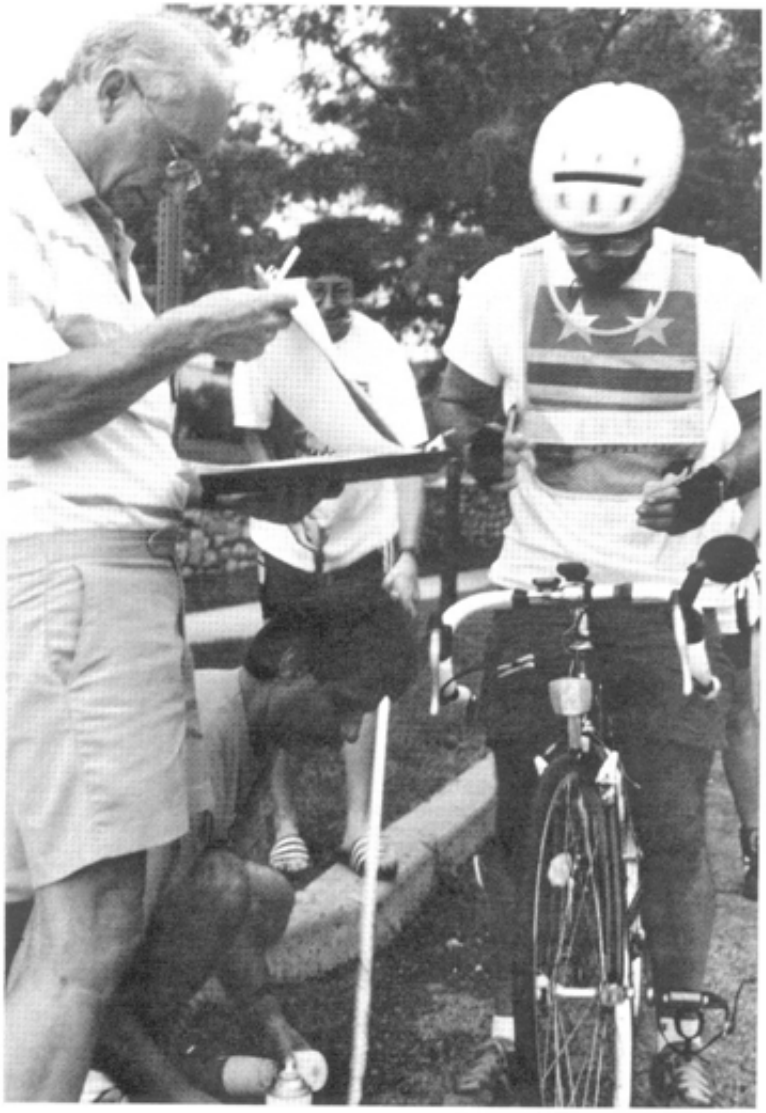
MEASUREMENT NEWS

November 1992 Issue #56



Here is the measurement team working on the layout of the Kansas City Prime Health Marathon and 10k. Bill Glauz, team leader, checks paperwork and prepares to give lead rider Steve Ryan his next target count. Keith Raymer has just marked the split point and is assisting Mary Edwards with taping to a nearby landmark. See the story inside.

MEASUREMENT NEWS

#56 - November 1992

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TAC CONVENTION - RRTC AGENDA

The following subjects will be discussed at the meetings of RRTC at the upcoming TAC convention. If you think something should be added, or if you have an opinion you feel should be considered, let Pete know.

1) Discussion of rule changes on which RRTC has an interest. Dan Brannen has proposed a rule change prohibiting the use of heart rate monitors in competition. Other changes will undoubtedly appear before the convention.

2) Proposed ten year life for course certification. How many courses survive ten years of roadworks with their reference points intact? How many races continue to survive after ten years? Should course lists show every course that has ever been certified?

3) Change to short course prevention factor (SCPF) for courses with short nominal length. For example, we recently certified a bike-measured racewalk loop at 625 meters. The 0.1 percent SCPF amounted to only 0.6 m (2 ft). Is this enough to assure against shortness? Should we simply add 1 m to the length of every course on top of the 0.1 percent? Any ideas?

4) Change to the question concerning qualifications of people who lay out calibration courses using steel tapes. Are people intimidated by the question? See Bob Baumel's letter on this elsewhere in this issue.

5) Team measurement of the Atlanta 1996 Olympic Marathon course? The team measurement of the 1984 course produced a wealth of measurement knowledge, as well as providing an impeccably well-measured course. The complexity of the Olympics requires that we begin now to think about this if it is to come to pass. Who shall come? Domestic measurers? International measurers? Whose permission is required? If we can do this it would be a wonderful opportunity to unite the measurement community.

6) Measurement contest.

7) Chairman reports.

THE ATHLETICS CONGRESS
OF THE USA

3354 Kirkham Road
Columbus, OH 43221

Road Running Technical Council
Peter S. Riegel, Chairman

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September 4, 1992

Editor-in-Chief - Running Times - 251 Danbury Rd - Wilton, CT 06897

Dear Editor,

Mike Tymn's "Some Hallowed Stats Aren't What They Seem" was interesting for a baseball fan, but offered little beyond criticism on the subject of road-running records. It suggests that since baseball parks are not identical, that road records ought not to have standards.

The record-keeping system covers distances from 5 km on through the ultras, and is concerned with far more than just the marathon. When the standards were established, two choices became apparent: We could have good, credible records for 93 percent of the sport, or meaningless records for 100 percent of the sport. TAC opted for the credible records, and found a way to recognize performances set on non-standard courses. Some facts:

1) Of the 10,000 currently certified courses, over 90 percent meet the rule. They are neither downhill nor widely separated.

2) An additional 3 percent are potentially wind-aided, because the start and finish are widely separated, but if no net tailwind occurs on race day, records can be set. A record <u>can</u> be set at the New York City Marathon.

Thus the rule overwhelmingly represents the sport of road running, with the notable and regrettable exception of the Boston Marathon.

Downhill and wind have the same effect on runner's time as a short course does. What would be the effect on long-distance track records if 7 percent of tracks were 395 meters long instead of 400? Simply this: In time, the records would come to rest at those events that use short tracks. Moreover, athletes would have fewer opportunities for record-setting, since the events offering aid are few in number compared to the rest of the sport.

The TAC records book <u>does</u> show both of Salazar's notable runs. The 1991 2:08:13 at New York (course short by 150 m) is recognized, with the note that a projected finish for the full distance would have been 2:08:40. The 1982 2:08:52 at Boston (downhill course) is also recognized. The official US record, as Tymn notes, is Pat Petersen's 2:10:04 at London, a standard course.

The TAC rules have done a good job of coping with a difficult problem. We hear criticism, but have yet to hear why it would be good for the sport to recognize downhill runs as records, just because they are set at famous races by famous runners. Fairness is the goal, and downhill courses just don't fit.

Instead of giving all the ballyhoo to the guys who run fast going downhill with a tailwind, isn't it about time to give Pat Petersen a bit of recognition?

Best regards,

Pete Riegel

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October 28, 1992

Dear Pete,

The JONES/OERTH COUNTER like every relatively new product has had some growing pains. They are now, I believe, all behind us. Actually there was just one final problem that surfaced: the bonding connection between the connector and the actual counter on a few units came apart. That problem has been solved. However, there are many counters that we have distributed that are still subject to that fault. We stand behind the product. If anyone has any problem with his JONES/OERTH COUNTER we will correct it or replace it at no charge as long as it is a manufacturing defect.

I have just learned that my source of counters and sprockets have both increased in price which means I will have to increase my price for the JONES/OERTH COUNTERS by $5.00 each for both the FIVE and SIX digit counters. They are currently $45.00 for the FIVE, and $55.00 for the SIX. They will be $50.00 and $60.00 for domestic US orders as of January 1, 1993. All foreign orders (outside the United States) will be $55.00 for FIVE digit counters, and $65 for SIX digit counters, also as of Jan 1, 1993. This increase which is actually less than our increased costs simply reflects our increased cost. We will honor all foreign orders at the old price as the new prices will not reach the foreign markets until the new IAAF Book and the AIMS Catalog are published. Neither I nor my sons will ever grow rich on the counter business, but that isn't why we are in it. We pledge to provide a continuous supply of counters from now until the end of time (well, at least as long as there is a market for them).

I'm looking forward to seeing you and Joan at the Road Race Management Convention; and remember, its my turn to buy dinner.

Best Ever,

Paul

JONES/OERTH COUNTER PRICE INCREASE

Effective 1 January 1993:

	5 Digit	6 Digit
US price.....	$50.00	$60.00
Foreign price..	$55.00	$65.00

The Athletics Congress of the USA

Road Running Technical Council
Dave Poppers — Colorado Certifier

5938 S. Franklin St.
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Pete Riegel
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9/15/92

Dear Pete,

I have a number of courses here in Colorado that are still active and advertising themselves as TAC certified that are existing on certificates dated 1983 with no map, as shown on the list.

I want to write to them and notify them that their certificates are no longer effective and recommend that they remeasure for a new certificate. But it would be unfair to just tell them the above, point blank, without more specific detail on the background of why the certificates expired. I went through my MN archives without enough success.

Would you please help me by filling me in on the key points and background, with dates, of why these certificates are no longer valid?

This would probably be a good review for many of us in order to better respond to those with mapless certificates.

I enjoyed your *sermon* in the Sep. '92 MN. I want to add my 2 cents. I feel that the short-lived use of the 1000'/300m on site calibration course without the need for the presently required paperwork was a good idea and met the needs of reasonable accuracy and convenience. Last night I was on the phone for 30 minutes with a fairly new measurer discussing a half inch adjustment. For a permanent cal. crs the present guidelines are fine (when the party has a 10 digit calculator) but the on site alternative sure was welcome and user-friendly. A note of the number of tape lengths and their size I think should suffice. Any backers?

Best Regards,

THE ATHLETICS CONGRESS
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September 21, 1992

Dave Poppers - 5938 S Franklin St - Littleton, CO 80121

Dear Dave,

The certified courses that have no associated maps pose a potential problem, but one that has not so far become a real one. These courses (about 600) went through the standard certification process, including submission of maps, but the maps were never sent on to the National Running Data Center with the certificates. This happened for a brief period in 1983.

As a result, we have some old certified courses that exist only in someone's mind - there is no way to verify just what has been certified. In order not to make a lot of people mad by declaring them uncertified, we did not do so - after all, they had done their work in good faith, and it was us who dropped the ball.

Because of the age of these courses, it's likely that only a small fraction of them are still in use. When people ask, we explain the special status of these courses, and that they exist in a kind of limbo. If a person sends us a course map, we upgrade the course to fully OK status on the list.

I am going to propose a solution to the problem at the TAC convention, and will put it before our readers in the next issue of Measurement News. I am going to propose a ten year life for certifications. A certified course goes onto the list for ten years, and is then dropped. This is the only way anybody has thought of to keep the list from becoming full of deadwood. Some certifiers make an effort to note when one courses replaces another, but I suspect that many of the courses on the list are no longer in use.

In order for the lists to be useful, they ought to show a minimum of lapsed courses, and the ten year limit will automatically keep the list to about its present size. If there are no serious objections, this will take effect on January 1, 1993. After that time the 1982 courses will no longer appear in publicly-distributed course lists. On January 1, 1994, the 1983 courses will disappear. This will include all the no-map courses. They will remain in the archives, but won't be listed any more.

Since there are bound to be some few old courses that remain in use, all a person needs to do to get their old course back on the list will be to attest that the course remains as it was certified, with no changes, and we can give it a new number and put it back for another ten years. I suspect there will be few of these.

Thanks for your support on simplification of calibration course measurement. It too will become a subject for discussion at the TAC convention.

Best regards,

Pete

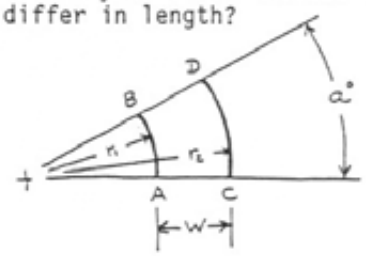
SAVE YOUR LIFE WITH ANGULAR OFFSETS

To paraphrase the old saying, usually applied to airplane pilots: "There are old measurers, and there are bold measurers, but there are no old, bold measurers."

You have just arrived in a strange city to measure a course. While going over the course with the race director you find that part of it is on a winding multi-lane road with extremely heavy traffic, day and night. The course uses one half of the road, from the edge to the center line. What do you do? One way is to simply put your head down, check your insurance policy, and ride the shortest possible route, hoping you will not be hit. This is distinctly dangerous. Another is to use judicious offsets, so as to stay on the safe side of the road. But if the shortest route happens to be in the center of the road, there is no safe side to ride on.

Here is a geometrical relation that can save your life. AB and CD are two different lines. By how much do they differ in length?

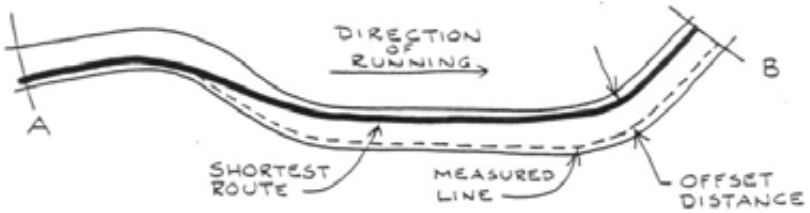
$AB = 2\pi r_1(a/360)$
$CD = 2\pi r_2(a/360)$
$CD - AB = 2\pi(r_2 - r_1)(a/360)$
$CD - AB = 2\pi W(a/360)$

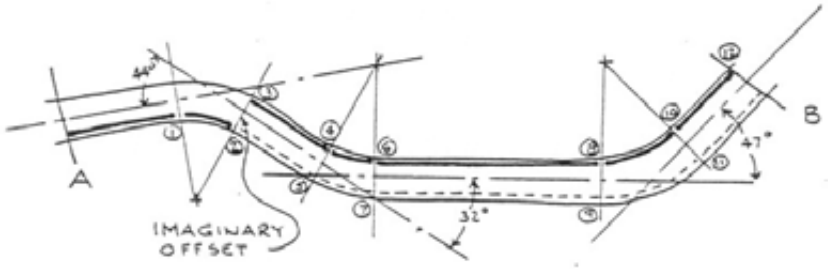


For example, if a = 30 degrees and W = 20 meters, CD-AB = 10.47 meters.

To use this relationship you need to know only the width of the road and the degree of curvature of the bend in it. The width is easy to measure. The degree of bend is obtained from an accurate, scale map using a protractor.

The diagram below shows an example of how to measure this sort of course safely and accurately. You determine that there is no way to measure from A to B without getting killed. You therefore decide you will ride along the right-hand edge throughout, and use geometry to correct your final measured distance.





You measure along the right-hand edge of the road and obtain a distance of 8845.3 meters from A to B. You find the width of the road is 20 meters. Later you examine the accurate map and find that on the way from A to B the course bends as follows:

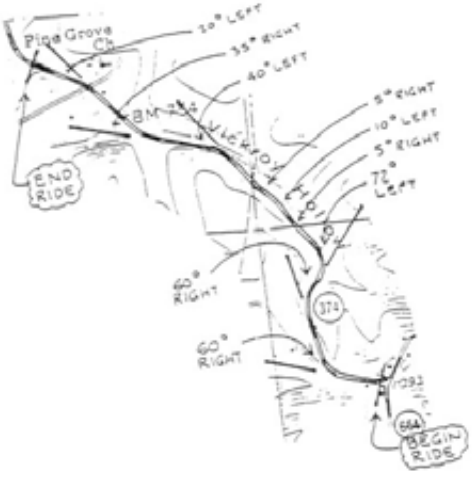
44 degrees right turn (1 to 2 on diagram)
32 degrees left turn (4 to 6 on diagram)
47 degrees left turn (8 to 10 on diagram)

A to 1 needs no correction.
1 to 2 needs no correction - you measured along the actual route.
- you now perform an imaginary offset, from 2 to 3.
2 to 5 needs no correction - it is straight and parallel to the actual route.
5 to 7: The actual route is shorter than what you measured by $2\pi(20)(32/360)$, or 11.17 meters.
7 to 9 needs no correction - it is straight and parallel to the actual route.
9 to 11: The actual route is shorter than what you measured by $2\pi(20)(47/360)$, or 16.41 meters.
11 to B: needs no correction - it is straight and parallel to the actual route.

Your corrected length thus becomes: 8845.3 - 11.2 - 16.4 = 8817.7 meters.

Note that since you are riding on the right-hand side, you need not correct for the right-hand bends, since the actual route lies exactly where you measure. You need only sum up the total angle of left-hand bends, and apply the correction for the total.

In the example below, you must measure along Route 374 from Route 664 to just past Pine Grove Church. The road is 48 feet (14.6 m) wide, and heavily trafficked. The runners will use the right-hand half of the road, from edge to centerline. You measure it along the right hand edge and obtain a distance of 5177.2 m, and then go to the USGS map to figure your corrections.



Measured length = 5177.2 m

Offset distance = half of road
= 7.3 meters

Angular correction = $2\pi(7.3)/360 = 0.127$ meters per degree of curvature

Right-hand degrees = 60+60+5+5+35 = 165 ignore these

Left-hand degrees = 72+10+40+20 = 142

Angular correction = 142 x 0.127 = 18.0 m

CORRECTED LENGTH = 5177.2 - 18.0 = 5159.2 m

It is generally a whole lot easier to ride the proper line than to go through this correction process. However, when the situation warrants it, this procedure is accurate if done with care. It also shows why inexperienced measurers sometimes come up with short courses. Those bends add up.

THE ATHLETICS CONGRESS
OF THE USA

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1992-10-18

Pete Riegel
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Re: Your planned *MN* piece: "**Save Your Life with Angular Offsets**"

Dear Pete,

I like your intended *MN* piece on computing the geometrical corrections for cases where curves were measured on the wrong side of the road. In this letter, I would like to describe two cases where I used essentially the same method as you describe:

My first example is the Cherokee Outlet Relays Marathon in Tonkawa OK, currently certified under number OK-84083-BB. I originally measured this course in Aug 1982 using **old rules** (1 meter from road edges and less strict SPR interpretation). As you can see from its map, the first 25 km of this course are on Highway 177, a two-lane road with sweeping curves where it is not safe to ride the SPR. All of Hwy 177 was measured along the right-hand edge (except for the 90° left turn in Braman which *was* measured on the left side).

Ted Corbitt originally approved the certification (under old rules) in Sept '82. Then, in Nov '82, I sent Ted another application, asking for certification with addition of the 42.2-meter short course prevention factor as specified by the newer rules (and I also asked for certification of each of the quarter-marathon relay legs, which Ted hadn't included in his original certification letter). Ted denied this Nov '82 application, pointing out that even with addition of the 1/1000 SCPF, he couldn't grant a "full" certification (by newer rules) because I had ridden using the old one-meter rule. He wanted a complete remeasurement.

As I had no desire to remeasure this marathon during winter 1982–83, and the weather wasn't very suitable for such a remeasurement (and even if I did remeasure it, it **still** wouldn't be safe to ride the SPR on Hwy 177), I sent Ted a series of letters explaining that without any new measuring, I could adjust the course to comply fully with the new rules, based on geometrical calculations similar to those in your current *MN* piece. Finally, on 13 Feb 83, Ted sent me the enclosed letter granting full recertification based on these adjustments. Note his statement that this was "the first exception to actually remeasuring to get a clear FULL certification/re-certification." (Note: I have assumed that Ted's cryptic reference to "49.15 meters" was a typo; i.e., he intended 42.195 m — 1/1000 of the marathon distance.)

On 27 Mar 83 (two weeks before the 1983 race), I applied my adjustments corresponding to Ted's letter of 13 Feb 83. Considering that these adjustments were intended to account for the rules changes in addition to the situation you described, they were a little more extensive than those described in your *MN* piece. Thus, in addition to adjusting for leftward curves, I also needed adjustments for rightward curves and 90° street corners, as I hadn't ridden close enough to the road edges in those cases. After all these adjustments, I placed the Finish line 20.25 m beyond its adjusted position from my rejected Nov '82 application (which had included the 1/1000 SCPF but no adjustments for the ridden path).

Actually, this wasn't the end of the story. The course's current certification number (OK-84083-BB) is a 1984 number because I recertified it in Dec '84. This was when Ken Young was reworking the format of the certified course list (in preparation for dropping all courses certified under the old rules), and I also made a major effort to clean up the Oklahoma list. I returned to the Cherokee Outlet course at this time because I hadn't been happy with its existing certification for the following reasons: (1) No MAP was on file nationally to document my final adjusted course of Mar '83 corresponding to Ted Corbitt's Feb '83 letter. (2) My Mar '83 adjustments assumed use of only the *right half* of the road during leftward curves on Hwy 177. But in observing the 1983 race, I saw that runners were often free to use the *whole* road. (3) The Road Width assumed in my Mar '83 adjustment had been measured by the race director. As it turned out, his figure was correct only for the portion of Hwy 177 north of the I-35 crossing; the road was wider south of the I-35 crossing. (4) The 90° left turn in Blackwell had been measured keeping right of a center-island on Hwy 11, but this restriction was not enforced during the race.

Therefore, in Dec '84, I visited the course and measured the width of Hwy 177 at lots of points, and made detailed measurements and calculations regarding the left turn in Blackwell. After recalculating everything for a full-road SPR, I extended the Finish line another 22.8 m beyond the Mar '83 adjusted position. Unfortunately, this Dec '84 recertification was all for naught, as the course was never again used for a race. In fact, the Cherokee Outlet Relays & Marathon was held only once—on April 9, 1983. After that, the race director remarried and lost all contact with the running community.

My second example is the Lake Murray Half-Marathon in Ardmore, OK (OK-86016-BB). This out/back course (see enclosed map) was measured by Jim Smith, who rode the whole thing along one edge for safety reasons. When Jim wrote up the certification application that way, I refused to accept it. Instead, I asked for the data needed to compute a geometrical adjustment as in your present *MN* piece. The adjustment is described in the following excerpt from a letter I wrote to Ken Young on April 13, 1986:

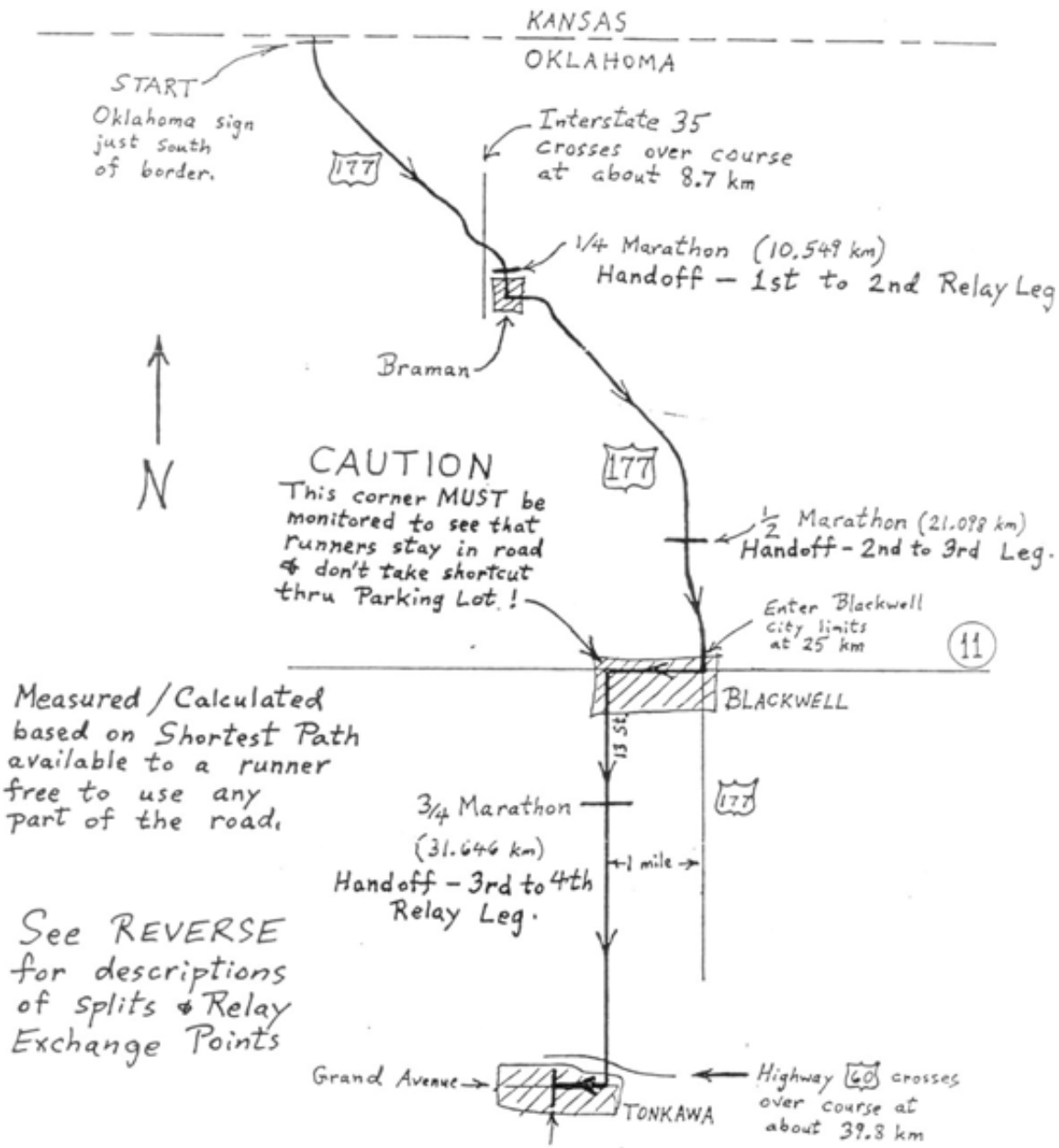
> The Lake Murray Half-Marathon (OK-86016-BB) is one of those courses on a rural two-lane road with big sweeping curves where you can get killed trying to ride the SPR. Jim Smith reports that when he measured this course on 14 Sep 85, he did start out (twice) trying to ride the SPR, but each time had to swerve off the path when he encountered a car in the very first curve. He then gave up and simply rode the whole course along the white line at one edge of the road (approximately 30 cm from that one edge).
>
> When I realized that this is what Jim had done, I explained that I couldn't certify a course measured that way, although it would be possible to geometrically calculate an adjustment representing the distance that would be saved by a runner who takes the SPR using the whole road. Jim's initial inclination was to just drop the application, but he later decided to proceed with the certification. Thus, Miles Logsdon measured road widths at many of the curves, and I carefully measured all the relevant angles from the topographic map. (Note: Since Jim had ridden along the edge of the road closer to the Lake, I assume that he **already** measured the SPR at those places where the road curves **toward** the lake, so I only needed to calculate adjustments for those places where the road curves **away** from the lake.) My sheet of calculated adjustments is enclosed. The overall final adjustment (to extend the turning point by 65.81 m) was performed on 6 Jan 86. Jim had originally measured this course for a race held on 28 Sep 85, but that particular race was held long before the final adjustment needed for the certification was applied.

As indicated by these two examples, the geometrical adjustment method is sometimes the only way to survive the measurement and end up with a proper certified course. But it doesn't seem to be needed very often. In most cases, we get along fine by either measuring the SPR directly or by using standard offset maneuvers.

Best regards,

Bob

CHEROKEE OUTLET RELAYS & MARATHON
OK-84083-BB



Measured / Calculated based on Shortest Path available to a runner free to use any part of the road.

See REVERSE for descriptions of splits & Relay Exchange Points

13 Feb. 83

Dear Bob Baumel,

If you have an extra 49.15 meters to your marathon course, we can give you a FULL re-certification, on the basis of your having measured the shortest path and figuring how much more you could probably have shortened the route by getting closer to the curb.

In effect you are saying that this could, would withstand an independent check, in the case of a national or world's best time being set on the course.

Dr. Ben Buckner of Ohio State U., a member of the national Standards Committee, has assured me that pi doesn't lie. I don't know if you used that factor or not. and I am not a mathematician, but relying on your works and calculations and a dash of so called commonsense, you get the first exception to actually remeasuring to get a clear FULL certification/re-certification.

Most courses remeasured have not fared too well using the new measurement rules. Two+ yards per mile is the best, except for one 10km race which differed by only 1.4 feet, the Race Director determining that his measurer measured the shortest path, including all short cuts. This is how I've measured for some years but I expect that by trying harder I will find two out of the last three courses measured a bit short.

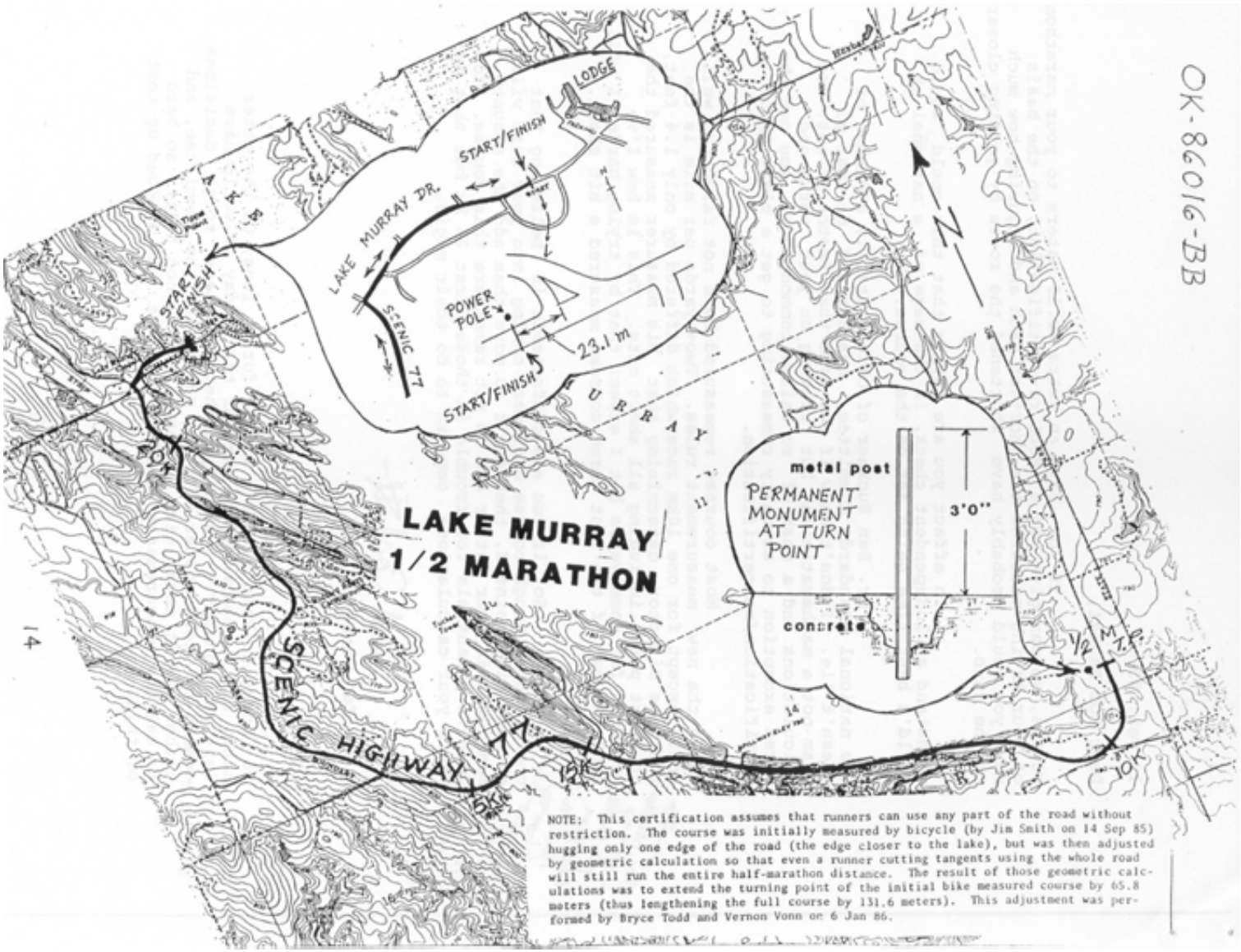
one recently was 379 yds shorter, another 100 yards shorter and another 40-45 yards shorter.

So, if you are comfortable in believing that one of those tough course measurers coming into your turf will go away disappointed, then don't do more than add the amounts mentioned in your letter and do not remeasure this course. You do have potentials for trouble in those first 25 km but that is where your calculations come in to do their magic.

Yours, Ted Corbitt

Ted Corbitt

PS: Sorry to keep you on a string for so long. On the other hand, had I responded any earlier than today it would have left you unhappy. I usually either put these tough decisions aside ~~which~~ or send copies to other members of the committee, and either way it takes time. I have learned not to try so hard to salvage measurements so often and that has speeded up most of this.


OK-86016-BB
LAKE MURRAY
1/2 MARATHON
LODGE
START/FINISH
LAKE MURRAY DR.
SCENIC 77
POWER POLE
23.1 m
START/FINISH
START FINISH
N
metal post
PERMANENT MONUMENT AT TURN POINT
3'0"
concrete
1/2 M.P.
SCENIC HIGHWAY 77
5K
10K
15K
NOTE: This certification assumes that runners can use any part of the road without restriction. The course was initially measured by bicycle (by Jim Smith on 14 Sep 85) hugging only one edge of the road (the edge closer to the lake), but was then adjusted by geometric calculation so that even a runner cutting tangents using the whole road will still run the entire half-marathon distance. The result of those geometric calculations was to extend the turning point of the initial bike measured course by 65.8 meters (thus lengthening the full course by 131.6 meters). This adjustment was performed by Bryce Todd and Vernon Vonn on 6 Jan 86.

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September 23, 1992
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Peter S. Riegel
3354 Kirkham Road
Columbus, OH 43221

Dear Pete,

I was interested in your comments about "reverse" blood doping. You report that your running was shot for about a month after donating a unit. I have given five gallons (40 units) of blood over a span of 25 years. Yes, I have noticed an effect but only for a day or two. Back when I used to do "speed" work I was gutting out 440s (Apologies to Bob Baumel but these really were 440s. Tracks in our region hadn't yet been converted to 400 meters.) and found myself really tired and unable to run the times I was used to running. After the workout I recalled that I had donated blood the day before. This is to point out that the effect was real and not mental. However, like I say, I've never felt an effect more than a day or two after a donation. I usually give blood when there are no races in the next few weeks.

A friend of mine, Dave Heck, who ran 16 straight Boston Marathons had been a regular blood donor for years with no effect. However, one year he donated in May (he always waited until after the Marathon) and found himself wiped out for about three months. He found his workouts hard. Eventually he was okay again but he didn't donate blood for several years after that. I believe once he started donating again he didn't have any reaction.

I am interested in this issue because I worked for many years on the development of IBM blood cell processing equipment and today serve on the Blood Services Committee of our local Red Cross blood center. We sponsor a "Blood Run" every year where the entry "fee" is a unit of blood -- which can be donated by someone else. Of course, the donation is not taken on race day! Most runners donate the blood themselves and I have not heard of adverse effects.

Blood donations are down throughout the country. This is partly due to an aging population. There also seems to be an unwarranted fear of AIDS. AIDS is transmitted between intravenous drug users through needle sharing. For each blood donation, a new, sterile needle is used. Therefore, there is no chance of contamination.

Since January I have been a platelet pheresisdonor. In this procedure I am hooked up to a machine for two hours during which time only my platelets are removed. The red cells, white cells, and plasma are given back. A person has enormous reserves of platelets. Since no hemoglobin is lost, there is no effect on ones oxygen-carrying capacity. In fact, a repeat donation can be made in three days whereas one can donate whole blood only once every 56 days. During one procedure 10 times the number of platelets in a single unit are collected. These are used to help patients who are having bleeding problems. Such platelets are better for the patient than pooled platelets from many units because there is less chance of reactions. I would encourage runners to consider plateletpheresis since platelet therapy can have a dramatic, positive effect on certain patients.

Alan Jones

The Athletics Congress of the USA

The Governing Body for Athletics in the United States including Track and Field, Long Distance Running and Race Walking for men and women and boys and girls at all age levels.

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8-31-92

VALIDATION REPORT
SALLIE MAY 10K
REFLECTING POOL 2KM LOOP

To Whom it may concern:

Validation of The Sallie May 10k (DC 85002 RT) and The Reflecting Pool 2k Loop (DC 88006 RT) were called for by TACSTATS and Steve Vaitones respectively.

While contacting Jane Sisco (Sallie Mae) and Sal Corrello (Reflecting pool) I was also in touch with Bob Thurston, Measurer for both courses. Bob offered his assistance in the validation of both courses and found a motel in nearby Bethesda,MD at reasonable rate and supplied very good directions to both the hotel and a rendezvous location near the Lincoln Memorial.

Arriving at the rendezvous point Friday 8/21/92,I was met by Bob Thurston and taken to a nearby area where we could parked cars. We then proceeded to the reflecting pool area, located a 500 meter calibration course, contained within the Reflecting Pool Race itself. We then both calibrated bicycles and proceeded to the start/finish point.

There was no discernible location to be found for either the start/finish or the 1k mark as these points are on an asphalt walkway, the 1k mark is not documented and the start/finish marked with paint had faded away. Neither of these creates a problem as the course is a continuous loop. However Bob assures me that he intends to relocate both locations from the validation data and issue a revised certificate. However the 0.5km and 1.5km points were painted on concrete segments and readily located. Bob and I agreed that the best thing to do was measure from the 0.5km point. He calculated the Jones counts for the start/finish and 1.5km points and stopped at those counts to provide data along the way.

Upon completion of a single ride around the reflecting pool loop we both re-calibrated and roughly calculated the course length. My data indicated 2004 meters and Bob's 2002 meters.

While following Bob over the course I noticed that he followed tight path around the course while I maintained a 30cm distance from turns. This in my opinion accounts for the 2 meter difference in our measurements.

Satisfied, we proceeded to the Sallie Mae 10k course. It should be noted that this and several other races utilize the West Potomac Park course (DC 95002 RT). and for some but not all, parking is cleared from Ohio Dr. near the start. In this area the course makes a 180 degree turn and parked cars were lined along the inside radius when the validation was conducted. Bob indicated that the course was measured along the curb and it was decided to measure around parked cars and deduct a value based on a 2.5 meter lane width. This accounts for a reduction of the course by 7.85 meters. Measurement continued around the course with no further problems and upon completion we returned to the reflecting pool 500 meter cal course, calibrated, and quickly determined course length. Rough determination for this course was 10014 meters while Bob Thurston came out to 10017 meters. These values being course length as measured.

This done, a steel tape check of the cal course was undertaken. For this, we used my 60 meter/200 ft. Irvin steel tape. I pulled and marked while Bob held the tail end. It was to both of our surprise when the course came to 499.93 meters. In light of this discrepancy and Bob having steel taped this course twice previously, we changed roles and measured back using new tape marks. For the second taping the course measured 499.995 meters. By now we were both scratching our heads and supposed the difference had to be the tensioning of the tape. Bob had brought with him a 60 meter tape of heavier sectional area that was marked with the proper temp. and tension. We used this and a tension scale to set out a quick 60 meter length near our parked cars. With this as a known, I pulled my Irvin tape in the same manner as I had previously. This was measured at 7.5 kg. and approx. 1cm. too long . Using this same method, a tension of 3 kg. was sufficient to gain agreement and this would also justify the difference when checking the 500 meter cal course. In conclusion, 500 meters was used as cal-course length.

I had also been informed of an age group mark the Army 10 mile course (DC91023RT). Bob was unable to assist with a re-measurement if this course due to a prior commitment but did spend a considerable amount of time going over the course and attempting to locate someone at the Pentagon associated with the race. Unfortunately no prior arrangements had been made due to the late timing, no one was available to assist and the course was complex enough that I felt unable to recreate without assistance. For these reasons a validation re-measurement was not done.

In closing, I credit Bob Thurston for his gracious assistance. From the planning to actual validation process, he greatly aided me in all areas.

Submitted,

Michael A Wickiser
TAC/RRTC VALIDATIONS CHAIRMAN

THE ATHLETICS CONGRESS
OF THE USA

Road Running Technical Council

WILLIAM D. GLAUZ
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October 8, 1992

Pete Riegel
3354 Kirkham Road
Columbus, OH 43221

Subject: Humana Prime Health Marathon/10K Certification

Dear Pete,

I received your letter and returned photos. We look forward to the next MN.

You said you had some questions, but I don't know exactly what they are. Thought I'd send some more info that may take care of them, but if not maybe we can talk. Enclosed is my spread sheet showing the data and calculations. It is laid out so as to simplify calculations, rather than in the order of the measurements. I have indicated the order of measurements in the left margins. You have my letter to McBrayer that tells some of the story, and the marathon course map, including check points "A" and "B". The 10K course you also have in your files, but it is the loop in the upper right corner of the marathon map. I've enclosed some sketches showing points A and B. To summarize:

The constants include the short course correction factor. We started at the desired finish line (of both races) and measured the 10K backwards. This was straight forward except for the inclusion of reference point A. Then we again started at the same finish line and measured backwards along the marathon route to mile 23, which was beyond point B (which we neglected to locate). We did not locate mile 25 at that time due to an on-the-fly decision on a course change which caused us some confusion because the preliminary measurements had it on a different street. Next, we went to point A and measured forward to the tentative turnaround, which turned out to be at about 15 3/4 miles. (This is segments 3A and 3B on the spread sheet.) Again, point B eluded my thought process.

Having established the tentative turnaround, it finally dawned on me that point B had not been located, so we could not "close the loop" on the total distance. At that time we went back to the 8-mile point and measured to point B. Then we measured the distance from this point to the previously measured 24-mile point. Then it was recalibrate, do the calculations, and adjust as necessary.

I have also enclosed a copy of our club newsletter, MASTERPIECES. I did this because Ridge Shannon, who did the photography, wrote an article (page 4) on the measurement process. Ridge is a runner and

journalist, but not an expert on course measurements. His article is fairly good, but not always exactly accurate, technically. It is for the layman. His descriptions of the mile marks were taken from my notes, but abbreviated in some cases.

Enjoyed your materials about the Honolulu Marathon. Haven't digested them completely yet, but appreciate that this business is not totally mechanical; we have to deal with people and approximations, but do this in the best way possible.

I was also struck by an interesting coincidence. You were delayed in getting to Hawaii by Hurricane Iniki. The day you measured, there was scheduled a 52-mile relay race on Maui, from the airport to Hana. (If you have been on Maui, you are probably familiar with the "road to Hana".) The race was canceled because most of the entrants were Hawaiians, who would fly in the night before or the morning of, but all aircraft were diverted to Kawai. However, some teams were there early, so ran the race for fun, anyway. One of these teams included Keith Raymer (spray paint), his wife Karen, another local measurer, and other loyal KC volunteers.

I drove the road to Hana in May of this year while on a week's R&R. Very eventful, as a young lady had slipped and fallen to the rocks below while taking photographs, and a helicopter rescue operation was in progress. Tragically, it became a body recovery operation, as she died from the fall.

A few other tidbits. I am very proud of the folks that have helped me over the years. Steve Ryan was head of the Wichita running club for years, until his job relocated him to Kansas City, where he has been an active contributor to the community. Jack Boyer is currently president of our running club, Mid-America Running Association, and counts among his accomplishments a coast-to-coast bicycle ride in 1991. Mary Edwards has measured many courses (you have her name in your files), did the Iron Man in Hawaii last year, and since helping on this marathon measurement, completed the Alcatraz triathlon, which she considers the toughest event of her career.

Sincerely,

Bill

William D. Glauz
Regional Certifier

Prime Health Course Measurements

	Counts			Distance			
Distance	Steve	Jack	Virginia	Steve	Jack	Virginia	Minimum
Constant	15275.0	15425.0	15382.0				
Finish	15000.0	35400.0	66611.0				
6	18264.5	38699.0	69905.0	0.21372	0.21387	0.21415	0.21372
A	18907.0	39349.5	70556.0	0.04206	0.04217	0.04232	0.04206
5	33539.5	54144.0	85305.0	0.95794	0.95912	0.95885	0.95794
4	48814.5	69576.0	100687.0	1.00000	1.00045	1.00000	1.00000
5K	62457.0	83369.5	114438.0	0.89313	0.89423	0.89397	0.89313
3	64089.5	85017.5	116080.0	0.10687	0.10684	0.10675	0.10675
2	79364.5	100455.5	131456.0	1.00000	1.00084	0.99961	0.99961
1	94639.5	115899.0	146851.5	1.00000	1.00120	1.00088	1.00000
Start	109914.5	131354.0	162264.0	1.00000	1.00194	1.00198	1.00000
10K				6.21372	6.22068	6.21850	6.21320
S - A				5.95794	5.96464	5.96203	5.95742
A	59000.0	81100.0	12905.0				
6	59642.5	81746.5	13550.0	0.04206	0.04191	0.04193	0.04191
10K	62907.0	85046.0	16839.0	0.21372	0.21391	0.21382	0.21372
7	74917.0	97174.0	28936.0	0.78625	0.78626	0.78644	0.78625
8	90192.5	112598.0	44319.0	1.00003	0.99994	1.00007	0.99994
8	8900.0	32400.0	63707.0				
B	12901.0	36439.5	67736.0	0.26193	0.26188	0.26193	0.26188
8	90192.5	12598.0	44319.0				
9	105467.5	28035.5	59703.0	1.00000	1.00081	1.00013	1.00000
15K	110371.0	32988.5	64638.0	0.32101	0.32110	0.32083	0.32083
10	120742.5	43470.5	75072.0	0.67899	0.67955	0.67833	0.67833
11	136017.5	58915.0	90447.0	1.00000	1.00126	0.99954	0.99954
12	151292.5	74353.0	105834.0	1.00000	1.00084	1.00033	1.00000
20K	157815.0	80935.5	112395.0	0.42700	0.42674	0.42654	0.42654
13	166567.5	89781.0	121206.0	0.57300	0.57345	0.57281	0.57281
1/2 MAR	168238.0	91466.0	122888.0	0.10936	0.10924	0.10935	0.10924
14	181842.5	105208.0	136575.0	0.89064	0.89089	0.88981	0.88981
15	197117.5	120626.0	151934.0	1.00000	0.99955	0.99850	0.99850
25K	205274.0	128862.5	160148.0	0.53398	0.53397	0.53400	0.53397
T.A.	208574.0	132196.0	163472.0	0.21604	0.21611	0.21610	0.21604
A - B				2.30389	2.30389	2.30419	2.30369
B - TA				7.48809	7.49164	7.48433	7.48373
Finish	10000.0	31300.0	62482.0				
26	13341.5	34678.0	65848.0	0.21876	0.21900	0.21883	0.21876
24	43891.5	65554.0	96658.0	2.00000	2.00169	2.00299	2.00000
23	59166.5	80976.0	112036.0	1.00000	0.99981	0.99974	0.99974
B	12901.0	36439.5	67736.0				
24	24498.5	48178.0	79410.0	0.75925	0.76100	0.75894	0.75894
B - F				2.97300	2.98169	2.98076	2.97800
Marathon	(=)	26.21876		26.21610	26.23348	26.21564	26.20658
Short				0.00266	-0.01472	0.00312	0.01218
Feet				14.020	-77.746	16.465	64.320

(S-A) + (A-B) + (B-TA)×2 + (B-F)

MARATHON COURSE MAP

S: 10'10" W of 3rd pavement joint W of W edge of middle drive to MRI.

F: In line with E rail to MRI main entrance 9' E of pavement joint opposite W rail to MRI main entrance; 13.7 meters W of Start.

TA: 14'3" W of E edge of drive at 10404 W 87th, W of Stearns St.

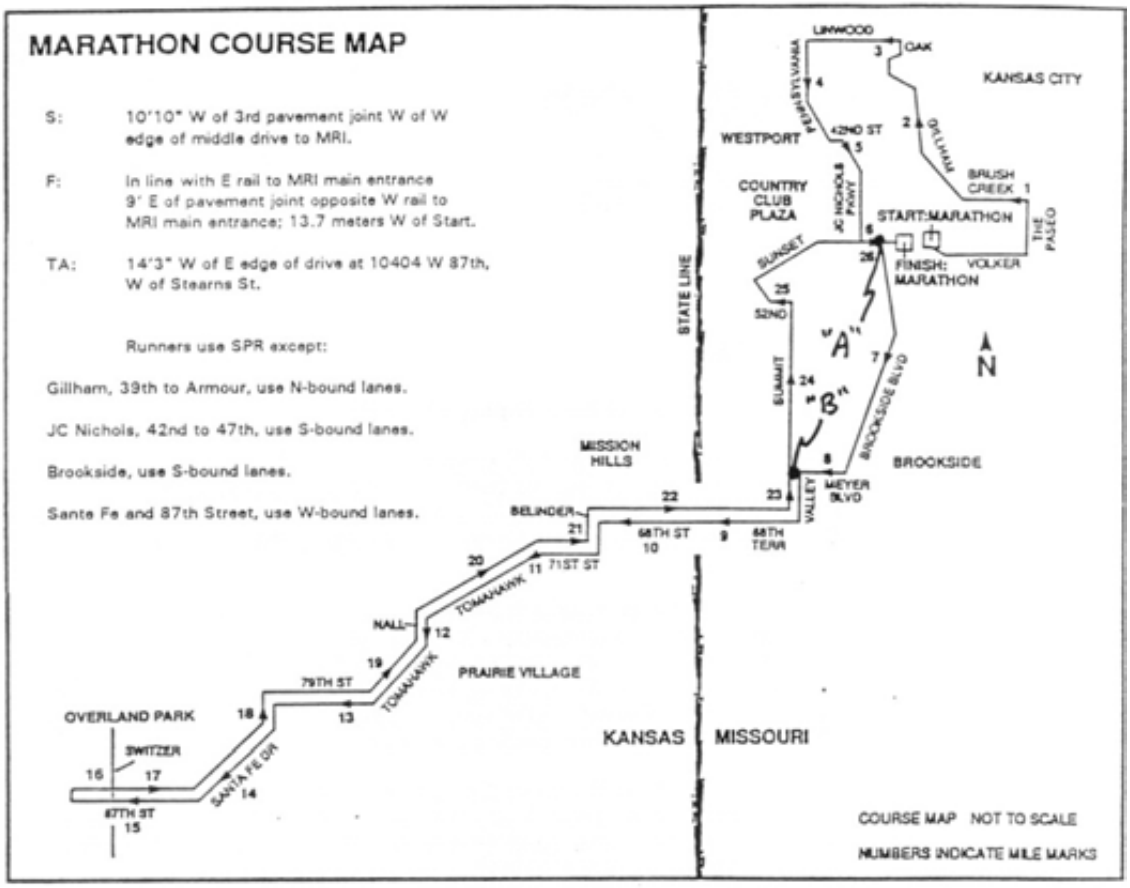
Runners use SPR except:

Gillham, 39th to Armour, use N-bound lanes.

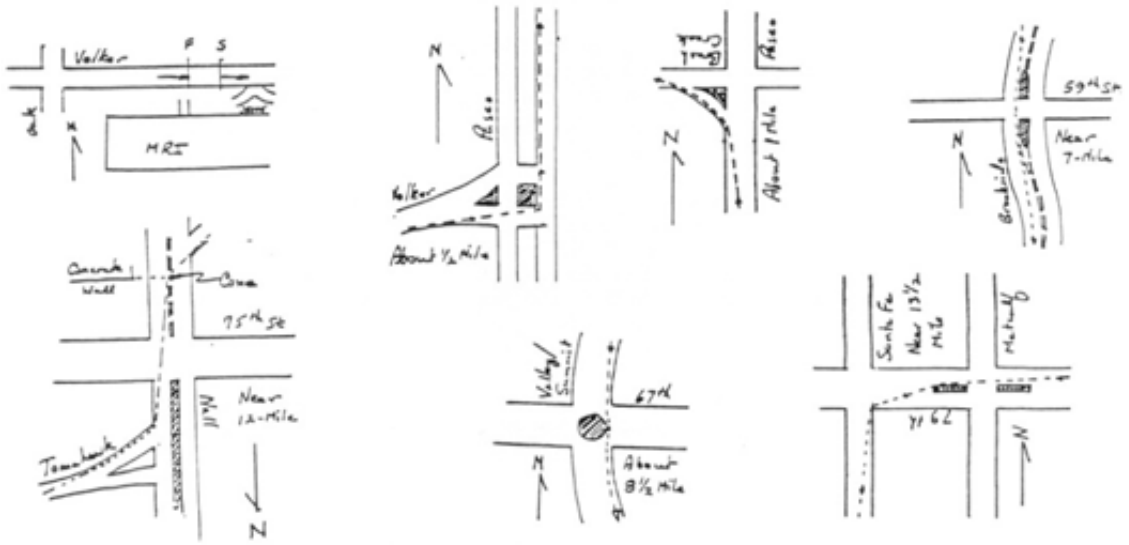
JC Nichols, 42nd to 47th, use S-bound lanes.

Brookside, use S-bound lanes.

Santa Fe and 87th Street, use W-bound lanes.



PRIME HEALTH MARATHON (MO92018BG) W.D.Glauz 8/12/92



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1992-09-26

Pete Riegel
3354 Kirkham Road
Columbus, OH 43221

Subject: **Response to Sermon on Taping Procedures**

Pete, you've been saying for years that we should simplify the taping of calibration courses. You were saying it before our 1989 rewrite of (the relevant portion of) the *Course Measurement Procedures* book. Now, you're still saying it after that rewrite. There are many reasons why it would be wrong to simplify the procedures as much as you seem to want.

Perhaps the "standard" argument is that attention to accurate taping procedures helps the prospective measurer develop a healthy respect for accuracy (whether or not this precise level of accuracy is truly necessary in the calibration course). If we simply told the measurer "Go out and measure a calibration course with steel tape" (with no guidance on the finer points of taping), it might inspire a lax attitude that would carry over to all subsequent cycling procedures.

That may or may not be true. However, I would like to make a number of other points that are more evidently true: First, our current steel taping procedures are, in several important ways, *already* a good deal simpler than in the days of Ted Corbitt. Second, it's not always true that "the inaccuracy inherent in the bike method is an order of magnitude greater than the errors in taping." Third, a discussion of accurate taping procedures definitely belongs in our *Course Measurement* book because occasions do arise when we want that extra accuracy (e.g., when taping a calibration course in a *validation*, or when taping a *track*) even if it isn't always needed in routine calibration course layouts for certification.

I will elaborate on some of these points. But first, let me say that I agree with you on one important matter. We do have a problem involving calibration course layout: Many measurers really **are** petrified, and as a result, often unnecessarily seek the services of a surveyor. However, while I agree that this problem exists, I think you haven't correctly identified its cause.

You seem to think that the problem is the apparently nitpicky array of procedures ("fineline pens, masking tape, force gauges and thermometers") detailed in the book. In reality, these procedures aren't difficult for any reasonably intelligent person. Moreover, many of these procedures are now optional (for example, you can say you estimated the tape tension "by feel;" you can dispense with temperature correction if it's warmer than 20°C; and even when it's cooler, you have a choice of using the table on page 13 or the equation on the *Steel Taping Data Sheet*).

What is it that really scares people away? I don't think it's the instructions. What **really** tends to intimidate people is the wording on **Application Forms**. And in this case, the biggest culprit is just three words at the end of question 7 on the

Application for Certification of Calibration Course. This is where it asks for the "**Credentials or Experience**" of the measuring team leader.

When you think about it, this question is designed to scare away first-time calibration course measurers. If you've never taped a calibration course before, and you don't have any surveying experience, then you *haven't got* any "Credentials or Experience." Maybe you can write something that sounds good if your line of work happens to be a technical (science or engineering) field. If not, your only choices are to lie or to seek the services of somebody who does have "Credentials or Experience" (most likely, a surveyor).

I recall that when I began my measuring career, Ted Corbitt's old forms initially had me intimidated about calibration course taping. This was because: (1) Ted's instructions said to use a **calibrated** steel tape—and a question on the application form asked about calibration of the tape; (2) The application form asked what previous experience the measurer had in tape measuring.

Nowadays, we have dropped all mention of "calibrating" the tape. (Thank goodness!) Unfortunately, we still have the question about "Credentials or Experience." If we truly believe that measurers can tape their own calibration courses instead of having a surveyor do it, we must drop this question about "Credentials or Experience."

You seem to be ridiculing our instructions about "fineline pens" and "masking tape." However, in my experience, I was *extremely thankful* when I (finally) learned about the "ball-point-pen-on-masking-tape" method of marking tape lengths, mainly because it's so much better than all the less satisfactory methods that I had tried previously. Let me recount some of that experience:

My original introduction to the Calibrated Bicycle Method came from an April 1976 *Runner's World* article by David Senechalle. That article spoke of marking tape lengths by sticking pieces of adhesive tape to the road. However, it didn't say anything about writing marks on these pieces of adhesive tape.

I measured one of my first calibration courses using Senechalle's method. In fact, I used pieces of masking tape! But instead of writing marks on the masking tape as we do now, I used *one edge* of each piece of masking tape to define the end of each steel-tape length. Unfortunately, after completing that measurement, I found myself having nightmares. (What if the rear tapeman was using the South edge of each piece of masking tape while the lead tapeman used the North edge? Then each 30 m tape length would be off by the 5 cm width of my masking tape!)

To avoid these nightmares, I experimented with other methods of marking tape lengths. In some measurements, I drove a nail into the road at the end of every tape length. Considering that these nails never ended up at exactly the intended points, I even did a measurement where I used a center-punch to mark the exact point within each nail head where the tape length ended. Clearly, this seems a bit excessive. (Also, driving nails into the road isn't very practical on *concrete* road surfaces.)

Ted Corbitt's old instructions advocated using a *red pencil* to make marks directly on the road. I tried this method, also. It works on some road surfaces (if the surface isn't too coarse). In any case, you need to have a pencil sharpener with you, because you break an awful lot of red pencil points!

Finally, around 1982, I received some instructions from Ted Corbitt that mentioned the possibility of using "masking tape and ball point pen" as an alternative to the

red pencil. When I saw this, it was a revelation—an "AHA!" experience. At last, here was a quick, easy, and accurate method that wouldn't generate nightmares and would be usable on all paved road surfaces. (The only limitation of this method is that the masking tape won't stick if the road is extremely wet—which is a restriction we can usually live with because none of us really wants to go out and get our steel tapes all rusty on such days.)

The ball-point-pen-on-masking-tape method was further refined some years later when Bob Letson came up with the idea of *pre-numbering* the pieces of masking tape before tearing them off the roll—thus, greatly increasing the reliability of counting tape lengths. (This was first published in Dec '85 *MN*, and is now described on page 12 in the 1989 edition of *Course Measurement Procedures*.)

We would be doing measurers a terrible disservice if we simply ask them to tape calibration courses without letting them in on this wonderfully simple and reliable method of marking the tape lengths.

You also spoke derisively about "force gauges." For the record, let me observe that our *Course Measurement* book never uses the term "force gauge." It does refer to a "spring balance" (whose use is strictly optional) and suggests buying "the type sold in sporting goods stores for weighing fish." It's true that a genuine surveyor's force gauge would make the job easier, but those old force gauges are real dinosaurs. They're hard to find, and very expensive if you do find one. Surveying equipment dealers say they never sell them any more because accurate steel taping is a dying art (at least among US surveyors), given the availability of EDM. (Maybe RRTC measurers are now more knowledgeable about accurate taping than the average American surveyor!)

How big are the errors in steel taping as compared with the bicycle procedure? Let's start with steel taping: My surveying textbook says that in "ordinary" taping over smooth, level ground, the accuracy generally ranges from one part in 3000 to one part in 5000. To make this still more quantitative, I believe that by following the careful taping procedures in our book, we reduce the error to 1/5000 or less (maybe approaching 1/10 000 under ideal conditions); however, if we don't pay attention to accurate taping procedures, the errors are around 1/3000 or greater.

As for the errors in cycling, it is very common to obtain relative consistency between multiple rides in the range 1/5000 to 1/3000 (see, for example, my Fujitsu validation report in last *MN*). It's true that relative consistency isn't the same as accuracy, as you can be extremely consistent about riding a path that differs significantly from the SPR. But among skilled, experienced riders, the relative consistency is probably a pretty good indication of the accuracy (although I admit that variations in road surface increase the error somewhat).

In any case, I think I've shown that errors in taping are often of the **same** magnitude as errors in cycling. Reducing the cycling error requires development of skill in riding the SPR. We definitely need to concentrate in that area. But we can reduce the taping error below around 1/5000 very easily by just following a few accurate taping procedures. It makes sense to do this, to *insure* that the dominant errors really come from the bicycle procedure rather than the calibration course taping. If, on the other hand, we allow rough taping of 1/3000 accuracy, then the error from the calibration course alone is 1/3 of the short course prevention factor, which seems a bit close for comfort.

You say that we've been successful in generating courses that pass validation. But

how accurate are the validation measurements themselves? We assume that validation measurements are accurate to 1/2000 (because we'll fail a course if the validation says it's short by more than 1/2000). Given that we want this accuracy in the measurement, and knowing that at least half of the error will probably come from the cycling part of the procedure, we should certainly strive for an accuracy of 1/5000 or better in the calibration course used for a validation.

Thus, we certainly need accurate taping procedures for measuring the calibration course used in a validation. To achieve this, the accurate taping procedures must be described in a document that is easily accessible to any measurer who might do a validation. The logical place to have such instructions is in our *Course Measurement Procedures* book, whether or not all these procedures are required in all routine calibration course taping.

What changes should be made in the book's material on steel taping when we next revise it? As mentioned earlier, the most important change is to delete the line about "Credentials or Experience" (of the measuring team leader) in the *Application for Certification of Calibration Course*. As for the instruction portion of the book, the section on calibration course layout in the 1989-revised version (pp. 9–14) is admittedly long, but everything there serves a good purpose, and I don't think any major changes are needed. (I do think we need a few minor changes on page 14, as described below, due to better understanding of the "skinny" tape problem.)

The first three pages of this section (pp. 9–11) cover layout and certification requirements and basic taping technique. The next three pages (pp. 12–14) cover ways of handling the four main sources of error in taping: Counting the tape lengths, knowing the true zero point, temperature effect, and tension effect. These are discussed in basically decreasing order of importance, so a reader who doesn't make it all the way through this section still gets the most important information.

Of these four effects, the first two (tape length counting & zero point) were also mentioned in your letter and *obviously* need to be covered. The other two effects (temperature & tension) are certainly smaller; however, as explained earlier in this letter, they need to be in the book because they should certainly be accounted for in validation situations and track taping.

It's less necessary to account for temperature and tension effects in most ordinary calibration course layouts. But note that our 1989 version of the instructions has **already** made these corrections almost entirely optional. Use of the spring balance **is** already strictly optional. And the temperature correction is optional when it's warmer than 20°C. We do still require temperature correction when it's cooler than 20°C. Should we eliminate this requirement also? I don't think so. Taping at temperatures cooler than 20°C makes the course come out short by a readily calculated amount. Since this shortness can be calculated, it is also easily corrected; surely, it makes sense to apply this correction as a prevention against course shortness.

Temperature corrections should certainly be applied at very cold temperatures; for example, at 0°C the shortness due to this effect alone is nearly one part in 4000. We could conceivably decide to lower the cutoff temperature below which temperature correction is required (say, from 20°C to 10°C), implying that we'll tolerate *some* amount of shortness due to thermal contraction if it's small enough. But this makes the procedure unnecessarily confusing and arbitrary. It's simpler to leave the cutoff at 20°C, which is the point where the temperature correction changes sign.

Turning now to the section on tape tension, the table at the bottom of page 14 needs

to be revised by eliminating its fourth line which specifies the extremely light pull of only 20 N (≈ 2 kgf ≈ 4.4 lbf) for nylon-clad steel tapes. As I have abundantly explained, that tiny tension figure applies *only* to certain tapes made in Japan in the early 1980's. It doesn't apply to tapes made in Japan more recently (which now take standard international 50 N tension). It doesn't apply to nylon-clad tapes made elsewhere. (For example, nylon-clad Rabone-Chesterman tapes made in England are advertised as taking a hefty 70 N pull.) It *certainly* doesn't apply to lightweight steel tapes in general, as Wayne seemed to have mistakenly surmised. Considering that the tiny 20 N tension applies only to an extremely limited set of tapes, it's probably best not to mention it at all.

We also need to change the first sentence in the paragraph immediately above the tension table, which now reads: "To find the correct tension for **your** tape, check any literature that came with the tape, and check all markings embossed on the tape." This should be shortened to: "To find the correct tension for **your** tape, check all markings embossed on its blade." Tension figures marked directly on the tape blade seem to be quite trustworthy. However, as we've seen in the case of Lietz tapes sold recently, the specifications printed on other literature accompanying the tape are more likely to be out-of-date.

Best regards,

Bob

cc: Wayne

Recycle the Cycle OR The Cycle Recycle OR Wheel of Fortune

When I found what it would cost to refurbish my faithful all terrain bike, I decided it was replacement time. A Specialized Hard Rock 21-speed with rapid fire shifters and quick release everything made me feel like a kid at Christmas. But I really hated to part with the old one, especially since I had worked so long to come up with the right combination of tire size and pressure to give me 10000 counts/kilometer. Having used a crude hand wheel from time to time and recalling Wayne Nicoll's infamous "Nicoll Wheel," I put a fresh blade in my hack saw.

First I removed the rear brake lever and both shifters from the handle bars. With two saw cuts on the frame directly behind the head tube — that's what the fork and handle bars fit into — I had my "Two-cent Wheel."

One additional step was to convert to a solid tire. I used a local industrial tire service that filled the tire/tube with a polyurethane elastomer called "Tyrfil." This liquid compound cures in 24 hours to a soft resilient rubber-like core. It's used primarily on off-the-road applications — forklifts, back hoes, etc — and it's very heavy. You probably wouldn't want to use it on your bicycle, but it works great on the hand-wheel.

I've mounted a counter and have used it on several occasions: once in a park where bicycles were banned; another time to approximate a wrong turn-short course on race day; and as a quick way to adjust splits and transfer distances. You can use it "two-handed" style or rotate the handle bars 90° for a one-hand-on-the-brake technique.

A word of warning: If you operate in public, get ready for a flood of jokes like, "Where is the rest of your bike, Buddy?"

Tom McBrayer
Western Vice Chairman

Advertisement

Texas Gulfcoast Business & Industry

KIT FORBYCE, Editor

Industrial Tires promos no-puncture process

Say the forks start lifting or the dozers start digging at 8. Mountains have to be moved by noon. A big crew of men must swing into action after the machines are through. A tire blows. Now . . . what time is it?

"It's downtime," answers George Martinez of Industrial Tires of the Gulf Coast. "It's the time for work to stop, men to mill around while the tire is fixed — and money to go down the drain.

"But there's a way to keep this from happening again," he promises, "and that's to call Industrial Tires for our Tyrfil protection that'll put an end to flats forever."

Industrial Tires of the Gulf Coast specializes in filling pneumatic tires with a Synair product called Tyrfil. It consists of a liquid mixture used to inflate the tire cavity instead of air. In 24 hours, Tyrfil cures to a soft resilient rubber core that renders any tire puncture-proof for as long as it's able to keep your equipment rolling.

"Any off-the-road tires that are candidates for frequent flats — like the ones that run on the docks, scrap yards or construction sites — need Industrial Tires' Tyrfil treatment," insists Martinez. "Forklifts, small earth moving equipment, site-bound pick-ups — even golf carts and lawn mowers — are just some of the vehicles that can ride comfortably on Tyrfilled tires. And we've worked on them all."

He further wants to reassure potential customers that Tyrfilled tires ride the same, retain the same dimensions, remain at the same pressure, won't ruin the rims, and are capable of being recapped just the same as when they were inflated with air.

Industrial Tires offers other tire services, too, especially for solid core and press-ons. The firm maintains two large presses at the shop and operates a mobile press for on-the-job repairs as well.

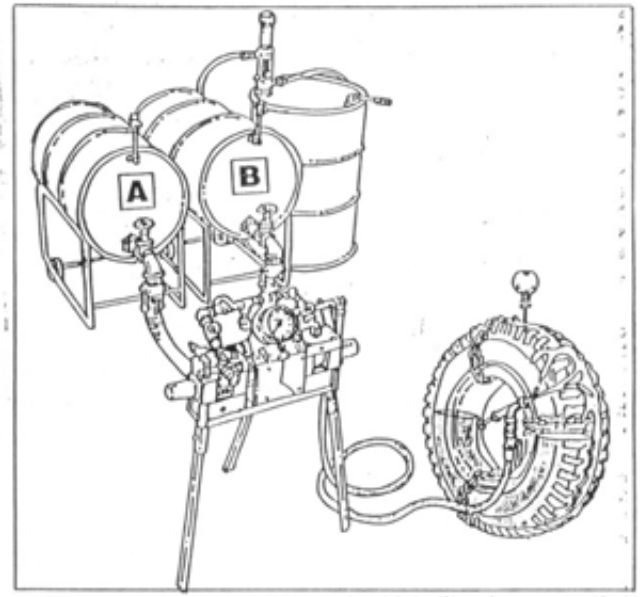
"When our customers have tire problems, they know they can count on us to be there pronto," Martinez continues. "Not only are we 'on call' 24 hours a day, our service extends to Saturdays and Sundays with no additional overtime charge. And our pick-up and delivery is always free.

"And when we're asked to assess a faulty tire situation, we'll tell our customers, up front, what the options are. If the situation is hopeless, we'll say so. If it's serious but salvageable, we'll save as much money on repairs for the customer as we can," he goes on.

Industrial Tires is family owned and operated and backed by the owners' 50 years of combined, industrial tire experience.

To obtain all the details about Industrial Tires' Tyrfil process and other service capabilities, call 928-6453. The company is located near the Gulf Freeway at 3016 Telephone Road.

713-928-6453



Fixing a flat on an off-the-road vehicle like the one on the right, can be cost-prohibitive after it happens time and time again. But Industrial's Tyrfil service (diagram at left) eliminates the problem for as long as the tire is useable.

Anatomy of a course TAC Certification

Photos and story by Ridge Shannon

Mary Edwards gives instructions to Steven Ryan during measurement of Humana Prime Health Marathon and 10K Run. In the background are Virginia Nied and Jack Boyer.

"TAC Certified" is the Good Housekeeping Seal of Approval for a road running course.

Few race directors exist who would jump in a car, drive until they had 6.2 miles or 3.1 miles or 26.2 miles registered on the odometer and call it the respective kilometer course.

Few runners exist who don't care that the 5K they are running is 2.9 miles or 3.4 miles. The reverse is true. If there is the slightest hint that the course falls short or is too long the cry goes out for the director's hide. If it's a marathon that hide is nailed pronto to the side of the barn for all to see.

"TAC Certified" means just that. The Athletic Congress certifies that the advertised distance is precise.

Well, how do you get a course certified? It takes hours--no, days--of work, leg work and mental work.

Let's take a case in point: The Humana Prime Health Kansas City Marathon and 10K.

Committee planning to change the courses began over a year ago. After a hiatus for the 1991 running of the marathon and 10K, planners returned to the drawing board. After months of clearing a proposed marathon route through Kansas City, Mission Hills, Prairie Village, Leawood and Overland Park through the various local governments, the committee arrived at a course which would start and finish at the Midwest Research Institute, on 47th Street across from the Nelson Art Gallery, and would incorporate the 10K as part of the first six miles.

Now, after months of committee meetings, driving over a number of proposals, cajoling some apprehensive local law makers and their police and safety directors, only then was the course ready for certification.

Enter Bill Glauz.

By the token of his long experience in directing and measuring courses TAC named him its certifier of all courses in Kansas and Missouri, a responsibility he's had since 1985, and in which time he estimates he has certified 30 courses a year, or about 210 to date.

It may be of some help, too, that he has a PhD in engineering, and just incidentally works for MRI. One of the early members of the Mid-America Running Association. Glauz also is a biker.

In this instance Glauz wore two hats, that of supervisor of the courses' actual measurement and as the TAC certifier. Asked if he could be criticized for conflict of interest, he produced a copy of all his calculations, a summary of the conclusion of the certification, all of which was passed on to the TAC hierarchy. Here he explained that he answers to Tom McBrayer in Houston, Texas. McBrayer is one of two TAC officials (one, west; the other, east) in the U.S. responsible to Pete Riegle, who oversees all TAC course certifications from his office in Columbus, Ohio.

Jack Boyer, left, listens to instructions on how to ride the next mile from Bill Glauz.

But we're getting the finish before the start of the race. With what amounted to a rough outline of where Humana Prime Health wanted its marathon and 10K to run--and with hard-earned approval from the communities they would run through--the actual certification work began.

Keith Raymer now came

into the picture. It was incidental that Raymer is this year's Humana Prime Health co-director with Bob Hickman. Raymer has worked a number of course measurements for certification in the past. Glauz borrowed a "fifth wheel" from MRI, and, in Raymer's truck, they went out and drove the proposed course. Glauz underscored that "car odometers are notoriously inaccurate." (The fifth wheel looks like a bicycle wheel. It attaches to the rear of a vehicle. MRI uses it in road surveys, usually for the government. Glauz said it is very accurate--he did not add, "for government work"--but it is unacceptable for course certification.)

The 10K course proposal was about a quarter mile short. Back to the drawing board. That consumed the better part of the day. Then a turn around point for the marathon faced concerns, traffic on 87th Street and getting close to entering Lenexa and another governmental body to clear. Extended meetings with Jack Boyer came up with several alternatives all of which would have to be taken into the certification measurements.

All agreed on Aug. 9, as M-Day. Glauz spent at least two hours prepping for measurement day. Six o'clock Sunday morning the course measurement team reported to supervisor Glauz, in the dark, in front of MRI. There would be three bicycle riders. Steve Ryan would be the lead rider, since he, too, has had considerable measurement experience and has worked with Glauz before. Jack Boyer, veteran rider and also knowledgeable about these matters, and Virginia Nied, also a veteran rider, but measuring her first course, rounded out the threesome. They would have special measurement devices on their front wheels.

Keith Raymer marks the start line with a PK nail while Mary Edwards watches.

Why three riders, why not one, or four? Glauz answered, "I wanted three (riders) minimum. You have to have two independent measurements to go through the certification process. If you start the process and then midway through, say, one of the bikes blows a front tire you've totally lost that (measurement)." Glauz would have preferred to have four, and "five would have been icing." Glauz admitted one rider could do a 5K or 10K simply measuring the course twice in two rides, something not practical for a marathon certification. (He noted that for something like the Olympic Marathon Trials you might have as many as eight or ten riders, mostly because people are eager to help.)

Mary Edwards, the chief architect of the Humana Prime Health proposal and another old race and biking pro, would be Glauz's right-hand woman. Keith Raymer, involved from the virtual beginning, would provide key assistance. The Kansas City police assigned officer Joe McCune in a squad car as a safety outrider for the measuring caravan consisting of a pickup, a car and three bike riders.

But first there was the critical matter of calibrating the Jones Counters on each of the bikes' front wheels. The Jones Counter is a simple counter device which attaches to the front wheel hub and clicks off so many counts per revolution with a number display.

Glauz explained, "The purpose of the calibration is to determine for that bike and that particular rider, exactly how many counts does that counter create per kilometer or mile."

This morning Edwards measured a flat stretch 881 feet long on the sidewalk in front of MRI. Ryan, Boyer and Nied then pedaled the distance six times each. Each counter's reading was averaged for the six passes. "That told us exactly how many counts of that (Jones) counter would be created for every 881 feet. We could multiply that and expand it to see how many counts we needed per mile or kilometer." Glauz continued his explanation.

With the calibration completed, Glauz then calculated what lead biker Ryan's Jones Counter should read at the end of the first mile. Each mile would be measured along with every five kilometers, so those calculations needed to be made beforehand to mark the appropriate kilometers.

Each bike started with a "constant," that is, the number of clicks each bike required to measure a mile. Ryan's was 15275.0; Boyer's was 15425.0. Nied's, 15382.0. It did not matter what each Jones Counter read at the beginning, by adding each of these "constants" to the start reading you got one mile.

Why was each different? The counter, rather the front tire, can be affected by such things as tire pressure, the weight of the rider, and how the rider pedals. Glauz pointed out that if the tire is "flatter," perhaps from lower pressure, a heavier rider, or a rider who constantly leans up over the front tire "flattening" it more changes the circumference of the tire, and thus more or less clicks to the

Steven Ryan shields his notes from the light rain.

mile.

He noted a common factor, "If the calibration course happened to be on a slight grade, you would notice a difference between the number of counts going uphill and downhill. Because going uphill you will tend to lean forward and going down hill you would lean back."

A headwind can be a factor if the rider leans forward to pedal harder which, Glauz said, "You could get a difference of one foot per half-mile, 52 feet, in a marathon. Not a whole lot, but we try to minimize. It's a big enough number we can notice it."

Glauz stresses that each bike is totally independent, all numbers and computations run independently. "Their numbers will differ, but their distances, after they are all calculated, should come out very close."

A last minute briefing from Glauz went to the measurement team, a refresher for Ryan and Boyer, a first-time lesson for Nied.

Glauz emphasizes safety for the rider. "Everything else I tell them is secondary. They have to watch out for their own safety." The secondary is that the idea is to ride the bike in as straight a line as possible, to cut the corners as tightly as possible, to measure the shortest possible route. Boyer interjects, looking at Nied, "ride comfortable so you won't wobble. Ride where the runners will go." Glauz states it, "And that's--in the terminology of the trade here--the S.P.R., shortest possible route. Get from Point A to Point B legally, by cutting all the tangents, not going a foot farther than possible."

He explained that legally means not running over curbs--he chuckles--or don't cut through back yards. "You stay within the confines of the quote-unquote 'course', which is usually defined by curbs, corners, whatever else defines the roadside."

Sometimes, the shortest possible route, Glauz said, is also limited by things like being able to use only the north bound lanes of the road. Then the center line becomes a boundary. So on race day they make the center line a physical barrier by putting up cones or barriers.

The Sunday morning measurement ride is about to begin. It's almost light, 79 degrees, breezy and humid. A few drops of rain fall. "We're on the trailing edge of a front that stretches from St. Joe to the Lake of the Ozarks," observed Ryan, an avid balloonist, too, who follows the weather knowledgeably.

Raymer and Edwards unilaterally marked a start point (it'll be adjusted definitely later) with a spray of bright blue paint. Raymer fruitlessly tries to pound a case-hardened P-K nail into the pavement fearful the rain may wash away the paint before it dries. He finally finds a receptive spot.

The first six miles went relatively smoothly, although the rain had graduated from a mist to a spray.

Glauz, Raymer and Edwards constantly coached the riders who return queries with questions. Glauz to Nied: "Do you have a good picture of the next stretch in your head?" Ryan to Edwards: "Hey, Mary, move your car." Edwards had pulled over to the left side of the road where Oak goes into Gillham to protect the riders on the tangent. The car was in Ryan's way as he started out on the next mile measurement.

The certification requires permanent landmarks--or as permanent as possible--to pinpoint where each mile or appropriate kilometer is, including the start and finish. That measurement was Edwards responsibility.

A mile mark went down "between the second and third tree from the corner of 41st and Gillham." Glauz duly noted it, squeezed in with his conferring with the riders, recording their Jones Counters numbers and literally calculating the next move.

There was a certain amount of good natured bantering going on. Edwards suggests a special loop for out-of-towners to go by Bob Berdella's house on Campbell just off Gillham. It had been the scene of serial killings.

At Brush Creek/46th and the Paseo Boyer and Glauz discuss the tangent. Glauz and Boyer don't agree. Nothing serious. It was a bit of confusion

Mary Edwards uses her two hands to the maximum measuring the mile marker distance from the manhole cover.

because, the riders were tracing the route backwards to go with the traffic for safety's sake. (First concern: safety.)

By 8:45 the rain is steady and straight down. Mary protected her measurings and writings and paintings with an umbrella. The caravan travelled on Summit approaching 58th. Edwards spotted a bicycle rider, "There's a guy riding in the rain intentionally. What a crazy guy."

Glauz's concern for safety for his riders came up on Brookside. "Here's where it get's treacherous." He referred to the "soft curves" going up Brookside and the riders had to take the S.P.R., meaning they would be riding a lot against the traffic.

The survey crew didn't have much contact with the silent escort, officer Joe McCune. He'd done his duty quietly and efficiently while in Kansas City. When the crew crossed Stateline and stopped at Mile 10, McCune had followed until the stop for comparing of Jones' Counters' figures. He stopped and watched. He and Glauz talked briefly. He got lots of thanks all around and he commented as he headed back to his jurisdiction, "I've learned a little bit today." (The other jurisdictions did not provide police protection for one reason or another. The measuring crew was on its own the rest of the way which Glauz, Edwards, Raymer, Ryan, Boyer, and Nied emphasized among themselves, and repeatedly.)

A minor glitch happened at the 15K mark. Lead rider Ryan missed his predetermined counter reading and quickly stopped, locked his wheel, and shouted back for Boyer and Nied to stop right where they were. Ryan remained seated, feet on pedals, as Raymer grasped the handlebars and pushed bike and Ryan backwards, taking "clicks" off the counter until they got the correct reading. For the 10 or 15 yards he missed, Ryan could have pushed himself backwards, but did not want to change the weight on the bike or "the round" of his front tire.

Everyone's curiosity rose as they speculated where the 12 Mile mark would come. Preliminary calculations at 11 Mile indicated it might come in the middle of the intersection of 75th and Nall. They collectively sighed in relief when the 12 Mile came some ten yards south on Nall.

At this point Glauz chaired a mini-conference on the turn from Nall onto Tomahawk sighting the angle the runners, and thus the riders, would take. Since the runners would be returning this way a traffic island would affect the return run so all was worked out to everyone's satisfaction, S.P.R., coming and going.

Everyone readily agreed that the 13.1 mile point should be marked, obviously because this was the halfway mark.

By this time the riders and outriders were on Santa Fe going into 87th,

four lanes with traffic picking up. The rain, by this time, had stopped and the clouds were giving way to blue. This part of the certification was over. A pit stop at a Seven-Eleven and back to MRI. It was 12:15, over six hours and a few minor loose ends to tie up yet. The bikes would be recalibrated as a double check, for one thing.

However, there were still the all-important calculations to determine if the course were accurate. (Edwards and Ryan would later ride the marathon course another time locking down mile marks, but the certification measurements were complete.)

More numbers crunching time for Glauz and these were just as critical. With each riders counter readings for each mile he applied the formula S.P.R. As an example, at what was computed before hand to be the first mile Ryan's counter recorded the smallest number, hence the shortest route. Boyer's counter was 120 clicks higher and Nied's was 88. Thus it went mile by mile and 5K by 5K.

Lead Rider Ryan's figures established that the course was 14 feet short. Nied's, however, figured that the course was 16.5 feet short. Glauz decided to move out the turnaround 8.25 feet. (Glauz pointed out that Nied's counter, in the final-miles measurements, consistently produced the "shortest possible route." Glauz said this was evidence that Nied had caught on quickly to taking the shortest ride.)

In addition to measuring the marathon, 42,295 meters or 26 miles 385 yards, TAC requires as part of the certification adding 1/tenth of one percent to the distance, or roughly 42 meters or 150 feet, to assure the curse is not short. (Glauz explained that TAC certification is concerned with a course being at least "its advertised distance," for record setting purposes.)

A meticulous Glauz included in his calculations something not required by TAC, but suiting his engineering training. It was a "sum-of-shortest splits." The cross check suggested that the marathon course could be 48 feet short. Not so, because an interim measuring point had not taken into account that marathon runners coming back from the turn around would cross four, 12-foot lanes of Meyer Boulevard. Glauz found the missing 48 feet. As he succinctly wrote to his TAC boss, Tom McBrayer, in his letter certifying the courses, "Has to be a remarkable coincidence."

McBrayer's response was highly complimentary of Glauz's work and concurred with his calculations and findings. McBrayer's stamp of approval was pro forma to the procedure. Glauz had certified the courses with the completion of his computations and his letter of acknowledgement to McBrayer. The Humana Prime Health Marathon and 10K course descriptions went in TAC's computer record of certified races.

You now can run the Humana Prime Health Marathon on Oct. 25, set a national, world, or age record, or qualify for the Boston Marathon. You at least know that you have run an accurate 42,195 meters or 6.2 kilometers...plus 1/10th of one percent.

TEN YEAR LIMIT ON CERTIFICATIONS COMING?

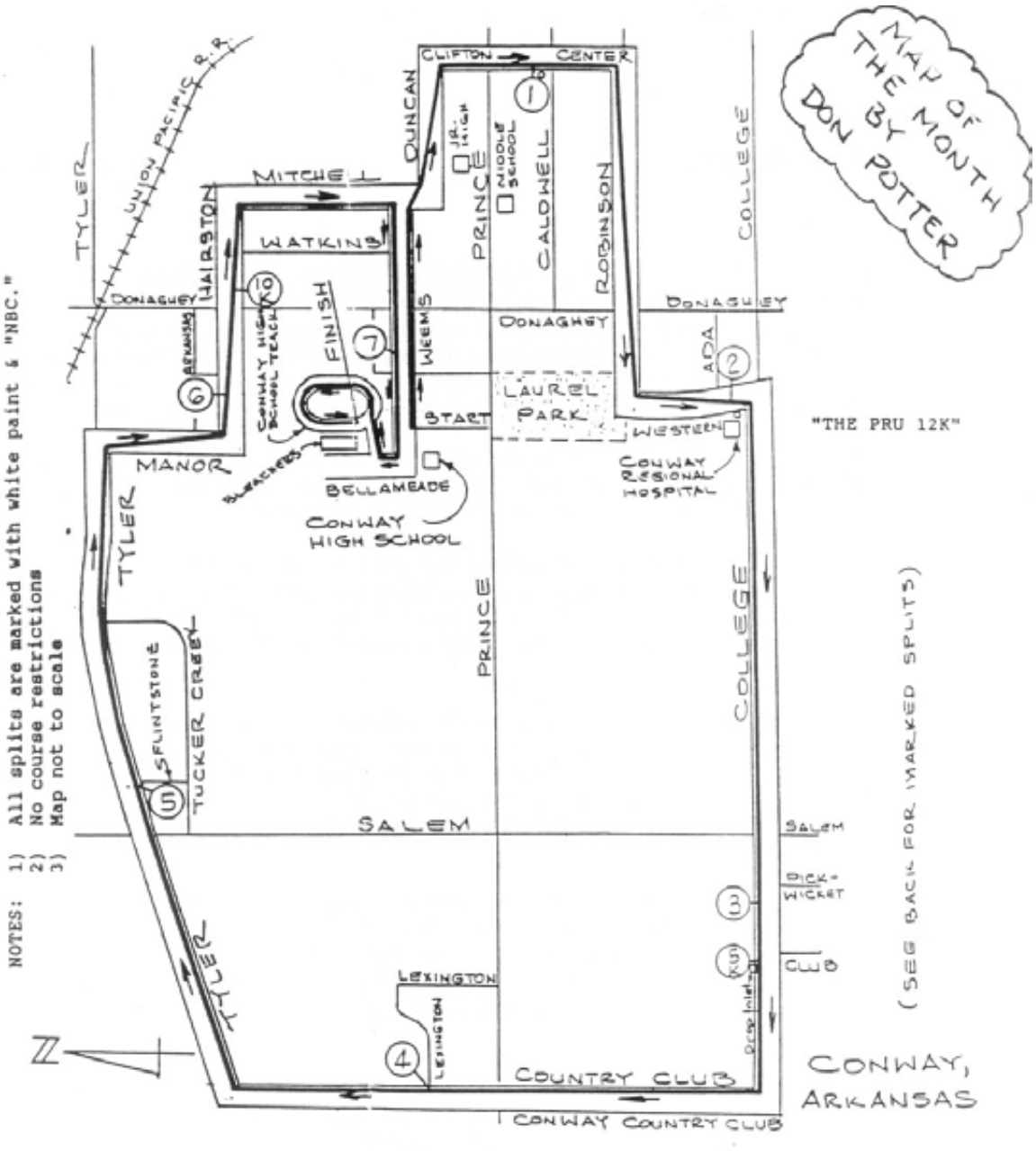
At the TAC Convention, one thing we will discuss is the idea of a limited life for certifications. We have always adhered to the idea that a certification is good as long as the route has not changed. The trouble is, we have no way to know whether an old course is still in use. People ask for and obtain course lists, and they continue to grow, getting more and more full of courses that are obsolete. In the list it is common to find several versions of the same course listed. It's generally assumed that the one with the latest certification date is the proper one, but we cannot be certain whether the others are ever used or not.

We have a space on the certificate for the certifier to list "Replaces_____." and some certifiers use this space. Others do not, because they may have no way of knowing whether the new course is intended to replace an old one.

I propose a ten year life for certifications. If this comes to pass, next year the 1982 certified courses will disappear from the current listings (but not from the archives - all will remain retrievable). Thus next year's lists will include 1983 to 1993. In 1994, 1983 will disappear.

I'm certain that a very few courses may live unchanged longer than ten years. If this is the case, the race director or measurer must inform us that the course has not changed and that the landmarks needed to locate critical points are still in place. The course will be given a new number and will begin a new ten years of life. Realistically, this will not often happen.

This is intended to solve the problem of fat course lists full of deadwood. It does so, but may not be the only way. Please let Pete know what you think about this, especially if you will not be at the Convention to speak on the issue at the RRTC meetings.



"THE PRU 12K"
Marked Splits

Start - In line with the west double chain link fence gate post, on the north side of Weems St. and the 2nd gutter downspout from the west corner of Conway High School Auditorium on the south side of Weems Street.

1 Mile - 3.8 ft. north of center of power pole.
2 Mile - 10.5 ft. north of center of light pole.
3 Mile - 18.8 ft. west of west edge of house at 2909 College.
5K - 26.5 ft. east of center of drop inlet.
4 Mile - 5.2 ft. north of center of south grate drop inlet at the intersection of Country Club and Lexington.
5 Mile - 27.1 ft. west of contraction joint at the center of Flintstone.
6 Mile - 20.7 ft. east of west edge of house at 2119 Hairston.
10K - 17.2 ft. east northeast corner chain link fence at 2029 Hairston.
7 Mile - 2.4 ft. east of east edge of house at 2136 Weems.
Finish - White painted dash line on the Track and even with the south edge of the Track bleachers.

Pete Riegel

September 29, 1992

Dear Pete,

Glad(?) to hear that Ohio's non-advertisement/publicity regarding course certification is the same as in Florida. Overlooking the free public relations and credibility value by not mentioning TAC certification is a promotional mistake. One may recall the Olympic-rings symbol this summer— advertisers paid dearly for the right to use that image. Road races have something vaguely similar with TAC's symbol. The symbol, though, and TAC itself, apparently is held in little esteem by the running community.

Possibly, the public relations evil's root lies at the national level with TAC. The name itself leaves me cold. The letters "TAC" holds about as much publicity and charisma value as wind-driven rain storms five minutes before a race.

Your letter commented that "today there are fewer false claims about certification... this is good." I wonder if this sequence is explained in your next paragraph: "the fact that arithmetic skill is not universally possessed by the public." Possibly fewer false claims relates to lack of arithmetic skills... runners unable to calculate their running times and averages.

I did not know if I should laugh or cry concerning your comment about "the proliferation of income-tax preparation companies." "[It]...attests well to the idea that many people find written instructions and arithmetic to be a daunting procedure." You're right, Pete, most runners cannot calculate their pace per mile. I find that apparent in our small running group; the sad part... several are teachers in the school system!

A magazine article about "Course measurement made simple" has more probability of being published. My recent query to Runners' World was slanted toward technical mechanics. Likely this contributed to its rejection. Maybe the message goes further and addresses our measurement procedures... they are a daunting "user-*un*friendly" task. Except for arithmetic or engineering enthusiasts: the complex procedures exclude the entry-level person.

Lastly, Measurement News is an exceptional publication for disseminating our gospel. Though MN hits only 120 Americans, the publication provides significant leadership. I'd guess that only 20 people read it with religious fervor. Another 50 give it a casual glance, and the remainder may not pick it up. A news/advertising strategy to lead readers to stories inside: a remake of the front-page. Add a table of contents or something similar with headlines or pull-quotes that pique reader interest... leading he or she to stories inside. Another suggestion: place the most important story on the front page tagged to a bold headline.

Best regards,

Ed Okie

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FOR UPS OR FED-EX DELIVERY ADDRESS TO: 1355 COUNTRY OAKS BLVD

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Road Running Technical Council
Peter S. Riegel, Chairman

614-451-5617 (home)
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FAX 614-424-5263

September 29, 1992

Ed Okie - PO Box 448 - Lake Wales, FL 33859

Dear Ed,

I agree that the TAC acronym is not universally beloved in the road running community. After all, it's highly political (The Athletics Congress, get it?) and who loves politicians? Still, nobody's yet figured out how to live together without government. Road running grew with few rules except those of fair play, and these were relatively well-understood by the participants. As the sport grew, and running media came into existence, they began to compare performances at different races. This led to fame for the runners who were fast, and to the prize money and awards structures that we have today.

Today we have a system of records that strives to recognize demonstrated excellence. Its credibility requires that performances be compared to a uniform standard. Application of the standard will inevitably reject some performances that may have already been publicly reported. This can, and does, lead to resentment against those who enforce the standard - in our sport, that's TAC. It's TAC's job to see that the sport is kept fair.

One way to eliminate the resentment is to eliminate the standards. This would bring back the good old days that so many remember with nostalgia, when nobody asked awkward questions. Short courses, bad timing, excess aid, cheating - none of these were problems in the good old days because few took the time to really think about them. Unless a course was short enough to be ludicrous, a time was accepted as it was reported.

When Ken Young began keeping road records, he recognized that bad timing and short courses were relatively common occurrences. I cannot speak for his state of mind, but I suspect that his pride of craftsmanship forced him to produce the best product he could. I know that this attitude is held by his successor, TACSTATS. There is a great amount of work involved in record-keeping. Competent people cannot sustain high interest in their work if they know the end product is mediocre. Good workers have high standards.

The easiest way to keep records is to simply list the best times that are reported, anywhere by anybody. This might be a popular approach - I don't really know. One thing for sure - the records would be a lot faster than those we have today. There have been "marathons" run in 2:02 or less.

The work of assuring credibility in road running is done by people who work under the TAC emblem, and their standards are high. This means that when something isn't right in a potential record run, it is not recognized as a TAC record. This has caused some fast times to be denied record status. The fans may be puzzled when the record is not accepted, because they saw it on TV at a famous race, done by a famous runner. How could it not be a record? The TV commentator, surely an authority, said it was one!

While I'm not intimately familiar with the record-keeping process, I have some familiarity with that of course measurement. Your comment that the

measurement process is not "user friendly" is apt - many people find it hard to do, in spite of great effort we have made to get it as simple as possible and still do the job. On the other hand, I see many first-rate submissions from first-time measurers who bought Course Measurement Procedures, read it, and followed the instructions correctly.

The lowest common denominator is not a good standard to use if you are seeking a good product. I sometimes get submissions from people who obtained xerocopies of the forms, never read the book, asked questions of the wrong people, and proceeded to make an absolute botch of their measurement. If I am gentle with them, I can sometimes get them to improve. Sometimes they get cranky with me, because they think we should be awarding certificates simply for trying hard.

Yes, I admit to an elitist bias in course measurement. I don't know the academic qualifications of more than a handful of measurers, but I have seen lame work coming from people with advanced degrees and good work coming from those less formally educated. I respect good work more than academic degrees, and I think this view is pretty common among measurers. The good measurers take the time to do it right, and have little respect for those who simply try to slide by with the least they can get the certifier to accept.

Those measurers who are respected in this game are those who do a good job at it. Some are certifiers, some are not. Most certifiers have a pretty good idea of which of their measurers are really good. There's a lot of correspondence between certifiers and measurers (it's not all in MN, but be assured, word gets around), and some people enjoy a reputation that comes from solid achievement. Others are known for slipshod work. You won't see the names of the sloppy folks in MN, but they are the ones who don't get recommended when somebody calls for the name of a measurer to do a job.

We want the measurement process to be as simple as it can be while getting the job done. If some people think it is too hard, we are open to suggestion. It's not our goal to create busy-work for people, but to assure that TAC certified courses are accurate. Any constructive criticism is welcome.

Your comments on the format of MN are on the mark. There are numerous computer programs that would permit me to make a prettier publication out of MN. I have elected to stick with the present format because I feel that there is more variety in a newsletter that has each contribution in the same form that its author thinks best. The reader does not need to plow through 50 or 60 pages of the same typeface.

I collect letters and write short pieces as time permits, and as deadline approaches, I start shuffling things on the kitchen table, and cutting and pasting. Some thought is given to arrangement. The final layout is a compromise between my time and my energy, and what I have on hand for newsletter content. It's not intended to be a magazine, but rather an informative vehicle for all the certifiers and those people interested in what's going on in course measurement. Without letters from certifiers and measurers MN would die a speedy death, having nothing inside except course lists and boilerplate.

You and others who send in opinions are what keep MN going. Hearty thanks.

Best regards,

FINISH LINES

Finish Line Sub-Committee
Alan Jones, Chairman
3717 Wildwood Drive
Endwell, NY 13870
(607) 754-2339
November 1992

The Chute Worker Instruction Sheet

I have been asked several times if it wouldn't be possible to create a one-page instruction sheet which could be handed to chute workers on race day. The following is not the completion of the task but a first pass. This is for a single-chute race with no swing gate. Comments welcome.

Finish Line Assignments

Printing Timer -- Push Button

Name: _____

You will push the button on the grip-switch when the race starts and then every time someone crosses the finish line -- even if not wearing a number

Printing Timer -- Keyboard

Name: _____

You will record as many bib numbers as possible. These are used to resolve differences problems such as unregistered runners. We want quality -- not quantity! That is, when a person is not near another or is at the head of a pack, record the number. Type in the number as the runner approaches the finish line and **press ENTER as the runner crosses the line.**

Note: There should be at least two printing timers.

Call out Times

Name: _____

You will stand next to the person with the tic sheet and call out times whenever someone is near the finish line.

Tic Sheet

Name: _____

Your sheets are printed with all the possible times in the race. Write in a bib number of selected people as they cross the line. Don't worry if you miss a number of people in a pack. Get the first one in a pack and runners not near other runners.

Finish Judges

Names: _____

Your job is to make sure runners enter the chute in the same order that they cross the finish line.

Chute Workers

Names: _____

Your job is to keep the finishers moving in the chute so that it does not back up. You might have to be very forceful.

End-of-Chute Assignments

Call out Bib Numbers

Name: _____

As each runner emerges from the chute, you call out the bib numbers. Do not let anyone get past you until you have called out the number.

Tear-Tag Collectors (2)

Names: _____

Collect the tear-tags **one at a time** and **place them face-down on the stringer.** One of you collects them and hands them to the other who strings them.

Bib Recorder (2)

Names: _____

As the runners emerge from the chute, write down their numbers in order on the sheets provided. **Your writing must be legible.**

Runner

You will take the sheets from the finish line to the computer for entry. Be sure to get: (1) both printing timer tapes, (2) the tic shet, (3) the stringer of tear-tags, (4) both finish order sheets from the Bib Recorders. You will be doing this continuously as the sheets are completed.

IN MEMORIAM

R O N D A W S 1937-1992

Former U.S. Olympic Marathoner Ron Daws has died at age 55.

Daws once served as Chairman of the Road Runners Club of America Standards Commi The RRCA Standards Committee, established in 1964, was mainly concerned with the certification of accuracy of long distance race courses. Course certification als facilitated the administration of the RRCA's Standards Certificates Program. In the latter, three running performances, at different distances, in specified times, earned a runner an RRC Standards Time Certificate.

Eventually, the RRCA Standards Committee, plagued with minimal cooperation from road race directors, went out of the course certification business, and the Amateur Athletic Union (AAU) Standards Committee, chaired by Ted Corbitt, of New York City, took over the whole program of course certification in the U.S.A. This AAU Sub-Committee on Standards was originally set up to certify National AAU Junior and Senior Championship Courses, and to improve the lot of long distance runners. Toda this combined effort continues to evolve and to advance the cause of accurate race courses as the Road Running Technical Council (RRTC) of TAC/USA.

Ron Daws was born June 21, 1937, in Minneapolis, MN. He died in 1992, as the Barcelona Clympic Games were getting underway, of advanced coronary disease. He reportedly was a non-smoker, was never overweight, and had no family history of heart disease. However, he had not felt well during the last two months of his li

In 1960, Daws graduated from the University of Minnesota, where he was a teammate of Buddy Edelen, who in 1963, set a world best marathon time of 2:14:28, and who finished sixth in the 1964 Tokyo Olympic Marathon race. By 1969, both Daws and Edelen were serving on the AAU Sub-Committee on Standards.

Daws worked as a Research Analyst for the State of Minnesota, and later he lectured on running. Daws got married and had several children. He was once married to marathoner Lorraine Moller, age 37 (competing for New Zealand) who copped the bronze medal in the 1992 Barcelona Olympic Marathon, just after Daws die

Highlights of Daws' running career included the following: Daws helped to start a regular long distance racing program, and to start accurate race course measurements in the State of Minnesota. He ran his first marathon in 1963, in 2:41. His career best was 2:20:23. He finished in the top ten in the Boston AA Marathon four times. Daws broke American track records for 15 miles and for 25 Kilometers.

Daws built a treadmill in his basement to get in some sensible workouts on cold Minnesota winter mornings. He won the 1967 National AAU Marathon Championship on a brutally hot day, on a hilly course, and he made the Pan Am Team. In 1968, he journeyed to high altitude in Colorado and made the U.S. Olympic Marathon team. However, attacks of sciatica affected his performances in both the Pan Am and the Olympic Marathon races.

His hobbies included photography, painting, and playing the guitar. He spent a lot of time making, alterning, and repairing running shoes.

Daws was an active running enthusiast from early childhood until he "cashed in his chips" (to use one of his favorite expressions). In recent years, he continued to run, but his main competitive fires were quenched doing cross-country skiing.

We who remain, can say a prayer for Ron Daws' spirit, in appreciation of his efforts to keep the momentum of the emerging course measuring movement alive. He did this at a time when it was very difficult to find volunteers to do these kinds of behind the scenes, unsung tasks.

New York City, New York

09/14/92

Ted Corbitt

Ted Corbitt

PETE RIEGEL, CHAIRMAN — TAC *ROAD RUNNING TECHNICAL COUNCIL*, COLUMBUS, OHIO

Measurement News

Oct 1, 1992

Dear Pete,

Intriguing TAC-certification feedback came by fax today from a fellow runner. He is one of few measurement enthusiasts in our area. His other hobby is running a marathon in each of the 50 states—47 is the current tally. And as Pete's-rule-of-thumb suggests about runners and their ability to calculate times... he is an arithmetically-literate CPA.

"For us slower runners, accurate times are our only measure (of performance). A winner gets rewarded whether or not the course is accurate. We can only compare times. Course accuracy is a must."

Across my years of running, I failed to recognize this sobering standpoint—and it rings with a chapel-bell's clarity.

His words are disquieting: ***"Winners get rewarded... regardless of the course"***

Hindsight tells me that the above can happen in reverse. Example: Early in her senior year, a local high school girl set a personal record (PR) over a 2-mile course. As the season progressed, qualifying for the state finals was this senior's last opportunity, and she was one of my favorites. At the two-mile distance, she was the area's best runner; not a world-class athlete, but an extraordinary runner. She was a person with a soul who craves achievement. And if she complains, complaints are tempered with silence.

Yet, after the initial PR, matching that time proved elusive during the races that followed... races traveling across paved, smooth, flat surfaces. Within a string of indifferent performances slowly emerged one thread of reason: The alleged PR came on a decidedly hilly, grass textured course. And firmly ingrained in her mind—*the PR was valid*. When additional training led to less than record equalling times... she understandably became discouraged. Nothing would work, and her race times slowed as the burning flame of ambition flickered in those final months.

She would not have been a likely state champion Nonetheless, a person with extraordinary talent was the victim of theft.... someone ran off with her soul.... she was a short-course victim. Her anguish was understandable. And I was too late with the revelation.

Here's another story that rips at this issue's heart One of the most accomplished high school coaches in our area at a large school alludes to using a short course (3-miles boys, 2-miles girls)... "because it makes the kids feel good if times are a little fast."

I wonder how these students react when they go off to college and face a 5,280-foot mile? I'm sure it is humbling.

If coach Vince Lombardi of the Green Bay Packers were alive, and running the topic, my guess is his oft-quoted "winning isn't everything..." phrase would change to, "Course accuracy isn't everything... it's the only thing."

Ed Okie P.O. Box 448 Lake Wales, Florida 33859 (813) 676-1374

PROPERTIES OF CERTIFIED COURSES

In May 1989 I did a breakdown of certified courses to see what their properties were. Of 2210 courses analyzed, I found that 88 percent were standard (drop less than 1 m/km, separation less than 30 percent). Another 3 percent did not have excess drop, but had separation more than 30 percent. 7 percent had excess drop.

Since then an additional 3500 courses have been certified, bringing the total of certified courses to just over 10,000. We removed tracks and calibration courses from the list, and also those courses previously listed by NRDC (pre 1987), since drop and separation are not listed for those courses. This left 6235 courses. Results of the breakdown are shown on the graph below.

As before, 90 percent of US courses are record-quality. Another 3 percent can be record quality if no tailwind occurs during the race. 7 percent are downhill and unsuitable for records.

The USA's steepest courses are:

Steepest downhill - "Dixie 15 km Tune Up" (UT 89003 FH) in St George, Utah, with a drop of 30 m/km, or a total drop of 450 m (1480 ft).

Steepest uphill - "Climb the Mountain" (CO 92015 DP), a 5 miler in Golden, CO, with a drop of -66 m/km, or a total rise of 531 m (1740 ft). It would be interesting to see this one run in reverse.