

MEASUREMENT NEWS

September 1988

THE TIMES

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Frosty start to marathon week in London



Man with a mission: Peter Riegel, centre, the AIMS official whose job it is to verify the distance of the marathon course (Photograph: John Rogers)

Nothing can stop the dawn raiders

By Michael Coleman

Any other day in the year Tower Bridge would have been open. But not on Sunday, when John Disley and Chris Brasher went out on pushbikes in the early morning frost to pedal from Greenwich Park to Westminster Bridge measuring their Mars London Marathon course.

Next Sunday something like 25,000 pairs of running shoes will leave the noble bridge vibrating, but their progress would have been checked abruptly at that 12-mile mark had the Mars-sponsored race been brought forward a week.

Barriers were across the bridge's approaches with an

even sturdier high barricade erected in the middle. Despite their police motorcycle escort, the two race directors and their entourage were brought to an unscheduled stop.

"We gave notice six weeks ago that we were overhauling the mechanism, but nobody seems to have paid notice," a City Corporation engineer said. He gave us an assurance the bridge would be open (or rather down) on the big day, though jokingly suggested "a small consideration" might help.

Disley and Co dismantled, stopped their wheel counters, lifted their bikes onto the pave-

ment and got across that way. Careful note was taken of the deviation from the true runners' line. The rest of the entourage went via London Bridge. More was to come.

In the Isle of Dogs, the drawbridge at Marsh Wall was up, forcing a major U-turn by the convoy. Marks were made each side and the crossing measured later by steel rule.

They must not be a yard under 26 miles 385 yards. After all, a mere second — or five yards — separates the world's fastest marathoner, Carlos Lopes (2hr 07min 12sec), from Steve Jones. Knock a second off that in New York and it is \$125,000 in your trust fund.

Pushing a dawn pedal on Sunday as sturdily as the Britons was Peter Riegel, from the United States, on whose final approval would depend the much sought-after AIMS certificate — the initials stand for Association of International Marathons.

Riegel is the worldwide course registrar. "The first marathon I ran, in 1974, was one and a half miles too long. I felt the difference. Hence my interest."

Mike Tomlin, course measurer for the Amateur Athletic Association, whose own championship race will be run in parallel with the London race on Sunday, was also dogging the wheels of the two Olympic medal winners, his Jones counter accurately logging each turn of the wheel, like theirs.

Up front, the two police escorts, PC Martin Day (running next Sunday, his fifth London) and PC David Betts (three Londons accomplished, though now injured) cleared the way, their lights flashing. Much of the time it was on the wrong side of the road and straight into the Sunday traffic. The shortest distance between two points must be taken, as any sensible runner would appreciate.

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OFF-ROAD RUNNING

Last month I attended the World Junior Summer Games, held in Ohio Stadium in Columbus. I went on Sunday afternoon after all the guests from my son's wedding had gone home. It was the only track meet I have been to since high school. Was I impressed! I've been avidly reading T&F News for 15 years but never really appreciated the performances until I saw them close up. The 100 meters on TV is fun to see, but when you see the thing up close it is awesome. The 4x100 relay was won in 39 something - a stadium record. Never saw people run so fast. Thundering hoofbeats! Sweat popping!

Frank Greenberg was there, overseeing finish line operations. The Accutrack setup at the finish line was something I want to educate myself about. I have a pretty good idea how it works, but want to get a bit smarter about it. Frank showed me how the finish photos get read. He's quite good at it. An awful lot happens in a very short time, and there's an art to reading those photos.

One thing I did notice was the huge array of officials present. Each had a job to do. It made me appreciate the enormous work involved in organizing a track meet. A road race with 200 participants is considered pretty small, and can be managed by few people, but the ratio of officials to participants in a track meet is a lot higher because of all the different stuff that's going on, and because a lot happens in a very short time. I was impressed with the quality of what I saw.

NEW APPOINTMENTS

Don Potter has been appointed Arkansas certifier, and Charles Tiltrum the South Dakota certifier. Welcome to the group, fellows. We hope to see lots of certificates come rolling in from your areas!

Jay Wight has been promoted to final signatory in Illinois.

1988 TAC National Convention Preview

Delta Airlines has been named as the official airline for TAC's Tenth Annual National Convention, set for November 28-December 3 in Phoenix; under the arrangement, Delta will offer a five percent discount off its already discounted Super-Saver—and 40 percent off its round trip coach (Y-Class) fares. To qualify for the reduced fares, at least seven days advanced ticketing is required.

Reservations must be made directly with Delta or through a travel agent—in either case, the number to call (between 8:00 a.m. and 8:00 p.m. daily, Eastern time) is 1-800-241-6760; be certain to reference TAC's discount code number—**R0459**. These discounts are applicable to travel on Delta to and from Phoenix between the dates of November 25-December 6.

THE INTERNATIONAL MEASUREMENT PROCESS

In Running Commentary, July 1988, Joe Henderson wrote of the Rotterdam measurement, citing the British Magazine Running. Phil Stewart, writing in August 1988 Road Race Management, also discussed that measurement and the international process that's involved. Both authors attempted to clarify the procedure, but both missed the essential point.

The essential point is this: International road course measurement is in good shape. The technical discussions about the presence, absence or size of the short course prevention factor (SCPF) should not obscure this central fact.

Stewart says "What needs to be done is to arrive at one system which makes it unmistakably clear that 42195 meters in Rotterdam is equal to 42195 meters in New York is equal to 42195 meters in Seoul."

Such a system will soon exist in practice if not in theory. No two things in this world are exactly identical - why should marathon courses be the sole exception? No two tracks are exactly the same size, but if they meet the measurement criteria we assume them to be equal for the purposes of comparison. We should take the same attitude toward road courses.

When I was a boy I worked in the produce section of a supermarket. My job was bagging potatoes. I was given a pile of potatoes, a scale, and some bags that said "potatoes - 10 lb." The boss told me to put ten pounds of potatoes in each bag, and then to add a small potato to each one to be sure the customers got what they paid for. The bags of potatoes were not identical, but each one had at least ten pounds in it. And because I added only a small potato, the overweight was not a lot.

We do this with road courses now. We lay out the basic distance, and add on the SCPF. The SCPF is the small potato. Because not everybody is equally skilled, and because there are limits to how well we can measure, the courses will not check out exactly the same. But they are close enough so that they may be considered identical. That's the view to take.

There's still a lot of discussion going around about the SCPF and what we should be doing when we measure. This discussion should not obscure the central fact that road course measurement in TAC and AIMS is in very good shape, and getting better. The courses are honest and the distances are functionally identical.

The Los Angeles and Seoul marathon courses are perhaps the two best-measured courses the world has yet seen. This does not mean that checking is inappropriate, but that's only an unresolved political issue.

IAAF is moving in the direction of road racing, and they will almost certainly adopt the measurement standards already used by TAC and AIMS.

Once again - international road course measurement is already of good quality, and is improving as measurement knowledge spreads.

ASSOCIATION OF INTERNATIONAL
MARATHONS AND ROAD RACES

Technical Committee
Peter S. Riegel, Course Registrar

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July 6, 1988

Joe Henderson - 1597 Fircrest Dr - Eugene, OR 97403

Dear Joe,

In Running Commentary, July 1988, you mentioned that the Rotterdam course came out OK according to John Disley and Helge Ibert. This was so. Then you went on to quote the British magazine Running: "AIMS recommends a 42 meter margin of error for marathons, and according to the strict letter of the law this had not been met. But since a video showed that Densimo had taken a wider line than measured, the course was approved."

This view of the situation is incorrect, although it may well have been that Densimo ran the turns a bit wide. How he ran the course is as irrelevant as it would be if Steve Cram had decided to run the Dream Mile in the outside lane. The length of the course is not what the athlete chooses to make it. It is the shortest route available to the athlete. That is what Ibert and Disley checked, and found to be in excess of the 42195 meters required.

The Short Course Prevention Factor (SCPF) of 1 meter per kilometer (42 meters in a marathon) was instituted in the United States by TAC to cover US record situations like Rotterdam. AIMS has adopted the same practice. Not all courses can be checked by experts, so we check only those on which important records are set. In order to assure that the course will not be shown short by the expert, we ask people to add the extra 42 meters. If they make minor mistakes the course still has a decent chance of checking out OK.

No two measurements of the same distance ever come out exactly the same. In the case of the Rotterdam course, it was obvious that the organizers had made some minor layout mistakes, but not enough to affect the course.

The system worked. When the course was checked by the experts, it passed the test. It's as simple as that, and has absolutely nothing to do with the path Densimo chose to run.

Best regards,



xc: Disley, Ibert, Paulin, Galloway

July 21, 1988 - sent a copy of this letter to Phil Stewart

RACE DIRECTOR'S NIGHTMARE

By S. Mark Courtney

The list of variables for conducting a successful race is endless. At any given moment any number of different things could go wrong and mess up an event. Fortunately, only the race director and his committee see the majority of these glitches that can be covered up in many cases.

Recently, I had another busy Saturday morning schedule of races to time. The Runner's High had three at 10am in Pittsburgh and another in Weston West Virginia at 3pm.

The three morning events went very smoothly, and I met my #1 Assistant (Corporate VP) along Interstate 79 to head for West Virginia. We pulled into Weston Hospital 20 minutes before race time, and were totally set-up with music, clock, chutes, etc. in 14 minutes flat. Race Director, Carl Hatfield, had scheduled 150 walkers to make their untimed one mile loop of the hospital grounds at 3pm giving the 5K runners another 20 minutes to warm-up.

The race was equipped with all the local police, the volunteer fire department, paramedics, etc., and all was on schedule. Five minutes before the delayed starting time, an emergency alert came across the radio waves.

THE ROOF AT BONANZA HAD COLLAPSED!!

I don't think I need to explain in any more detail. Every traffic control person, every ambulance and vehicle (including the pace car) were gone within a minute. We stood around helpless, and I found a few more volunteers to work in the chutes. The race finally started, and what a treat. The traffic control was almost non-existent, and we dodged traffic the whole way. I was almost made a hood ornament at the mile marker, and after the turnaround, things got worse. Traffic was now jammed in both directions including the race director in the only police vehicle available. An old lady in a car surged through an intersection with the other remaining police officer, and I was again almost history at the 3 mile mark.

It was an experience, and I hope other race directors can learn from this potentially disastrous situation.

LAST MONTH'S PUZZLE

The Aliens laid out their course on Elephant Island. It's located in the South Shetland Island group just north of the tip of the Palmer Peninsula of Antarctica, at 61.1 degrees south latitude. It's the only land in the world at this particular latitude, except for nearby Clarence Island. Brian Smith was first to get the math right, but he located the course on Coronation Island, which isn't quite in the right place. He was not sure his answer was right because he said "...which brings the sinking feeling that I've screwed up - because you say 'once you have the answer you will never forget it.' Oh Well."

Ken Young sent in the first correct answer. He wrote "By simple inspection one may deduce the course is in the southern hemisphere and must be located between the Palmer Peninsula and Tierra del Fuego." After going through two pages of mathematical gymnastics to determine the proper latitude, he noted "Elephant Island" at the end. Bullseye!

Bob Baumel sent in the next correct answer. See his letter.

Everybody knows an elephant never forgets. How could anybody miss a grand clue like that one? It even works in reverse! Anyone can forget Clarence, but just try to forget an elephant! Was this a deceiving clue?

When I was researching this puzzle, I noted that different maps had different locations for Elephant Island and the surrounding islands. Locations differed by a degree or so. The official government maps might have it right, but the atlas-type maps seem to disagree. We have to remember that people draw maps, and no two will come out exactly alike.

I picked Elephant Island for the puzzle because it was unique in its latitude and has an interesting story. If you are a polar buff, you may recall Ernest Shackleton's epic journey of 1914-1916 in which he and his crew traveled south in HMS Endurance to do some exploring in Antarctica. They never got there. In the Weddell Sea the ship was beset, frozen in, and crushed. Before it sank the crew transferred the stores to the ice, and they drifted on it for a year. They took to the boats when the ice began to break up and rowed to rocky, barren Elephant Island. Because of the remoteness of the place they knew certain starvation awaited if they simply hoped for rescue. 22 of the crew built rude huts from the boats and settled in to wait while Shackleton and four others took the James Caird (one of their boats) across 800 miles of the stormy waters of the Drake Passage to the whaling station at South Georgia.

Shackleton and crew were in bad shape when they arrived on the western shore of the island. The whaling station was on the eastern shore, but the winds and seas were so strong they were afraid they'd be blown on toward Africa if they attempted to sail around the island. So they crossed the formidable interior mountains of South Georgia, emerging at the settlement and astounding the Norwegian whalers, who had thought the Shackleton expedition long dead. A rescue mission was mounted from Chile, and after a couple of aborted attempts they succeeded in reaching Elephant Island and rescuing the crew, who had lived for months on penguin meat, burning the skins for fuel. Not one man was lost. A fine episode from the heroic age of exploration.

Solution to Problem from MN #30

The answer appears to be **Elephant Island**, a bit of land between South America and Antarctica that is either part of, or adjacent to, the South Shetland Islands. From the data stated in the problem, I calculate that the course extends between South latitudes $61^{\circ}07'40''$ and $61^{\circ}13'04''$. I don't have very detailed maps of these latitudes; in fact, of three atlases in the house, only *one* shows Elephant Island. But it does seem to be at the right latitude (The atlas lists it at $61^{\circ}10'$ South latitude), and just *might* be big enough to include a square 10 km on a side.

My calculation of the latitude assumes the earth to be spherical rather than ellipsoidal. I assume also that the aliens' "perfect earth compasses" measure true *geographical* (rather than magnetic) bearings. I suppose they could have used magnetic compasses if they had local topographic maps of the area (specifying magnetic declination), but in that case, they'd already know where on earth they were! They might also have navigated using the sun and stars (perhaps using their own home star as a special point of reference), but in that case also, they ought to know precisely where they were on the planet. In any case it's hard to understand how these aliens, who are obviously far more advanced than we in spaceflight technology (and who presumably got a good look at the earth as they approached it from space), could get confused by an effect due to curvature of the planet's surface!

One other note: Whereas all four legs of the course were drawn as straight lines, only two of those legs are actually geodesic (great circle) paths. The north-south legs follow meridians (lines of longitude) which are great circles, but the east-west legs follow parallels (lines of latitude) which are *not* great circles.

Here's how I calculated the latitudes: The course is obviously in the Southern Hemisphere, as the more southerly of the two East-West legs is the short one. The northern and southern extremities are at latitudes θ and $\theta + \Delta\theta$ where:

$$\cos(\theta + \Delta\theta) / \cos \theta = 0.99715. \quad (1)$$

We immediately find $\Delta\theta$ since the North-South legs are 10 km in length:

$$\Delta\theta = 360^{\circ} \times (10 \text{ km} / 40000 \text{ km}) = 0.09^{\circ}. \quad (2)$$

Equation (1) can be manipulated via trig identities to give:

$$[\cos\theta \cos\Delta\theta - \sin\theta \sin\Delta\theta] / \cos\theta = \cos\Delta\theta - \tan\theta \sin\Delta\theta = 0.99715. \quad (3)$$

Since $\Delta\theta$ is known, equation (3) yields the solution $\theta = 61.127875^{\circ}$.

Please note that I have ignored one item stated in the problem. We are told that the aliens "followed [RRTC] measurement instructions to the letter". Thus, they must have been measuring in "TAC meters" defined as 1.001 true meters. It follows that $\Delta\theta = 0.09009^{\circ}$; the calculated northern and southern extremities are then at $61^{\circ}06'13''$ and $61^{\circ}11'37''$ South latitudes. These slightly adjusted latitudes probably still fall within the limits of Elephant Island. (I suspect, however, that if I were to treat the earth more correctly as an oblate spheroid rather than a sphere, the calculated latitudes would no longer fall within Elephant Island.)

I must sign off at this point because, lacking the legendary powers of the pachyderm, I have forgotten what I am writing about!

Bob Baumel



To: PETE RIEGEL
 From: BOB EDWARDS
 Subject: ALIEN MEASUREMENT DILEMMA

When I started working on this one it looked like it was going to be tough. Then I made a mistake in my calculations, and it got even harder. I ended up with 2 possible locations for their course, which got me looking at magnetic north, rotating the Earth's axis from true north to magnetic north, and other next to impossible possibilities. Well, then I found my error, and I re-ran my calculations. Sure enough, I found myself right in the middle of Elephant Island. My map does not have good bearings, and there are other islands in the same vicinity, so I guess there may be one or two possible other locations, but hint #22 did the trick for me. These are fun, keep them coming.

Bob Edwards
 Erie, PA.

Notes: Under the Antarctic historical claims are in the interest of international scientific purposes.

LOOK

B C E 9 F G H J

LATE SOLUTION

Dave Yaeger got the correct solution in just before MN went to press.

NEXT MONTH'S PUZZLE

After solving the July puzzle, Ken Young went on to say "a variation - go 10 km north, 10 km east, 10 km south ... now you are back where you started. Where are you? The trivial answer is the South Pole. Where else is this true?"

PUBLICATIONS AVAILABLE FROM RRTC

Planning Road Races for the Competitive Runner by Ben Buckner. An excellent guide for planning the small road race. \$5.00 postpaid.

Course Lists - You can obtain a list of certified courses for any state. Cost is 50 cents per page, minimum order \$1.00. If you're an RRTC member your state list is free. California is biggest with 12 pages - all others are smaller. You will receive a list that is current as of the last published Measurement News, along with a bill. If you wish the course to be sorted in a special way, let Pete know. Otherwise it will be ordered by distance as the list appears in MN. You need not get the entire list - for instance, you might want to have all the 5k's in IL, IN, and MO. Can be done. Just say what you want.

Individual Certificates - These may be obtained by sending the course number and \$2.00 per course desired. If you are thinking of hiring a measurer this is an excellent way to see the sort of work you can expect. In addition, you may wish to check out a course you intend to run. Bring the map to the course and see if the race director got it right!

Above three publications may be obtained from: Riegel - 3354 Kirkham Rd - Columbus, OH 43221.

PUBLICATIONS AVAILABLE FROM TAC

Course Measurement Procedures - the Bible of course measurement. Complete instructions for measuring courses for TAC certification. The same procedures are now used for AIMS courses. \$4.00 postpaid.

Road Race and Finish Line Management - this publication contains the information one needs to know to put on a good race, with special emphasis on operating an accurate finish line operation. \$6.00 postpaid.

Above two publications are available from: TAC/USA - Book Order Dept. - PO Box 120 - Indianapolis, IN 46206

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May 23, 1988

Ted Paulin - Olympic Park - Swan Street, Melbourne
Victoria 3002 - AUSTRALIA

Dear Ted,

In London you asked me to send you some thoughts on training of measurers and on a two-tiered system of measurers. Here goes:

TRAINING OF MEASURERS

My only direct experience with training measurers has been in the US. Every so often I give a talk to a group of interested people, and I trot them through the essential things. Usually I have them do a simplified, abbreviated measurement of a course. I have them tape out 200 or 300 feet (or 100-150 meters if a metric tape is available) calibration course, then go on to bike-measure the distance around a block or something simple like that. In this way two or three people can do the exercise. Then I work up their data on the blackboard. I then show them copies of good maps, and explain some of the details of preparing a good one.

I do it like this because people are more afraid of the calculation than they are of the riding. Then I ask them to do "homework" such as measuring the distance on their own favorite running course, without asking for maps or heavy documentation. Most people don't respond to this.

Although I do these seminars, I don't think it has a strong effect, although perhaps ten percent of the people go on to measure courses. Maybe it's the way I do it and maybe the process is just more complicated than they thought.

The best training we have is done by self-motivated people who want to have a course measured, and who study the TAC measurement book first. They generally get it about 80 percent right on the first try, and if they call for advice first they often do a good job the first time out. Since many people go on to repeat the job, soon we TAC reviewers develop a sense of who is good and who is not. When we see someone who consistently does a good job at submitting paperwork, we enlist them as regional certifiers if there's a vacancy.

In my experience, if the paperwork is clear and shows understanding, then the course is good. The paper talks to you. You get a sense of whether the measurer really understands what he is doing.

The above depends on a supply of courses that need to be measured, but don't have to be measured by a recognized expert. We do it like this in the US because we have a huge running scene, and not nearly enough recognized experts to do the job.

People get motivated to certify their courses because our records structure demands that a course be certified before any records can be recognized. The ordinary runners care about their personal records more than they do about the times of the speedsters. They put pressure on race directors to get their courses certified.

If IAAF or AIMS had a certification system which included reviewers to check work, then people would do it themselves, and the excellent ones among them would become known as good measurers. I believe that self-motivation is the strongest force needed to produce a good measurer. I don't think a training course is enough. By being forced to submit good paperwork a measurer is forced to examine all the techniques in depth.

I'd estimate that a measurer should have around ten first-rate measurements under his belt before we should consider him an expert. This would mean that he had prepared ten excellent maps and ten first-class sets of calculations, and they would have been examined by someone already skilled in the art.

A TWO-TIERED SYSTEM

We have this in the US. At present, in the rest of the world, there's only one tier - the recognized experts - perhaps ten all told. There are people who have sort of been trained (Brooke, Xhao), and then there's you, me, Andy, John, Lennart and Helge, along with some Brits and Germans who are good but relatively unknown. In South America Rodolfo Eichler is quite good. We have a stable of US people who are as good, but who have not yet been blooded in the field. Wayne Nicoll and Bob Baumel are among the best, as are several others.

A weakness in the system is that the international people rarely write up the results of their measurements, and thus we are forced to accept their expertise based on word of mouth. We also get a sense of who is good by checking one another's courses.

The second tier is important, since it is from there that people ascend to the first tier.

I think it would be of immense benefit if AIMS or IAAF were to set up a system of course certification like we have in the US. Allow anyone to use a standard text, and to submit paperwork based on it. At present the US and Canadian texts are the only ones available. US forms seem to be creeping into general use, and this is a good thing, since it gets us all singing from the same sheet of music.

Our map standards require that the submitter put it all on one piece of paper. This is to ease pressure on the files. We have over 5000 courses on file. I don't think this is realistic at present for international folks. A good map is the only thing that declares exactly what it is that has been measured. Without a good map, all we have are paintmarks out on a road somewhere. Without a definitive map, it's impossible to check what has been measured. And without the ability to check we have nothing credible.

If you think there would be some benefit in an AIMS setup like TAC's, I'd be happy to help as a reviewer. I'd insist that the measurer submit data on our

forms, because otherwise I'd be faced with different thought processes with each submission. I know from experience that this is very hard on a reviewer. Once the measurer (and it could be anybody) has successfully complied, an AIMS certificate would be issued.

This would be a way to identify those with measuring talent, and encourage their development. There is no shortage of people who think they'd like to be measurers, but the overwhelming majority of them lack the follow-through to really do the job. They think it's easier than it is.

If we opened the door to courses measured this way, how good would they be? Again I'll fall back on US experience. We have a validation program. When a record is set, an expert checks the course. Out of about 60 courses checked so far, around 85 percent have been found OK, and no course has been found severely short. Of the courses checked, few were measured by experts. We have no case yet where an expertly-measured course was later found short.

I believe strongly that a grass-roots approach like this would work. It may not be the only way, but it's one way where we can make prospective experts do their homework without standing over them and making them do it. They do it because they have to do it to get their courses certified.

AIMS people are not used to the paperwork. I suspect it's been done in most cases, but in many others I'd bet the numbers reside on the back of an envelope somewhere and never got formally written up. The writing up is important because it's there that mistakes get found. And if the measurer can't later write it up, there has to be a strong suspicion that he doesn't really know what he did.

One thing we have in the US is open files. Any person who wants to know the measurement details of any course need only ask, and the info will be sent to them. Each US expert knows that a lick-and-a-promise will not do. We more than anybody need to set the example for the others. If we allow ourselves to take shortcuts then things become sloppy, and we don't want that. Those of us who are empowered to sign certificates bear the responsibility to see that the signature is justified.

Few AIMS courses are well-documented. We have signed certificates, but few of them include any record of measurement data. Your City-to-Surf is a refreshing exception. You, me, Helge, Lennart, Eichler and John Disley, do provide credible measurement information. I think the AIMS setup could be tightened up a bit.

One side benefit of writing things up: By publishing measurement data by many people we educate ourselves in the ways things are done. We have a basis for compliments and corrections. If we put it out where all can see it we say to all that we are adhering to a decently high standard, and we show the others what it is.

A strong central AIMS/IAAF certification authority, and well-understood standards, are needed if a uniform quality is to be achieved. I think we can achieve this if we are willing to work at it.

Best regards,

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

MEASURING ACROSS A CONSTRUCTION AREA

I recently measured the course of the Columbus Marathon for certification. After riding about 35 km I encountered a bridge that was under construction. The bridge had no pavement and the bare steel beams were exposed. The crew would not let me cross the area, and the fence was high and stout. The road will not be opened until about 10 days before marathon date. What to do?

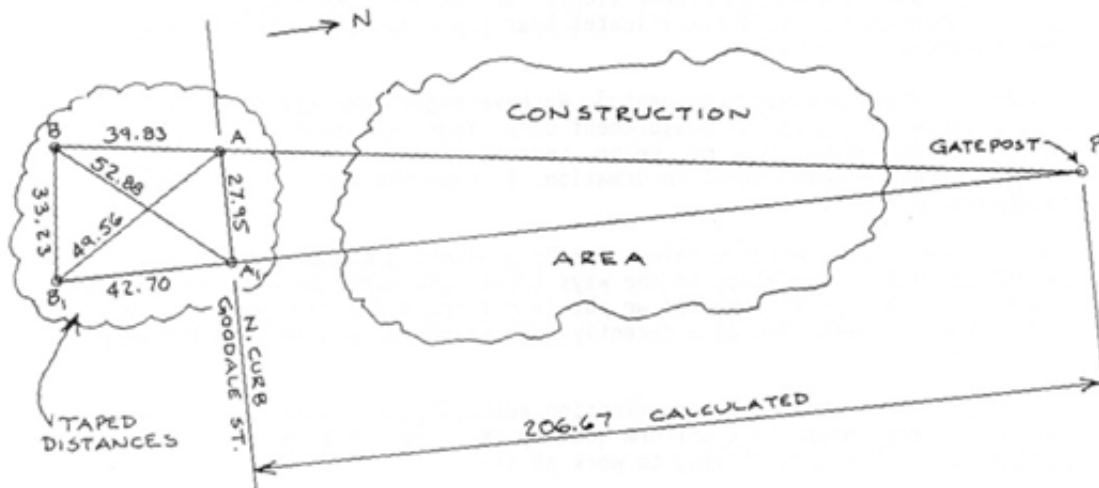
I estimated the distance across the construction to be about 200 feet, but I wanted a good figure, because I needed to lay splits down decently. The specific length I wanted to establish was the distance from the north curb of Goodale St to the north gate of the construction area, since these points were both accessible to me and my bike.

Joan and I went to one side of the fence with a pole. I put two marks down (points A and B) in line with the curbline of Goodale St. I tried to get them as far apart as I could and still see the gatepost. I backed off until I could line up point A (Joan holding the pole) with the northern gatepost (point P), and when things were lined up put down point B. Then I put down point C the same way. Joan and I then taped the four sides and both diagonals of the four points we had established.

I drew a large scale drawing, and also calculated the distance using trigonometry, getting very good agreement between the two methods. I judged the number was good enough to consider as "official" and certified the course. Just before the race, when the bridge opens up for traffic, I'll do a check ride, but I expect an error of no more than a couple of meters.

This same thing can be done with greater accuracy using a surveyor's theodolite, but the method used is accurate enough to get a close estimate of the length. Any comments?

DR 8-15-88



DOCUMENTING THE RACE AS RUN

TACSTATS receives results from many races. When a validation is required they turn the job over to Sally Nicoll, our Validations Chairman. If the timing documentation seems OK, Sally will send an RRTC validator to check the course as it was run on race day.

The validator is sent a copy of the certificate and map, and travels to the race site, where he meets with the race director and measures the course. In order to be sure that the proper course is measured, some evidence of critical locations is needed. Where was the start on race day? Was the turnaround actually in its proper place? Was the finish line where it was supposed to be? Often these questions are not easy to answer. Sometimes the only "evidence" is a faded paintmark in the supposed location, and little else. Sometimes the mark is not the only one in the area - commonly one will find a number of them, especially if the race has been changed over the years. This gives validators gray hairs.

Photographs are the best, and easiest, evidence to get. If you are putting on a race, assign one person to take photos of the key points. Consider that you're photographically documenting the points. Before the race, pick a location well back from each point, so the photo will show some of the landmarks in the surrounding area. Move in closer to get some detail. Finally, on race day, get a shot of the runners actually using the point (about to start, rounding the turn, crossing the finish line).

Try to shoot from the same place with runners present as you used when they were absent.

A videotape is very nice, but they are rarely good enough to accurately locate points. They'll do a nice job of verifying the route, but are commonly little help in tying down precise locations, unless the photographer made a real effort to include them.

If you're not sure whether your pictures do the job, give them to a person who is unfamiliar with the race course and see whether they can correctly locate the points.

AN UNVALIDATABLE COURSE

I got a submission from Felix LeBlanc, one of the most prolific measurers in Ohio. When I looked at the map I saw references to grassy areas with turns defined by hillsides and bushes. The course combined road and cross-country. Felix had obtained good agreement in his two measurements of the course, but the thing was virtually impossible to really define accurately. After talking with him I concluded that it was not possible to document the course well enough that a validator could figure out the exact route.

At the bottom of the certificate I noted "Unvalidatable course. Accurately measured but very difficult to define". Was there a better way to deal with the course? The race director wanted the course certified, and I'm pretty sure the runners will be running a good course, but it certainly can't be considered a course where records (should any be set, which is unlikely) would hold up. Opinions solicited.

FINISH LINES	
TIME	PLACE
0:39:59	988

Finish Line Sub-Committee
 Alan Jones, Chairman
 3717 Wildwood Drive
 Endwell, NY 13870
 (607) 754-2339
 September 1988

TRIATHLONS

While the Road Running Technical Committee has not concerned itself with triathlons, I thought it might be fun to take a look at the problems of scoring a triathlon and contrast these problems to those in a running race. This is not just an academic exercise since quite a few of the people in the business of directing running races also direct triathlons.

I have found that normally meet directors of triathlons usually do not worry too much about the accuracy of courses. I think this is a shame since a triathlete wants to have a measure of his/her performances on each of the legs. If the swim is in a lake, it is often difficult to get the swim distance accurate but it can be done with surveying equipment. The running and cycling legs can be measured the same as we do for running races. Safety is very important. The first year we did a triathlon we had the runners going out a short gravel road to the hardtop road at the same time the cyclists were returning over the same route. Both runners and cyclists had their heads down watching for problems on the gravel as they headed toward each other around a blind corner. What an invitation to disaster! The next year the course was changed so the cycling and running were in opposite directions.

Getting results in a triathlon is a challenge. The good news is that a triathlon generally takes quite awhile so there is a fair amount of time to process the results. The bad news is that the

triathletes love to be given their splits. To do this one has to collect times at the end of each event. An individual triathlon will typically have a swim, a bike, and a run event. By collecting times at the end of each one it is possible to compute the splits. Some meet directors even record the transition times, e.g., the time between leaving the water and getting on the bike.

I have yet to figure out how to hang a bar code on a swimmer or how to read a bar code on a cyclist as he/she comes by at 25 MPH (40 km/hr for Bob Baumel). The swimmers tend to come out of the water like gang busters and do not appreciate being held in a chute. We have them call out their numbers as they come by but when there is a cluster it is tough. I think next year we might have a husky volunteer grab each one by the shoulders as they come out the chute and yell out the numbers. (The numbers are written with an indelible marker on the shoulders and thighs. The swimmers in the wet suits are a problem!)

At the end of the bike leg we make them slow down as they enter the transition area and record their numbers then. However, it might be better to record them as they leave the transition area on foot. This should work well since they are not running very fast. Did you ever see someone run after riding a bike for 20 to 30 miles? If so, you'll know what I mean.

Another triathlon I've scored was a team triathlon. The events are a 10 Km run, a four mile canoe (2 people), and a 15 mile

cycle. Cyclists tend to bunch up on the course so they can draft (which is usually illegal) so they cross the finish line in groups. You can't funnel them into a chute at the speed they are going. Even if the chute was very long and wide, there is so much acceleration right at the finish line, one could never have them come out the chute in the same order they entered. There would probably also be some horrendous accidents. Does anyone have an idea for handling this? One possibility is what is called an RF tag. This is a tag placed on items in a warehouse. The tag emits a radio frequency signal when activated by a nearby signal.

A triathlon I've scored recently is the **Dorchester Individual Triathlon** held in our county park. It consists of a 3/4 mile swim, an 18 mile bike, and a 10 km run. (I hope Bob Baumel doesn't read this. If he does, he'll really groan at the mix of measures. Swimmers tend to think in fractions of a mile, cyclists in multiples of miles, and runners in kilometers. Sigh.) Here is a sample of the results. While they look confusing at first, very few triathletes ask for an explanation of the column headings. In a few seconds they seem to figure it all out. (The blank on a swim time and bike split on place number 17 indicates that we didn't get his swim time.)

**OVERALL RESULTS OF THE DORCHESTER INDIVIDUAL TRIATHLON
AUGUST 27, 1988
Dorchester Park, Whitney Point, NY**

PLACE NO.	NAME	TOWN	ST	AGE	S	SWIM		SWIM BIKE		BIKE BIKE		BIKE		Run		RUN		RUN
						Cum	Plc	Cum	Time	Plc	Time	Cum	Time	Plc	Time	Plc	Time	
1	254 Dale L. Rothenberger	Oneonta	NY	31	M	1	0:11:07	6	0:48:22	2	0:59:29	6	0:39:56	1	1:39:25			
2	440 George W. Munro	White Haven	PA	29	M	24	0:14:10	8	0:48:46	11	1:02:56	1	0:37:56	2	1:40:52			
3	472 John Longtin	Greene	NY	23	M	5	0:12:08	4	0:47:18	1	0:59:26	14	0:41:27	3	1:40:53			
4	225 Dirk Elliott	Marathon	NY	32	M	52	0:16:11	2	0:46:43	9	1:02:54	2	0:38:25	4	1:41:19			
5	431 Randall Vitullo	Utica	NY	31	M	28	0:14:43	1	0:46:28	3	1:01:11	13	0:40:47	5	1:41:58			
15	269 George Groome	Vestal	NY	48	M	49	0:15:39	29	0:51:33	34	1:07:12	7	0:40:04	15	1:47:16			
16	224 Wayne P. Prescott	Ithaca	NY	25	M	71	0:16:58	15	0:50:05	31	1:07:03	11	0:40:33	16	1:47:36			
17	494 Julio Melendez	New York	NY	31	M					37	1:07:15	9	0:40:28	17	1:47:43			
18	461 Miguel Castro	Elmont	NY	30	M	8	0:12:50	17	0:50:16	12	1:03:06	38	0:44:53	18	1:47:59			
19	445 Brian Beach	Owego	NY	40	M	34	0:15:02	10	0:49:14	17	1:04:16	27	0:43:50	19	1:48:06			
20	448 Amy Wagner	Auburn	NY	25	F	3	0:11:17	34	0:52:01	13	1:03:18	36	0:44:49	20	1:48:07			
21	249 Kevin Maier	Liverpool	NY	32	M	9	0:12:53	20	0:50:27	14	1:03:20	45	0:45:54	21	1:49:14			

**FINISH LINE SUB-COMMITTEE
MEMBERS**

John Boyle	Philip Lockwood
Mark Crook	Neil MacDonald
Jack Dowling	Fred McCormick
Christopher English	Jack Moran
Bill Grass	Sally & Wayne Nicoll
Linda and Basil Honikman	Rick Staback
Alan Jones	Allan Steinfeld
Walt Jorgensen	Fred Torres
A.C. Linnerud	Ken & Jen Young

Alan Jones, Chairman

THE ATHLETICS CONGRESS
OF THE USA

Road Running Technical Committee
Peter S. Riegel, Chairman

3354 Kirkham Road
Columbus, OH 43221
614-451-5617 (home)
614-424-4009 (office)
telex 245454 Battelle

May 2, 1988

Bernard Conway - 67 Southwood Cres - London, ONT CANADA N6J 1S8

Dear Bernie,

Thanks for your letter about your experience with short calibration courses. Glad to see you like them. It's one of the best decisions we ever made. Gets the calibration course out where it belongs. Our experience with short cal courses is basically that there's no detectable difference between courses measured on short cal courses and those measured using long ones.

I never really liked the idea of calibrating a bike and driving hours to reach the course. I used to do it because it was such a pain to find a good place and lay down a full-size cal course. Now I think things are better.

A correction to you: The US will accept the use of the short calibration course at any time. It's not limited to the day it's measured. What we don't accept is using a short cal course in connection with long car rides.

Does Canada still have a restriction on how well the pre and post constants agree? Gaby Duguay sent me a Canadian measurement book, and it mentions no such restriction, just a post-measurement adjustment based on the amount of change. Canadians need no longer do a measurement over because the calibration changed. Do you have the book?

The Canadian book, and many measurers, feel that calibration rides that differ by a certain amount from the average should be discarded. I disagree with this. The idea is that calibration should be like measuring. We never reject a measurement ride (except for an obvious mistake). If a person does not ride straight and steady on calibration, he probably won't when he measures. Throwing out the wobbly calibration rides decreases accuracy, not increases it. Of course, if a wild count is the result of an outright mistake it should be discounted. But a somewhat wide spread on calibration is nothing to worry about.

When rides are discarded, it is usually the longer counts that get thrown out. This is because you can only ride so straight, but you can wobble a lot. Consequently the wild rides tend to be the longer ones.

If a person is a wobbly calibrator and you throw out his longer rides you will give him a lower constant, and thus the course he lays down will be shorter than if the longer cal rides had been left in. This is less safe than just taking the cal rides as they come.

Best regards,



ONTARIO ROADRUNNERS ASSOCIATION



May 20, 1988

Bernard Conway
67 Southwood Crescent
London, Ontario
N6J 1S8

Dear Bernie;

Thanks for the additional information on the short calibration course.

In answer to your questions regarding agreement between measurements, you are right in that we no longer require that post and pre calibration figures come within a certain margin. A difference of more than 5 counts is acceptable.

(Pete's)

I disagree with his argument that all rides should be counted, regardless of difference, however, in calculating a valid constant. If he is going to count a wobbly calibration ride, which very well may be due to lack of concentration, I suspect he is increasing the variability. The very term wobbly implies inconsistency, and the whole art of measurement requires consistency. If a rider has widely varying measurements then the rider should not be measuring certified courses. For that reason we maintain that, during pre or post calibration, marks must be within 2.5 counts of the average.

I will pass this other information on to Dave Yaeger for discussion at the next Run Canada meeting.

Sincerely,


John Craig

cc Dave Yaeger

24

DAVID R. YAEGER
19 CARONDALE CRESCENT
SCARBOROUGH, ONTARIO
M1W 2A9

June 9, 1988

Mr. Pete Riegel
3354 Kirkham Road
Columbus, Ohio 43221

Pete

I enjoyed the last issue of measurement news and in particular the analysis of data for the L.A. Olympic marathon course. Could some of the differences between the "actual" lengths of the calibration courses and the measured lengths be due to the rainfall during the measurement. Our requirements say that the road should be dry during the measurement, however, I'm not sure what data there is to support or refute this condition. Personally I have never started a measurement when it is raining, mainly due to concerns over my own safety, but I have finished up measurements in drizzle/rain without problem.

I was interested to see that RRTC has certified a number of courses in Canada and other countries. Is this so that, say, marathon qualifying times run by an American athlete in another country will be accepted or is this just a service you provide to encourage accurate course measurement around the world? Should I send in documentation on courses I measure? To whom?

I did the puzzle just after Measurement News ^{arrived}, however, I neglected to send it in. I hope I'm not too late. The answer is

2732.051m

Another iterative calculation, this time with a simple program on my calculator.

Cheers

Dave

THE ATHLETICS CONGRESS
OF THE USA

Road Running Technical Committee
Peter S. Riegel, Chairman

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June 20, 1988

Dave Yaeger - 19 Carondale Cr - Scarborough, ONT - CANADA M1W 2A9

Dear Dave,

Your solution to the puzzle is correct. You'll join the list of the honored few in next MN.

The Olympic data was certainly affected by both the morning rain and the fairly extreme temperature variation we experienced. This will happen sometimes, and there is not a whole lot one can do about it. When 13 people travel thousands of miles to measure a course on a given date, that measurement is going to occur regardless of weather, unless the bikes simply can't be ridden. The measurement window can't be extended.

This applies to validations as well, since once the arrangements are made the measurer can't wait until conditions are perfect. He can't just hang around and hope that next weekend is better. We have to get the data while the measurer is there to do the work. Then, if it's flawed, we have to figure out how to deal with it. This may not be the way to the best measurements, but with limited time, is there a real alternative?

We have seen that weather makes a difference, but not a hell of a big one. At times it may push the 1.001 pretty hard, just as using a different cal course will sometimes do it.

The certification work we do in foreign countries is done as a courtesy to the measurer who simply wants what we have to offer. Our certification has no official standing outside the US. If a minor US record was set on a foreign course that was TAC certified, it might be accepted without a remeasurement. If it was a major record we could have a problem if we tried to get race management to let our TAC validator measure the course.

AIMS has licked this problem. They have an international organization, but if a record is set, like at Rotterdam, the members are ready to cooperate as an AIMS measurer comes to validate the course. By the way, Rotterdam checked out OK, by 5 meters. See next MN for report.

I can see no reason for you to seek TAC certification for Canadian courses, but if you wish it send me your measurement data and US \$25 and I'll go over your dope and certify the course once I'm satisfied. One thing you may get out of it is feedback from me regarding how your work compares with our best. But you can get that from reading MN and being honest with yourself.

Best regards,



Guidance to Race Course Measurers on the Use of 1000'
Calibration Courses

In an effort to reduce the difficulties inherent in measuring, locating, and calibrating courses on established half mile, mile, or 1000 meter calibration courses, Pete Riegel, the national chairman of the Road Running Technical Committee (RRTC), has authorized the use of 1000' or metric equivalent calibration courses at the race site. This new procedure will allow measurers to select a shorter, more protected course that is in the vicinity of the race course to be measured. Since calibration and recalibration can take place immediately before and after the race course measurement, the calibration data obtained should be more representative of the measurement data produced on the race course.

The following procedures are in effect:

- 1) The calibration course must be laid in the proximity of the race course start or finish.
- 2) The calibrated bicycle cannot be transported by vehicle from the calibration course to the start of the race course measurement.
- 3) It is not necessary to use a tension device on your steel tape. Simply apply a strong pull that provides sufficient tension to straighten and slightly stretch the tape.
- 4) A 100' or longer steel tape is recommended. Use the usual taping procedures described in the measurement procedures manual.
- 5) We suggest that you document the location of the end points of your course for future use. A course code number will not be used. On question 7 of the race course application simply note that you laid a 1000' course at the site and in the space under question 9 write in the locations of your course end points.
- 6) You need only measure the course one time.
- 7) It is not necessary to calculate the effects of temperature change on your steel tape. If the temperature is above 68 degrees F make no adjustments for temperature. If the temperature is below 68 degrees F, the adjustments below are suggested to increase the probability that your course is at least 1000 feet.
- 8) Ride the calibration course at least four times before and after the race course measurement.

Other Observations and Suggestions

If you are laying a long point to point course, you should consider laying a calibration course at both ends.

There will be times when you will transport the bicycle during the measurement (taking a lunch break, measuring in segments, etc.) but be certain to adhere to the requirement in # 2 above.

If you have a significant change in temperature between ride #1 and ride #2, you may want to calibrate again for the second ride. It could assist in achieving agreement despite the temperature change. Those four new calibration rides would serve both as a recalibration for the first measurement and a calibration for the second measurement.

You may wish to permanently mark the course location. I have imbedded PK nails and marked and recorded the end locations. I have already used one of the courses several times for other courses measured in the same general area. It is a nice feeling to know you are returning to a safe, convenient course that is time saving and properly measured.

These procedures are subject to change as we gain more experience in the use of the 1000' course.

Steel Tape Temperature Corrections For Temperatures Below 20
Degrees C or 68 Degrees F

I. Distance to add (in Centimeters):

Temperature	<u>Course Distance</u>		
	<u>300 Meters</u>	<u>800 Meters</u>	<u>1000 Meters</u>
15 to 19° C	1.5	5	6
10 to 14° C	3.5	9	12
5 to 9° C	5.0	14	17
0 to 4° C	7.0	19	23
-5 to -1° C	8.5	23	29

II. Distance to add (in Inches):

Temperature	<u>Course Distance</u>		
	<u>1000 ft</u>	<u>2640 ft (½ mile)</u>	<u>3280.24 ft. (1000 meters)</u>
60 to 67° F	½	1½	2
50 to 59° F	1½	3½	4½
40 to 49° F	2	5½	7
30 to 39° F	3	8	9½
20 to 29° F	3½	10	12

(above calculations prepared by Bob Baumel, VC West)

Wayne B. Nicoll
Vice Chairman-East
Road Running Technical Committee

amended: May 10, 1988

Bike Check: Ride the bike over a short segment of the cal course (100 ft or 30 m). Calculate the constant obtained. It should agree pretty well with the constant obtained using the whole course. If it does not, check. you may have miscounted the number of tape lengths. This is a common mistake. Another way is to measure the distance covered by the bike wheel in exactly one revolution. Again, agreement should be close. Submit checking data with layout data.

PSR 8-30-88

August 2, 1988

Dear Concerned Measurers:

Here's a quote from a letter from Peter Volkmar that accompanied his application for certification for the Sneekers' Run:


"The course was measured along the shortest possible route. This route was established with cones marking the tangent points. The measurer rode in a straight line from cone to cone. Some of the tangents are relatively long and the cones served as targets."

"For safety, the map and instructions provided to the runners will stress keeping to the right side of all roads with the exception of the final half mile..."

I called Peter Volkmar and he told me all the cones were put out before the measurements began. Cones marked the endpoints of the straight portions of the shortest possible route, plus selected midpoints where there was a rise obscuring view of an entire straight line at once. For various measurements, before measuring, I have made a map of the shortest possible route and attached the map to my bike for a guide while measuring, but the cone method may be a better. I think, whatever method is used, before we measure, we should plan where we are going to be on the road at all points. We needn't go as far as the Koreans and paint a line on the entire SPR, but we should have something to follow.

I agree that the shortest possible route within the roadway must be measured, even if the runners are going to be encouraged to stay on one side. I think that measuring any sort of "modified SPR", as suggested by Peter Riegel, would be unwise since, even if the SPR was measured near intersections, depending on the curvyness and width of the road, runners could run shorter than the certified distance without obviously cheating.

Sincerely yours,



David Reik
930 W. Blvd.
Hartford, CT 06105
(203) 236-9160 8-9 P.M.

sent to: Peter Riegel, Peter Leeds, Wayne Nicoll, Peter Volkmar

THE ATHLETICS CONGRESS
OF THE USA

Road Running Technical Committee
Peter S. Riegel, Chairman

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Columbus, OH 43221
614-451-5617 (home)
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telex 245454 Battelle

August 8, 1988

David Reik - 930 W. Blvd - Hartford, CT 06105

Dear David,

Concerning your letter of August 2:

Many measurers prefer to measure SPR everywhere, since it simplifies documentation. However, there are times when, for good reasons, a race director wishes to restrict the runners to one side of the road. If he can document what he measured, then it's our job to go ahead and certify what he measured. Of course, it does no harm to warn him of the pitfalls.

I recently measured a bike course in a biathlon (see enclosed). I had to decide how to measure. I decided to ride it as a safe biker would do it, except that I did a modified SPR at all the corners. The course could be used as a running course with instructions to stay right. Because most of the curves are sweeping, no biker in his right mind is going to defy the traffic. And most runners won't either.

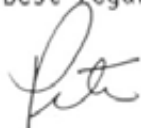
I had to decide between a bulletproof course and an honest one. Athletes deserve an honest course (not short, and not too long), and I think it is possible to go too far with worrying about the odd cheater. Most runners do follow the instructions unless the road is too tempting to stay right. Courses can be too long.

Measuring SPR puts the runners on notice that shortcutting has been planned for, and this may further tempt them to cut the course. A determined cutter isn't going to worry about curbs, and even using full-road doesn't take care of everything.

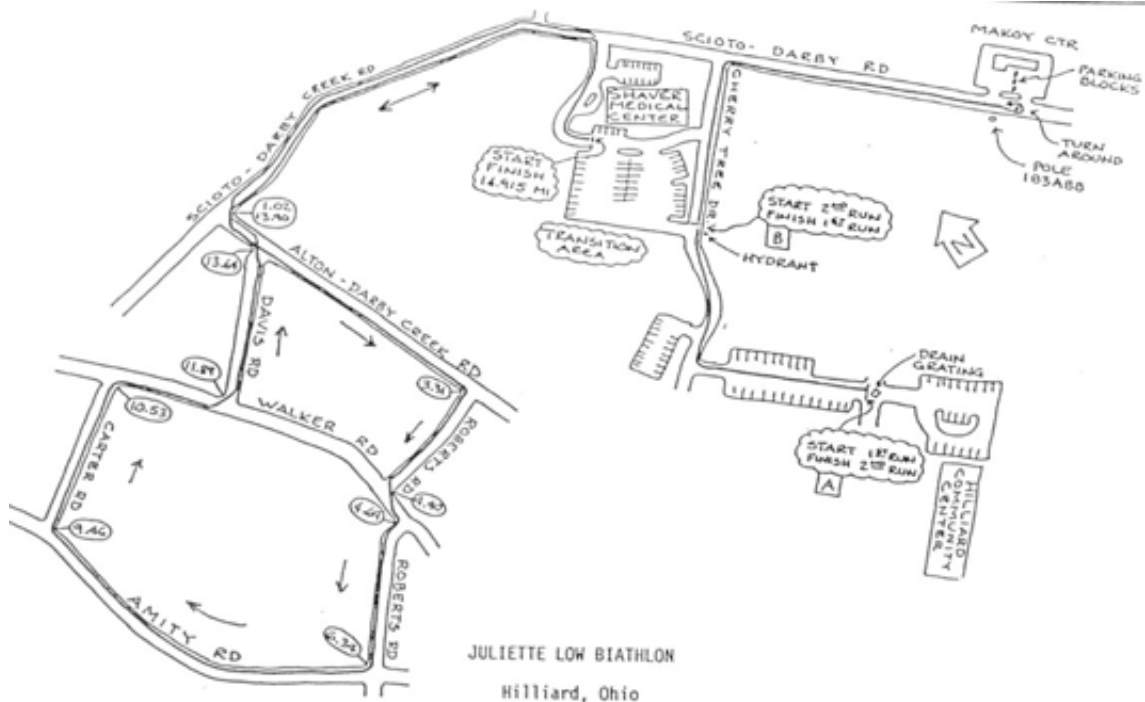
The choice of route, and how it will be enforced, is the race director's, not the certifier's. The certifier can warn, but should not override.

As for coning as a guide to the measurer, that's definitely a help if one has the time to do it. Generally one learns enough on the first ride to improve on the second, and our friend the SCPF takes care of the odd deviation. If the course is extremely curvy and hilly it might become a necessity though. Depends on the location.

Best regards,



xc: Nicoll



START EVENT - First 3 mile Run - 5 feet W of W edge of drain grating at W entrance to parking lot N of Hilliard Community Center. Point "A" on map.

TURNAROUND - On Scioto Darby Road, opposite Makoy Center (4920 S.D. Rd). Point is 32 feet E of pole # 183A88. Pole is located on S side of road opposite Makoy Center. Turnaround is also 2 ft E of line of concrete parking barriers in center of Makoy lot. Turnaround is 1.552 miles from start of first run.

FINISH - First 3 miles - On Cherry Tree Drive at S entrance to Shaver Medical Center parking lot. Point is 5 feet N of fire hydrant on E side of road. Point "B" on map.

START - 14.915 mile bike - In Shaver Medical Center Parking lot, even with W edge of paved parking area facing S entrance to building. Also even with W edge of W entrance to the main lot S of the building.

FINISH - 14.915 mile bike - Same as START 14.915 mile bike.

START - Second 3 mile run - Same as FINISH first 3 miles. Point "B" on map.

TURNAROUND - Same as first turnaround, except point is 1.448 miles from start of second run.

FINISH EVENT - Same as START EVENT. Point "A" on map.

3 MILE - TAC Certified Course # OH 88066 PR

14.915 MILE - TAC Certified Course # OH 88067 PR

Courses measured for certification by Pete Riegel, Columbus, OH

Measurement Method - The three mile course was measured as though the runners had full use of the entire road. The 14.91 mile bike course was measured staying about 3 feet from the right hand side of the road. About 100 yards from each corner, the measurement took the shortest route around the corner, then gradually drifted right for about 100 yards until once again 3 feet from the edge.

FIRST WOMEN'S MEASUREMENT TEAM VALIDATES OLYMPIC TRIALS COURSE

Margaret Groos, Nancy Ditz and Cathy O'Brien were not the only women to make history in Pittsburgh this Spring. About one week before the Trials competition, Sally Nicoll, Validations Chariman of the RRTC, led a team of four other women in validating the course to be used for the Trials. Other team members were Susan Baskin, Betsy Hughes, Carole Langenbach and Amy Morss.

Following are excerpts of Team Leader Sally Nicoll's Report to the Road Running Technical Committee which is presented to illustrate what is involved in validation a course, as well as to underscore the tremendous contribution in time and effort these women have made to the sport of road running in general and to the 1988 Olympic Trials in particular.

"...We [Wayne and Sally Nicoll] arrived in Pittsburgh on Thursday evening, April 21st., checked into the Hyatt, found all reservations for Team Members to be in order and received a message from Jay [Walters, Director of Operations] that he had scheduled a meeting of the Course Committee for 2 PM the next afternoon.

Early Friday AM we checked the street selected for the finish area calibration course and determined it to be suitable. We are joined by Amy Morss around 10 AM and we proceeded to the start area, scouted out and laid a 1000' Calibration Course with steel tape on the access road to the Zoo parking lot adjacent to the start area. We double checked the measurement with a walking wheel.

At 2 PM we arrived at the Marathon Office [and] were joined by Jay and Len Duncan, representing the City of Pittsburgh ... Len recommended that we begin measurement at 2 AM and continue on until 7 AM when traffic would probably become a problem... Len arranged for two patrol cars to support us, a city vehicle to transport the bicycles from the start line back to the finish area, and agreed to accompany us himself ... Bill Phelps (Three Rivers Association President and a member of the race organization) agreed to work with us assisting in collecting [the landmark] data as we progressed in the measurement. Calibration was set for 12:30 AM allowing time to plan the counts prior to meeting the police escort at the finish line in Point State Park at 1:45 AM.

[After Betsy Hughes and Susan Baskin arrived] we drove ... to the Birmingham Bridge Bicycle Shop where Ron Silverman the owner ... supplied brand new bicycles for each rider, adjusted seats, etc., and we installed Jones Counters ... During this procedure we were joined by a camera man from KDKA-TV2 who filmed the work with the Jones Counter. The footage was aired later that evening ... [Later] we proceeded we Colwell Street to lay the finish area calibration course.

The group assembled at 12:30 AM and proceeded to the hotel garage area where Wayne assisted in a final check of tire pressure and minor bicycle adjustments. Calibrations completed, we returned to the hotel lobby for the extensive calculations. The Marathon Committee had requested readings for each mile point and Julie McKinney, National Chairman of Women's Long Distance Running, had asked that we locate the 5 kilometer split points ... [giving] us a total of 37 points to locate ... and landmark.

We proceeded to the finish line and joined the police, Len Duncan, Jay Walters, Bill Phelps and a photographer from the Pittsburgh Press at approximately 2 AM ... We outfitted Wayne, Amy, Bill Phelps, and Len Duncan with headset radios and Sally and Len with hand held radios so we had excellent communication with one another throughout the measurement. The police provided excellent coverage, closing bridges and streets where we proceeded against traffic, etc.

In contrast to what was originally planned, a course length verification, this activity became an actual measurement utilizing the short course prevention factor and all other requirements of a true measurement. The reason for the change was the construction of a new bridge overpass ramp at the northwest end of the 16th Street Bridge and the request for the location of the kilometer splits.

... [The measurement was completed at 8:15 AM followed by recalibration on the Zoo lot course.] After resting, we went over our figures and determined agreement and the adjustments to be made to the course.

... [At 5 AM on] Sunday morning we all climbed into Wayne's pickup truck with paint, nails, engineer's wheel, tape, etc. and began [to do our landmarking]. Landmarking was completed at 10:25 AM ...

This project was completed exactly as envisioned nearly two years ago. The Team was a perfect combination of dedicated volunteers in our sport. I could not be more delighted with the outcome. It was a giant step forward for women in the area of technical expertise in our sport and clearly established not only their capability, but their willingness to assume responsibility. Heartfelt thanks are extended to everyone who made it possible: Team Members Amy Morss, Betsy Hughes, Susan Baskin and Carole Langenbach; our advisor, Wayne Nicoll, the Pittsburgh Marathon Committee represented by Jay Walters and Bill Phelps; the City of Pittsburgh, represented by Len Duncan and supported by the police; Allan Steinfeld, Nina Kuscsik, and most of all Julie McKinney of Women's LDR, for their support; and last but not least, Pete Riegel whose leadership within the RRTC created the environment which made it possible."

Going the DISTANCE

The Newsletter of the TAC/USA Women's Long Distance Running Committee

Volume 3
Issue 2
July 1988

EXERPTS FROM
SALLY NICOLL'S
REPORT

Was Shakespeare a road runner?

And did Hamlet win the Copenhagen Marathon?
Ivan Huke has the chapter and verse

FROM JOHN DISLEY

What was it like to be a jogger or marathon runner in the sixteenth century? For the answer, look no further than Shakespeare's plays. They are full of fascinating details to interest the running historian.

There was obviously a jogging boom in the 1590s. In *The Taming of the Shrew*, Petruchio's wife Kate said to him, just after their wedding: "The door is open, sir; there lies your way: You may be jogging whiles your boots are green."

How many wives today would encourage their husbands to go jogging just before their honeymoon? This is clear evidence of the importance attached to jogging at that time. And the reference to Petruchio's footwear indicates, of course, that he wore Dunlop Green Flash. In those days, remember, Dunlop had the largest market share.

From Shakespeare's references to longer-distance runners one point constantly emerges: they knew very little about the need to keep cool by wearing a vest and shorts. Take Ophelia's description of Hamlet at the finish of the 1598 Copenhagen Marathon: "Lord Hamlet, with his doublet all unbraced, No hat upon his head, his stockings fouled, Ungartered and down-gyved to his ankle, Pale as his shirt, his knees knocking each other, And with a look so piteous in purport As if he had been loosed out of hell..."

Marathon historians will recall that the race — which was won by Fortinbras of the South Stavanger Hash House Harriers — was held in a temperature of 27°C. Hamlet, with his shirt, doublet, stockings and garters, was dangerously overdressed. No wonder he ended the race looking as though he had been "loosed out of hell". Yet he failed to wear



the one item of clothing that might have prevented sunstroke — a hat. Even Ophelia, who had never attempted more than a sponsored walk, had the sense to realise that he should have had a "hat upon his head". As you know, the poor girl was so distracted by Hamlet's lunatic behaviour in marathons that she committed suicide — a tragic waste of life that could have been prevented if only he had worn a sun-hat.

Falstaff also paid the price for wearing cumbersome clothing. As we now know, plump runners can do well if they train properly and dress in a vest and shorts. In Shakespeare's time, however, they received neither help nor sympathy. Prince Hal laughed, rather unkindly, at the overweight and overdressed Falstaff, who was obliged to walk after only 50 yards of the Gadshill Fun Run: "Falstaff sweats to death And lards the lean earth as he walks along. Were't not for laughing, I should pity him."

Sixteenth-century runners not only needed advice on clothing; they knew precious little about carbohydrate loading. In *As You Like It*, after 18 miles of the Forest of Arden Marathon, Adam hit the wall. He gasped to his friend Orlando: "I can go no further: O, I die for food! Here lie I down, and measure out my grave." Fortunately, the consequences

were not fatal, since Orlando was able to cadge a Mars bar from some campers. But in the days before the advent of "sweeper" ambulances, it was common for exhausted runners to collapse by the roadside and be left without food or medical aid. This happened to poor Hermia in



the *Midsummer Night's Dream* Marathon. She sensibly decided to sleep off her exhaustion: "I can no further crawl, no further go: My legs can keep no pace with my desires. Here will I rest me till the break of day."

With competitors wearing unsuitable clothes, eating insufficient food, and thinking that "interval training" meant jogging round the theatre between acts, one can sympathise with Macbeth. You have to admit that he was a man prepared to have a go at anything; and yet he felt he was making no progress at all with his jogging: "Tomorrow, and tomorrow, and tomorrow, Creeps in this petty pace from day to day."

Race organisers did little to help. They sent out no maps or advance information about hills. Competitors were often taken by surprise at the toughness of marathon courses. A runner in the Gloucester Marathon is quoted in *Richard II* as saying: "I am a stranger here in Gloucestershire. These high wild hills and rough uneven ways Draw out our miles, and makes them wearisome."

However, on a positive note, the organisers at least took pride in one aspect of their work: they insisted on accuracy in course measurement. This is clear from a conversation in *Henry V*: Constable "Who hath measured the ground?" Messenger "The Lord Grandpré." Constable "A valiant and most expert gentleman."

In this final point there is a lesson for us today. We have learnt much about the art of running since Hamlet became dehydrated, but the positioning of mile markers in some modern races certainly makes you wonder who hath measured the ground.