed to adhere. It is called the Shortest Possible Route (SPR). Note that this is NOT "the shortest practicable route" nor is it "the route the runners will run." Both of the latter are subject to measurer judgment, and cannot be used as a base when one measurement must be compared with another. Who knows what the various measurers may think is the proper or practicable route? The SPR is quite clear and unambiguous - maintain 30 cm clear of curbs and edges, and take straight-line tangents between turns.

Some maintain that courses should always be measured as closely as possible to curbs. This sounds OK, but a 30 cm distance can be maintained while riding a bike, while a close-as-possible cannot. On a tight turn one can always scooter the bike to keep the front wheel against the curb, although the back wheel will bump into it. On a long, sweeping bend it is impossible to ride with the front wheel up against the curb. That is one reason for the 30 cm clearance. It is rideable. It also matches the long-established track clearance of 30 cm from the curb.

Some people believe that runners will not run in the gutter, near the curb. I have seen them voluntarily do so frequently. The curb or road edge marks the boundary outside of which a runner is guilty of course-cutting, with whatever penalty that may bring.

Occasionally good people have bad rides. This happens to all of us, or will if we measure enough. In inquiring about the philosophy behind "loose" and "tight" riding, I have found that NOBODY consciously tries to exceed the 30 cm clearance. Those who said they rode "tight" were skinning curbs as close as they could. Those that rode "loose" were aiming for 30 cm out, which is proper. This was reassuring to me. Note that although a good measurer may have a bad ride, it is usually in a situation where it is their first ride of an unfamiliar course. The second ride in these situations is invariably better.

There is no harm in riding "tight" if you are laying out a course. If you succeed you will add a few meters to its ultimate length, and this will increase your comfort level should your course be validated. The difference between "tight" and "loose" is small. A "loose" ride - unless beyond 30 cm - will usually not explain a big discrepancy - usually it is simply a bad ride. That's why we ride twice.

In a validation it is proper to ride as close to the ideal line as possible. This gives the best estimate of course length as we define it.

Bob Baumel, in the final report of the Olympic Marathon measurement, expressed concern that people may be drifting away from strict adherence to the SPR. I agree. The definition of the proper route is clear. With care it is attainable. There is no good reason to make mental adjustments and personal interpretations of the SPR. Unless we have a common target, our results will vary. The Shortest Possible Route is our goal - no more, no less.





**VALIDATION REPORT
 FREIHOFFER'S RUN FOR WOMEN 5K
 Albany, NY Course ID# NY94001WN**

This validation re-measurement was conducted for the purpose of acknowledging a pending Women's Only Open mark set by Lynn Jennings as well as a Masters mark by Jane Welzel. Several single age marks were also noted. While reviewing a video tape of the race Wayne Nicoll, course measurer, noted a discrepancy in the restricted route around a lake where the course is defined by a series of cones placed 13'6" from the road edge.

Arriving in Albany Friday 8/16/96, I met Wayne Nicoll at the Ramada Inn that George Regan had arranged and was providing a room for us to use for the measurement. Once unpacked Wayne drove to the race site and guided me over the course. While on site we were able to see the restricted areas of the course. The road had been repaved recently and only two PK nails were located. Fortunately these were at each end of the restricted section. Along with the repaving, the road edge had been moved and a stone curb now lined the road. Wayne and I were able to roughly determine the original road width from the location of two storm drains. These drains obviously had not been moved and were well inside the new road curb line.

While reviewing this area we were met by Ed Neiles and Al Maikels of the Freihofer's race. Al pointed out a section of the course on S. Lake Ave at Western Ave. where construction on race day had forced runners out from the curb approximately 16'. After taking us all there, it was clear that this area had been repaved. Counter readings at this intersection and at Washington Ave would be taken and whatever extra distance this "bulge" in the course caused could be calculated. It was made clear at this time that no cars were allowed to park anywhere on the race course and that the race "owned" the entire road for it's duration.

Returning to the Lake, Ed helped locate several red painted x's. These he explained were the locations of cones used for the race to define the restricted route. These points were spaced at 25' intervals and were roughly 8'6" out from the curb. Finding the old storm drains roughly another 5' in it appears as though the course had been laid out for '96 reasonably close where it should have been. After retouching these points with new paint, Wayne drove to the Start/Finish area. The 3 mile, Start, and Finish were all readily located from the map and from paint marks. Walking to the Empire State Plaza, Wayne pointed out the calibration course. This is a flat marble tiled section running the length of the plaza along a curb. Rather than check it's length, we left that task for a measurement seminar to be conducted in conjunction with the validation re-measurement on Saturday.

The following morning Wayne and I met Chet Boehlke, Elaine Humphrey, and Jim Gilmer, the seminar participants. After a few quick instructions the five of us were calibration our bikes. To facilitate things Wayne Nicoll served as data collector and guide as well as measured the course. For the measurement we were provided with a motorcycle police escort. This was nice since there were five of us riding and traffic was heavy at some points along the way. Also due to traffic parked along the road, it was necessary to offset 7 or 8 times throughout the measurement.

Within the first mile, the race enters Washington Park and makes a gradual turn to the right. Cars were parked along this arc and I measured on the curb while Wayne and the others rode along the cars. For the validation this arc is 60 degrees and the measured line was 40 cm. inside of the S.P.R.. Data was taken at the 1 mile point. Measurement stopped at the boat house where the course is restricted. I took a counter reading and measured along the curb to the end of the restricted area and returned. Picking back up at the boat house and measuring along the painted marks provided data on the course no matter what route the video tape showed. We then proceeded along the race route to S. Lake and Western Ave. I again took a counter reading and another at Washington Ave where the course turns right. Data for the group was taken at 2 miles and again at 3 miles and the Finish. For the restricted section leaving the park onto Madison. Wayne explained that the measured route simply went around a cone in the center of the road, a PK nail was evident here.

After post calibration all bikes, Wayne and I discussed steel tape procedures and oversaw Chet, Elaine, and Jim as they checked the calibration course distance using my new Keson 165' tape and 5kg. pull force as listed on the tape. A raw measurement of 1019' 11 7/8" was rechecked on the opposite side of a dividing island on a brick surface. This was used for the original measurement of this course in 1994 and found to be 1020'. With temperature correction the marble calibration course was 1020.0358'. Wayne had been using 1021.153' for this course and upon checking his original notes found an error accounting for the difference.

Since the promised VCR was not available, Elaine and Jim offered to bring one back to the hotel for viewing the race footage as well as Tom Mc Brayer's measurement video. They returned with bagels and donuts for the group to enjoy. Not having breakfast, several bagels really hit the spot. Reviewing the video, it is clear that runners were not restricted from the boat house around the lake. Runners can be seen running next to the new curb. They were also forced out from the road on S.Lake at Western.

Taking this into account, the course AS RUN for 1996 measures at 4990.651 meters. The shortage in the race course is clearly in the 1 to 2 mile section. Since this race has several ratified marks a determination of the race distance for prior years was also figured. The distance for prior years is somewhat approximate since Wayne's original PK nails were paved over, but does provide adequate assurance that ratified marks are safe from suspicion. The course for prior years can be considered reasonably accurate.

The following data sets are from the official Validation measurement of the course and from the other measurers. Wayne Nicoll's measurement of the course closely agrees with mine even though we measured a different line entering Washington Park. As for the others, this was each measurer's first crack at measuring and the data reflects this. For consistency all five measurements are figured using the average calibration constant and No S.C.P.F. was included.

In conclusion, no marks can be recommended for the '96 Friehofers Run for Women due to the shortness caused by not following the certified course.

August 27, 1996



Michael A. Wickiser RRTC Validations Chairman
2939 Vincent Rd. Silver Lake, Ohio 44224-2916
330-929-1605

SUMMARY OF MEASUREMENTS

All distances are shown in meters, as established by using average constant without 1.001.

Freihofer's data using calibration course of 1020.035 feet (the actual distance):

	<u>As Run 1996</u>	<u>As Certified</u>
Mike Wickiser	4990.65	4997.84
Wayne Nicoll		4998.25
Chet Boehlke		5004.68
Elaine Humphrey		5001.62
Jim Gilmer		5004.49

Freihofer's data if the calibration course had been 1021.153 feet (the distance used for layout):

	<u>As Run 1996</u>	<u>As Certified</u>
Mike Wickiser	4996.12	5003.32
Wayne Nicoll		5003.73
Chet Boehlke		5010.17
Elaine Humphrey		5007.10
Jim Gilmer		5009.98

Note: After checking his original field notes, Wayne Nicoll discovered that he had originally established the calibration course length at 1020.153 feet. He did not certify the calibration course at the time, but in a letter to race organizers noted the calibration course length as 1021.153 feet - a typographical error which became the "official" length in future measurements. A certificate has been issued using the corrected length of 1020.035 feet.

STEAMTOWN MARATHON

Forest City to Scranton

Susquehanna Co. / Lackawanna Co., PA

START: At Forest City H.S., near upper end of road, just before entering the paved parking area, more precisely exactly even with the last wood utility pole on the south side of the road. Marked by yellow paint stripe on north edge of road. Elev. 1700'

MILE 1: On Rt. 171 in Forest City, approximately opposite the flagpole on the west side about 50' south of South Street, and more precisely 9.8' north of utility pole #42267 at west side of road. Marked by yellow paint stripe and "1" on west edge of the road. Elev. 1490'

MILE 2: On Rt. 171 (Main St.) in Vandling, south of Vine St. near the south corner of the stone wall at #525 Main St., and more accurately 45.1' north of an un-numbered utility pole on west side of road. Marked by yellow paint stripe and "2" on west edge of the road. Elev. 1600'

MILE 3: On Rt. 171, west of State Road #1001, and more accurately 60.2' west of the westernmost post of gate at south side of road. Marked by yellow stripe and "3" at centerline of road. Elev. 1580'

MILE 4: On Rt. 171, about 158' south of center of gate on east side of the road, and about 19.5' south of culvert carrying Wilson Creek under the road. Marked by yellow stripe on west edge, "4" in center of road, and a yellow stripe on guardrail. Elev. 1370'

MILE 5: On Rt. 171 (Main St.), north of Oswego Pike, and more accurately 68.5' north of "Speed Limit 35" sign on west side of road. Marked by yellow stripe and "5" on right edge of road. Elev. 1240'

MILE 6: On Rt. 171 (Belmont) in Simpson, about 12' southwest of the center of Railroad St., 14.4' northeast of utility pole #79, and 131.6' northeast of fire hydrant on NW side of road. Marked by yellow stripe and "6" on northwest edge of road. Elev. 1140'

MILE 7: On Rt. 171 (Belmont) in Carbondale, 13' southwest of the center of Oak St., and 7.4' northeast of utility pole #0040, and 10.9' northeast of the hydrant, both on southeast side of road. Marked by yellow stripe and "7" in center of road. Elev. 1145'

MILE 8: On Pike St. in Carbondale, 475' beyond (west) of Sand St., more accurately 52.5' beyond (southeast) of utility pole #61833 on right (NW) side of road, and 8' northeast of a manhole in Pike St. Marked by yellow stripe and "8" in center of road. Elev. 1075'

MILE 9: On Gordon Av., 25.3' northeast of center of Rear Gordon Av. (on R). Marked by yellow stripe and "9" in center of Gordon Av. Elev. 970'

MILE 10: On Lackawanna Av., exactly even with a manhole cover beyond the blue building, also being 66' beyond (SW) the culvert between two drainage ditches, and 113.5' beyond (SW) utility pole #53 on right (NW) side. Marked by yellow stripe and "10" in center of road. Elev. 975'

MILE 11: On Main St. in Jermyn, southwest of Poplar St., in front of #406, and more accurately 9.1' northeast of manhole in Main St. Marked by yellow stripe and "11" on left (southeast) side of road. Elev. 950'

MILE 12: On Washington Av. in Jermyn, 106' south of Lackawanna, and being exactly even with utility pole #60246/#60210 in front of house #318. Marked by yellow stripe and "12" on left (east) edge of road. Yellow paint at base of pole. Elev. 990'

MILE 13: On the west edge of Main St., about 15' south of a point directly underneath high voltage electric distribution lines crossing the road. Marked by a yellow stripe and "13" on the west edge of the road. Elev. 950'

1/2 MAR: On the west edge of Main St., just before utility pole #75951/#49887 on east side of road. Marked by yellow stripe and "1/2M" on west edge. Elev. 920'

MILE 14: On west side of Main St., 250' south of Gilmartin St., and more accurately 26.8' south of the large NAAPA Auto Parts sign on the west side of the road. Marked by yellow stripe and "14" on west edge of road. Elev. 910'

MILE 15: On right (NW) side of Main St. opposite house #175 on left, also being 27.6' south of Division St. Marked by yellow stripe and "15" at right (NW) side of road. Elev. 925'

MILE 16: On Main St., 375' west of Bridge St., more accurately 17.1' west of an un-numbered utility pole on north side of road. Marked by yellow stripe and "16" on north edge of road. Elev. 825'

MILE 17: On Bridge St. (over Lackawanna River), 18.8' southeast of a PK nail in the roadway about 8' out from the curb. Marked by yellow stripe and "17" about 12' out from the right curb. Elev. 820'

MILE 18: On north Valley Road, 16' east of centerline of Sanks Drive, and being exactly on line with utility pole #78-1/2. Marked by yellow stripe and "18" on north edge of road. Elev. 890'

MILE 19: On left side of Lackawanna Av. in Olyphant, 78.8' northwest of center of Willow St. and 86.4' SE of center of Hull St. Marked by yellow stripe and "19" about 8' out from left (southwest) curb. Elev. 790'

MILE 20: On Eagle Lane, 77' southeast from sign "Dobbins Ford" at dirt road on right. Marked by yellow stripe and "20" in center of Eagle Av. Elev. 790'

MILE 21: On Boulevard Av., 106.3' northeast of center of Poplar Av., and 22.8' southwest of utility pole #45 on northwest side of road. Marked by yellow stripe and "21" on northwest side of road. Elev. 740'

MILE 22: On Boulevard Av., 31.5' northeast of utility pole #57880. Marked by yellow stripe and "22" on left side of road. Elev. 790'

MILE 23: In front of #805 Sunset St., between Monsey Av. and Capouse Av., more accurately 2.0' southeast of utility pole #82 on SW side of road. Marked by yellow stripe and "23" in center of road. Elev. 770'

MILE 24: On Marion St., 83' northwest of Adams. Marked by yellow stripe and "24" in center. Elev. 820'

MILE 25: On N. Washington, just southwest of Pine St. Marked by yellow stripe and "25" 8' out from northwest curb. Elev. 750'

MILE 26: On Lackawanna Av., under the overhead connecting structure, 11.8' SE of the center of the 2nd blue column (counting from the southeast) supporting the structure over the roadway. Marked by yellow stripe and "26" in the center safety zone of the road. Elev. 745'

FINISH LINE: See Detail Elev. 745'

FINISH: See Detail Elev. 745'

FINISH: See Detail Elev. 745'

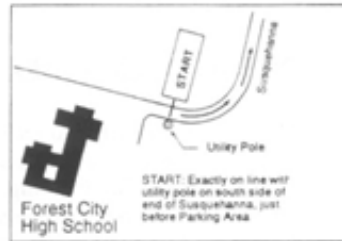
FINISH: See Detail Elev. 745'

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FINISH: See Detail Elev. 745'

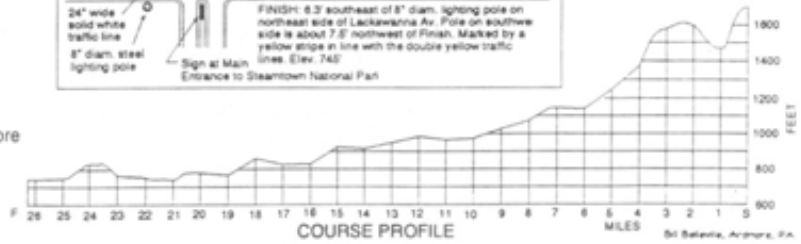


NOTES

Elevations are based on the National Geodetic Vertical Base Datum of 1929, as shown on 7.5 Minute Series Maps (Forest City, Waymart, Carbondale, Olyphant and Scranton)

Course length has been established based on using the right side of roads (centerline- right edge) except as follows:

- Start to Mile 3: Full width of roadway
- Just before Mile 11: Move to left curb of Poplar to permit left turn to Main, then resuming typical right-side restriction
- Mile 16.7 to 17: Course angles to left approaching Keystone to permit right left turn to Keystone. Course continues left centerline on Keystone to permit right left turn onto River. Course stays left of center of River direct to a right right turn around corner to resume right side of road course on Bridge
- After turning right onto Lackawanna in Olyphant, course angles directly to left curb lanes of Lackawanna, to permit right left turn onto Main. Stay left of centerline on Main for about 0.8 miles to permit a right left turn onto Eagle Lane
- Use entire width of Eagle to angle to left right turn, use full width of Enterprise, after turning left on Boulevard, resume right side of road restrictions until I-81 overpass
- Full width of Boulevard is available from I-81 overpass to N. street beyond Mile 22; then resume right side restriction
- Angle left onto Electric, and follow all tangents to corner of Monsey. Sunset and Wyoming, back to right curb of Electric. Angle directly across N. Washington to right curb of Electric. Resume right side course requirements and angling across Marion just after Mile 24 to N. Washington
- Angle to make right left turn onto Linden from N. Washington thereafter angling directly to make right turn onto Jefferson



Steamtown National Historic Museum

REVISIONS TO COURSE MEASUREMENT PROCEDURES

I recently contacted the USATF National Office to see how many copies of **Course Measurement Procedures** remained in stock there, as I wanted to be sure we did not run out. I found that only 64 copies remained. Alarmed, I contacted **Electric City Printing**, who has printed past issues, and obtained a price. However, when I contacted **Barbara Rush** to arrange for payment, she informed me that the National Office now has the capability to produce good copies of the book on a short-run basis, using Xerox Docutech®. Copies cost \$0.83 per book, which was well under the Electric City price, according to **Lamont Hatcher** at the National Office. He sent me a sample. I have asked him to print a six-month supply.

The capability of USATF to produce the book on a short-run basis gives us the opportunity to make ongoing revisions. If you have any revisions you think desirable, please send them to me and we will discuss them. One such revision, suggested by **Bob Baumel**, is that we eliminate the question on the Application for Certification of Calibration Course "Credentials or Experience" as this intimidates people who have neither, and we accept their measurements anyway, if it looks like they measured properly.

HIGH CRIMES AND MISDEMEANORS

Readers will here see a disproportionate amount of passionate writing, begun in last issue by **David Reik**, who raised some issues that provoked spirited responses. Some may feel that things have gotten out of hand, and are more personal than is appropriate in **Measurement News**. To an extent I share this view. However, on reflection I think it is important to recognize that David made some excellent points, in spite of the fact that they could have been expressed somewhat differently.

Yes, there is room for innovation and deviations from the methodology. But there must also be an underlying foundation of accuracy.

One example of a common deviation from procedure is this. Have you ever laid out a course and discovered that the whole course needs to be moved, say, 30 m in one direction or the other? I have, and I can recall past examples of my moving all the marks the same amount in the same direction. I realized after doing one such adjustment that I had only measured the adjustments once. On the intermediate splits this did not create a problem, as they were not to be certified. However, I had also moved the start and the finish, and had not measured the adjustments twice.

This action meant that I did not have a chain of data for each interval, measured twice. After noticing that one mistake, I am now careful to measure **everything** - even minor adjustments - twice.

I think David and those who responded to him have made good arguments for their points of view, and I hope we can now be more aware of the need to do as we would be done by. When we, as certifiers, measure courses we should ask ourselves "would I certify this if the data had been sent to me by someone else? If the answer is "no" then we need to do more work.

We are presently maintaining a reasonably good record of laying out accurate courses, but in order for this to continue we must adhere to the basic principles. This includes two conscientious measurements of every interval, correct calculation, good calibration course layout, and documentation that could be followed by another measurer.

June 29, 1996

Peter Riegel
3354 Kirkham Road
Columbus, OH 43221-1368

Dear Peter Riegel:

Thanks for the very quick reply to my June 19 letter.

One of the concerns of mine that you did not address is the abuse-of-position issue. I think the rules should apply to all of us, whatever our place in the RRTC hierarchy. If John Doe put together an application for certification that indicated he used the same procedure that Wayne Nicoll used on his Lake Waramaug 50-K course measurement, and sent it to me, the application would be rejected. If you, or even Wayne himself, received such an application, I would bet it would be rejected. You write that, when you are reviewing certification applications, you "don't hold people to a perfect standard." Neither do I. But Wayne's Waramaug 50-K data would create a submission well outside of my standards. Am I wrong? Should I broaden my standards so as to accept submissions such as Wayne's? Or are we going to have different standards depending on the measurer's rank in the RRTC?

You wrote that Wayne was "open and honest concerning his methodology." As I pointed out in my December 13, 1995 letter to him (included in my letter to you), Wayne initially reported, in his course certificate, that the difference between the two best measurements was "zero." The fact that he issued a certificate at all was a statement by him that there was "a complete chain of certifiable measurement data" for the course. He wrote, in his 11/6/95 letter to me, written in response to my letter to him asking about his measurement of the course, "... you have all the data you need." In the same letter, Wayne wrote that his measurement of the course indicated it to be 7.98501 meters too long, but he never mentioned to me that that figure was the result of using the average of all the calibration rides rather than the post-calibration average, which was larger. You wrote, "He readily admits that what he did was not consistent with the letter of the law, so to speak." Actually, he did not readily admit that to me, in fact, has yet to admit it at all.

Wayne's behavior is consistent with my understanding of how dishonesty commonly works. People don't "make up some plausible data"; they fail to report the whole story, and rationalize, in their own minds, their deviation from correct procedure. That is why I think everyone, including certifiers, should at least have to report their data to someone, even if the certifiers don't have to wait for someone's approval before the course is certified, and even if it is likely that no one will look at the data. People don't like to lie in detail, and in writing; they like things vague and indefinite so they can keep themselves convinced that they have done nothing wrong.

You write, "Although we strongly recommend the use of the larger constant, use of the average is permitted." Yeah? Says who? Apparently, this is another one of your unilateral deviations from "Course Measurement Procedures," along with the business about the measured line within the roadway being shown on the course map. I see these deviations also as abuses of position. We all have a tendency towards despotism which should be resisted. As I recall, "Course Measurement Procedures" was a group effort put together in a fairly democratic way; I think it's unhealthy for the program when you, on your own, proclaim a procedure to be correct that differs from those described in "Course Measurement Procedures."

You write, "... I don't think I have ever seen a course flunk which would have been saved by more reviewing." How about the Bloomsday course? As you pointed out, there wasn't "a complete chain of certifiable measurement data." If the certifier who was responsible for that course (found to be short in a validation measurement) had had to report his data, I don't think the course would have been certified and used.

You write, regarding Wayne's measurement of the Waramaug 50-K, "Neither Wayne nor I believe it was a method anyone should employ on a regular basis. This measurement was an anomaly, and is not the run-of-the-mill methodology used by Wayne." First, how do you know that the measurement was an anomaly? Wayne doesn't usually report his data when he certifies a course he measures himself. He may do stuff like this all the time. Second, even if he only departs from the prescribed method occasionally, how does the fact he does it only sometimes make it right? Should we have a section of "Course Measurement Procedures" labeled "For Occasional Use Only" that describes Wayne's Waramaug 50-K methodology?

And what about my concerns regarding the altering of a course by recording counts for a segment to be changed and then riding out that number of counts to establish a new segment? Evidently, this technique is not an anomaly. Wayne wrote, "This procedure is not spelled out in the measurement book but is covered in training of new certifiers and is commonly given as appropriate guidance by certifiers to measurers who need to make similar changes." Wayne has never indicated he understands there is any problem with this; he wrote, "The technique used does not result in any deterioration of the quality of the measurement." So why not establish a whole new course by riding over an old one, recording the number of counts used, and then riding the same number of counts to establish the new course?

And was the London Marathon adjusted using a map measurement? Do measurers, yourself for instance, save readings taken at intermediate locatable points, as well as calibration figures, so that adjustments, if they have to be made, can be done while maintaining a "complete chain of certifiable measurement data"?

You write, regarding courses that fail validations, "The errors are generally those involving loose riding, which cannot often be detected just by looking at the numbers." That's why it's important to retain the book's requirement that the path within the roadway be shown; as Paul Hronjak's experience illustrates, it's one more valuable clue in uncovering non-SPR rides.

I believe the issues raised in this letter and my last one to you are the sorts of issues that should be discussed in "Measurement News." These are the sorts of gritty, humiliating issues we actually have to deal with when we measure courses, and certify courses.

Sincerely,



David Reik, 26 Griswold Drive, West Hartford, CT 06119
(860)236-9160

COURSE LISTS VIA INTERNET

Each time **Measurement News** is published, the list of recently-certified courses is added to the main list, and three new files are created - AK to IL, IN to NY, and OH to WY. They are kept in Lotus 1-2-3 (wk4). Each file is about 1 mB in size. Because **Bob Baumel** and **Basil Honikman** are on America Online, as I am, I can send them the entire three files as "attachments." The download time, using a 28.8 modem, is about 15 minutes for all three files. 5 minutes each.

If you are online, and want a copy of the course list sent to you, send me an email and we will see what can be done. If you are with America Online it is easy. For other internet providers it may be more difficult. I am not wise in the ways of the internet, and we may have to play around a bit until we find a way to do it.

You need not get the entire list - if it is just a single state you want, it can be done. Get in touch with Pete Riegel at "riegelpete@aol.com"

TWO MAPS OF THE MONTH

I was content with using the Olympic calibration course until **Wayne Nicoll** sent in **Bill Belleville's** fine map of the Steamtown Marathon, with his personal map-of-the-month recommendation. I don't think I have ever seen so much course information packed onto a single page, and done so neatly and professionally. So we have two maps this month. Don't be shy about recommending your own work. If you have a map you are proud of, let me know, or editorial whim will be the standard.

Pete Riegel - 3354 Kirkham Rd - Columbus, OH 43221
Phone: (614) 451-5617 FAX: (614) 451-5610
E-mail: Riegelpete@aol.com

David Reik - 26 Griswold Dr - West Hartford, CT 06119

Dear David,

July 4, 1996

If you are looking for good examples of abuse-of-position by certifiers, let me list a few that I believe are more serious than Wayne's substandard Lake Waramaug ride.

A certifier is first and foremost a paper-processor. We are out here to serve the people who submit applications to us. The people who send the data to us are as anxious as a kid waiting for Christmas. We owe it to them to respond quickly to their applications. The fact that we accept an application fee removes what we do from the "volunteer" category. As far as I am concerned what we do should be treated as business, with all that implies. People are paying us for prompt service and they should get it. No lame alibis about how "I'm only a volunteer" to people who are wondering what happened to the application they sent you two weeks ago.

The principal reason we are supported in our activity by USATF is that road records are important to the sport, and our work directly supports that of the USATF Records Committee. To this end we keep track of all certified courses and conduct validations. Certifiers must also work within this part of the system. This means that paperwork must flow quickly to the Vice Chairs, and from there to the Registrar in a timely manner.

I have seen several examples of race directors citing a course code number for which we are unable to locate the course - because the certifier measured the course, painted the road, gave a number to the race director, and never got around to completing the paperwork. A worse example was a certifier who accepted a fee to measure a course, yet two years later had not done so.

As Chairman I am responsible for fixing problems like this. They are not theoretical. They happened. In some cases I was able to say "go and sin no more" and the certifier pulled up his socks and improved his performance. In the case of the one who took the money and ran, I gave him a month to fix it. He did not, and he is no longer a certifier nor a final signatory. RRTC is paying to have the course measured.

Wayne Nicoll has been validated more than any other measurer in the US. His courses have been examined 9 times, with no short courses. I have ridden with him, seen his paperwork too many times to count, and know him to be competent. Therefore you must forgive me if I do not treat Wayne's slip as a major case of special-privilege corruption. He knows he made a mistake, I know he made a mistake, you know he made a mistake. The MN readers know he made a mistake. What action are you suggesting?

As for my despotic and unilateral deviation from **Course Measurement Procedures** I suggest you look at page 12 of the original book and page 16 of the 1989 revised version. Paragraph 14 reads, in part "Although measurements using the average of the working and finish constants will be accepted, it is strongly recommended to use the larger constant." After reading this, if you still believe my procedures to be an "abuse of position" and "unhealthy for the sport" I do not know what more I can say.

I stand by my statement about not having seen a course fail that would have been saved by more reviewing. I saw the measurement package from Bloomsday, and I stand by my statement. The mistake was taking one point on the road, and mistaking it for another. On paper the points were the same point, and the data looked OK. Once while completing a measurement of the Columbus Marathon I found a 50 meter difference in my two rides. This bothered me. I traced it to a pair of fire hydrants, one of which I had documented accurately as a reference point. When I checked, I found that I had inadvertently used another hydrant about 50 meters down the street from the correct one. This is why we require two rides - to find mistakes. Do we find all of them? Of course not. If we did we would not need a validation program.

When I created what became the forms we now use, back in 1982, I was a new certifier. I created the forms so that people would send me material in the same way every time. It was never my intention to establish a method that was set in concrete, with no possibility of deviation. That way stifles learning. I will certify courses based on other methods as well, but I prefer to get standard measurements. They are generally easier to review. People will sometimes wish to use another method. I let them, if what they propose is accurate, but I tell them they would be better off to do it with a bike. They usually agree after going through the work.

The forms and procedures we use are to be tempered with judgment. How much is always open to question. If we lock ourselves into one single method, permitting no others, we cease to learn. Without some trial-and-error new methods will never be found. The method we use is good - it is the easiest and most accurate way to measure a road course that's yet been found. But there is always room for improvement. The vast majority of our courses are measured in the standard manner with no deviation.

You apparently believe we have a deep well full of people who are competent and clamoring for jobs as certifiers. It's not so. We have a variety of different people from different backgrounds, with different capabilities, who are skilled enough at reviewing paperwork to do the job. Few are perfect, and I am not going to hector them every time I see something amiss. If it's a big problem, I'll see that it is fixed. Otherwise I may mention it to the certifier (I do this from time to time when I see something questionable) or I may let it go. Do you enjoy working with the boss looking over your shoulder, micromanaging your every action? I don't. If I abuse the certifiers with too much criticism I will lose them. This is not work they do because they have to do it - they do it because they like to do it. Take away the pleasure with too much nitpicking, and then try to find a competent replacement who enjoys being tightly supervised.

I addressed the London adjustment in the last MN and won't repeat myself. Was it a deviation from standard procedure? Yes. Was a serious inaccuracy involved? No.

A certifier's files are open to anybody. All you have to do is ask.

If you wish to poll the membership concerning "special privilege abuse" the pages of MN are open to you. Work up your questionnaire, establish yourself as the contact. Send me the results when you are done.

Best regards,

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

SALLY H. NICOLL
Ragged Mountain Club
Potter Place, New Hampshire 03216
(603) 735-5721

July 17, 1996

Peter S. Riegel
3354 Kirkham Road
Columbus, Ohio 43221-1368

Dear Pete,

I have read the copies of the letter to you dated 6/29/96 from David Reik and your response of July 4th. Thank you for the courtesy of sharing copies.

As former RRTC Validations Chairman it is difficult not to respond to some of the procedures questioned within the system and to support the fine men and women who make up the RRTC, however, others can do that. I do feel compelled to address several remarks made by Mr. Reik regarding Wayne's character and credibility. I refer especially to paragraph 3 of his letter where he says, " Wayne's behavior is consistent with my understanding of how dishonesty commonly works" and paragraph 6, "'Wayne doesn't usually report his data when he certifies a course he measures himself. He may do stuff like this all the time". We don't know Mr. Reik personally though we seen him briefly at a couple races. Both during the time I was an RRTC officer and since, I have not seen Mr. Reik participating at any national Committee meetings, measurement seminars, or RRTC projects when the certifiers have gathered for 10+ years to share concepts, test procedures, measure skills, share opinions, weigh options, form policy and get to know one another. I cannot conceive of labelling someone I barely recognize as dishonest, and, with no first hand knowledge suggest they might regularly alter their documentations. In a household bound by the principles of duty and honor and where we care deeply these accusations are beyond belief.

I have known Wayne for 50+ years (we met in junior high school) and I have been married to him for 39 of those years. We all have faults. I'm sure Wayne has some but lack of honesty is not one of them. He is without a doubt the most honest person I know. It was Wayne's initiative, as a courtesy, to copy Mr. Reik the report of the Lake Waramaug validation and measurement which has since evoked all this dialogue. I accompanied Wayne on that trip and I attest to the fact that everything happened exactly as Wayne has reported to you. What more can I say? Certainly some judgement was exercised under the conditions. It was based on confidence gained from experience over many previous measurements and the judgement was subsequently fully

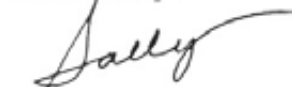
discussed with you. There has never been an intention to conceal anything. Sure, Wayne might do it differently had he to do it over, but not from lack of belief in accuracy. We both have confidence in the location of the Waramaug 50K turnpoint.

To suggest from this episode, as Mr. Reik does, that Wayne is consistently dishonest in his work, does not keep supportive data and abuses his position is ludicrous. Our home is the repository of four 24½" deep 4 drawer files completely filled with the back-up paperwork from Wayne's 500+ personal measurements, the data on all courses he has reviewed for certification and the transmittal copies for the Eastern Region. When he does a personal measurement he completes a package just like any measurer and submits a copy to the race along with the certificate. There are no secrets.

The past six or more months the Olympic Walk courses have taken a heavy toll on Wayne's personal time. The time left from that all-encompassing, totally volunteer project had to be divided among other responsibilities such as his role as a West Point admissions representative, regional certifier for four states, Vice-Chair RRTC, Board member for several agencies, active community worker, and as husband, father, and grandfather. Mr. Reik is apparently dissatisfied at not receiving more of his attention. The facts had been stated. Wayne's time was then allotted to other matters deemed more urgent.

Mr. Reik's accusations are without basis. I urge you not to lend further forum for his unfounded slander by publishing it. Enough is enough.

Sincerely,



Sally H. Nicoll

cc: David Reik

August 2, 1996

Sally Nicoll
Ragged Mountain Club
Potter Place, NH 03216

Dear Sally Nicoll: .

I am sorry to see that you that you are upset be my criticisms of Wayne's Lake Waramaug ride, and of our RRTC procedures regarding measurements done by certifiers. It was not my intention to characterize Wayne as a dishonest person. I don't doubt that he is the most honest person you know. From what I know from talking to him, and to Amy Morse who has measured with him, he is a marvelously vigorous and inventive measurer. He is certainly a very warm and friendly person who has done an enormous amount to promote accurate road race measuring.

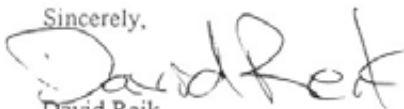
But my point is that we should have (and supposedly do have) one set of procedures for everyone, regardless of the experience of the person measuring. I thought we had agreed on that. I thought that when we, as certifiers, signed a certificate we were stating that those agreed-upon procedures had been followed.

There is no human — not David Reik, not Peter Riegel, not Wayne Nicoll — who is immune from the tendency to rationalize deviations from proper procedure, especially when pressed for time. I think it would be harder for us to convince ourselves we had done things correctly, when we had not, if we had to send documentation of our measurements to someone equipped to judge that documentation. I think we certifiers should have to abide by the same requirements we demand of non-certifiers.

Convincing ourselves that we have produced an accurate course, even though we have not followed the agreed-upon procedures, I don't think is adequate.

If we want to expand our procedures to include the use of parts of race courses as calibration courses, the use of maps not showing the measured route, the use of only one documented measurement, the use of nails to hold one end of the tape when measuring calibration courses, the use of map measurements for segments of courses, or the use of calibrated trucks to measure courses, we should make that decision using some sort of collective decision-making process. No certifier should unilaterally "just do it," and call it certified, even if he has great experience and confidence.

Sincerely,



David Reik
26 Griswold Drive
West Hartford, CT 06119

Copy to: Peter Riegel



WAYNE B. NICOLL
Ragged Mountain Club
Potter Place, New Hampshire 03216
(603) 735-5721

July 25, 1996

Peter S. Riegel
3354 Kirkham Road
Columbus, OH 43221-1368

Dear Pete,

Thanks for providing me a copy of the latest epistle from the Self Appointed Special Prosecutor of Suspected Plots and Crimes by RRTC Certifiers. I am offended by his self righteous inference that I am a dishonest person and that all certifiers may be equally as corrupt as I am alleged to be. My daughter thinks I should sue him for defamation of character.

What am I guilty of? I conducted a validation of an ultra loop course in Connecticut. The course was designed to accommodate a 50 mile and a 100K event. There were three key points on the loop - the start/finish, a turn point for the 50 mile/100K, and another turn point for the 100K. The race director, Rick Favier, added a turn point on the course for a 50K event and asked me to certify it while I was there. As I rode the loop I included the new 50K turn point with the others. The course had been measured by the Guido Bros. whom I have found on earlier validations to be excellent measurers. All of the points checked out OK. Rick had determined the location of his 50K turn point by using a bike with a Jones Counter and also by wheel measuring from another certified turn point. I accepted the point without any measurement documentation from Rick and certified it, satisfied that, regardless of how it was measured, the point was in the right place. I do not have two documented measurements to the 50K turn point. I will correct that.

Over the past ten years I have seen some occasional mistakes made by certifiers. In those instances we have endeavored to address the problem without unnecessary embarrassment to the individual involved. Any possible damage caused by my error in judgement on the measurement and certification of the 50K point can be easily repaired, but I am afraid the damage done by David Reik's insensitive accusations is irreparable.

Sincerely,

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

Wayne B. Nicoll

August 27, 1996

Peter Riegel
3354 Kirkham Road
Columbus, OH 43221-1368

Dear Pete,

In correspondence that appears in Measurement News, Wayne Nicoll is taken to task by David Reik in regard to the certification of the Lake Waramaug 50K, which was measured by Wayne during his validation of the Lake Waramaug 100K. According to Reik, Wayne applied a different set of standards to the measurement and suggests that Wayne succumbed to the temptation to "rationalize (his) deviations from the prescribed procedure" without anyone checking his work. I have extracted a summary of Wayne's measurement crimes from Reik's letter of June 19, 1996 to Pete Riegel.

1. Wayne did not construct a "complete chain of certifiable data." On one uncertified segment of the loop measured by the race director with a Jones Counter, there was no supporting documentation, just a mark on the road. This raises the question of acceptability of a measurement for certification, with no paperwork. Nonetheless, the mark was used by Wayne and the total result yielded a good measurement comparison of 7.98501 meters.
2. Wayne did not include the names of the other measurers and the dates of their measurements on the certificate.
3. The certificate incorrectly shows the difference between the two best measurements to be zero, rather than the actual difference of 7.98501 meters.
4. Wayne used the 'average' constant (standard procedure for a validation measurement), rather than the 'larger' constant in his measurement of the 50K for certification.

Given his druthers, Reik would de-certify the course. Short of that extreme and drastic action, perhaps Reik could have suggested possible corrective measures, as an intermediate step toward resolution. Anyhow, as it stands now, Wayne will get a 2nd documented measurement for the uncertified segment, according to the prescribed procedure he is accused of violating.

Regarding #4, it is permissible, although strongly discouraged, to use the average of the constants. Although unusual, as was the case with the circumstances of this measurement, it violates no prescribed procedure.

The data issued was clear about the difference between the two best measurements (7.98501 meters). The certification can easily be corrected (from zero to 8 meters). This was not an attempt to deceive or cover up anything, and does not relate to possible de-certification. Neither does the exclusion of the names of the other measurers and the dates involved. Wayne is the measurer of record with the 50K and assumes course responsibility. Besides, this information is readily available and it is impractical to list the names of all measurers on the certificate - the Olympic Marathon in Atlanta being a good example.

Wayne stands by his work and told Reik in writing that he is "fully confident" that the course is not short. This doesn't mean, as Reik sarcastically stated, that our certification system is based on the measurer's 'confidence' that the course is accurate - it means that the system is based on a good set of procedures and that Wayne has a long history of proven ability to apply them. I thought Reik's comment was uncalled for and disrespectful.

Reik apparently believes that Wayne has applied a personal standard that is far outside the realm of RRTC acceptability and that there is a gross lack of conformity to the prescribed procedures. Therefore, Wayne's submission should be rejected. While Wayne's methodology was admittedly not 'by the book' and somewhat unorthodox, I do not agree that it was so far afield as to warrant rejection. So where should the line be drawn between acceptance and rejection? At issue here is discretion, use of judgment, or leeway to some degree in measurement situations that don't always fit into a 'by the book' scenario vs. a rigid application of the procedures manual with no deviation.

In his letter of June 29, 1996 to Pete Riegel, Reik goes on to draw some conclusions and make some implications from his examination of Wayne's methodology that I believe are way out of line and do not relate to the measurement crimes he has supposedly committed. If you step on an ant and kill it, does that make you an axe murderer? Whatever 'mistakes' Wayne made are no justification for the outrageous, undeserved, and bizarre charges leveled against him, implied or direct. I was appalled by many of his statements, but this one stands out: "Wayne's behavior is consistent with my understanding of how dishonesty commonly works." Nothing could be further from the truth.

According to Reik, besides being dishonest, Wayne is guilty of abusing his position within the RRTC hierarchy and applying a different and arbitrary standard (well outside acceptable limits) to his certifications. Furthermore, Wayne is accused of covering up information he should report, making up his own data, and lying about it in an attempt to delude himself of no wrongdoing. Reik even suggests that Wayne "may do stuff like this all the time." Lastly, he concludes that Wayne's deviations from prescribed procedures, as well as those of Pete Riegel, are despotic in nature. Please.

It seems to me that the Procedures Manual can not address all possible measurement situations and that, at times, discretion and judgment come into play. At issue here is the entrustment principle - the doing of one's job without having to report to someone else every step of the way, and having confidence and trust in that individual to do it. And with that trust and confidence comes a knowing that the individual is doing the job well, without questioning motives and wondering if there is anything devious or corrupt going on. To some degree and at the risk of error (the system is not perfect), the entrustment principle must be applied, otherwise everyone is a suspect. I disagree with Reik's position that entrustment should not be extended to allow certifiers to approve their own work.

However, there are some measurement procedures that can be addressed in the Procedures Manual which could be amended to include them, and would cut down on the number of deviations which Reik calls abuses of position. One is the altering of a course by recording counts for a segment to be changed and then riding that number of counts to establish a new course. If this is an accepted technique, then it could be part of the book.

The same goes for single line maps... My point is that the procedures manual can be tightened up somewhat, and although it still can not address all measurement situations, it can address the appropriate use of discretion and judgment in those situations.

Sincerely,

A handwritten signature in cursive script that reads "Ray". The signature is written in black ink and has a long, sweeping horizontal stroke extending to the right.

Ray Nelson