

MEASUREMENT NEWS



July

1990

Issue #42



The TAC/IAAF International Measurement Seminar was held on June 16-17, 1990. People came from many places to participate. Left to right, standing in street: John Disley (Great Britain), Sally Nicoll, Tom McBrayer, Joan Riegel, Bernie Conway (Canada), Bob Baumel, Tom Knight, Amy Morss (holding Hannah Morss-Fish), Pete Riegel. Standing on curb, left to right: Scott Hubbard, Mike Wickiser, George Tillson, Jay Wight, Bob Thurston, Doug Loeffler, Wayne Nicoll, David Fish.

Inside this issue you will see the preliminary results. Data is still sifting in, and September MN will have a comprehensive wrapup of the event.

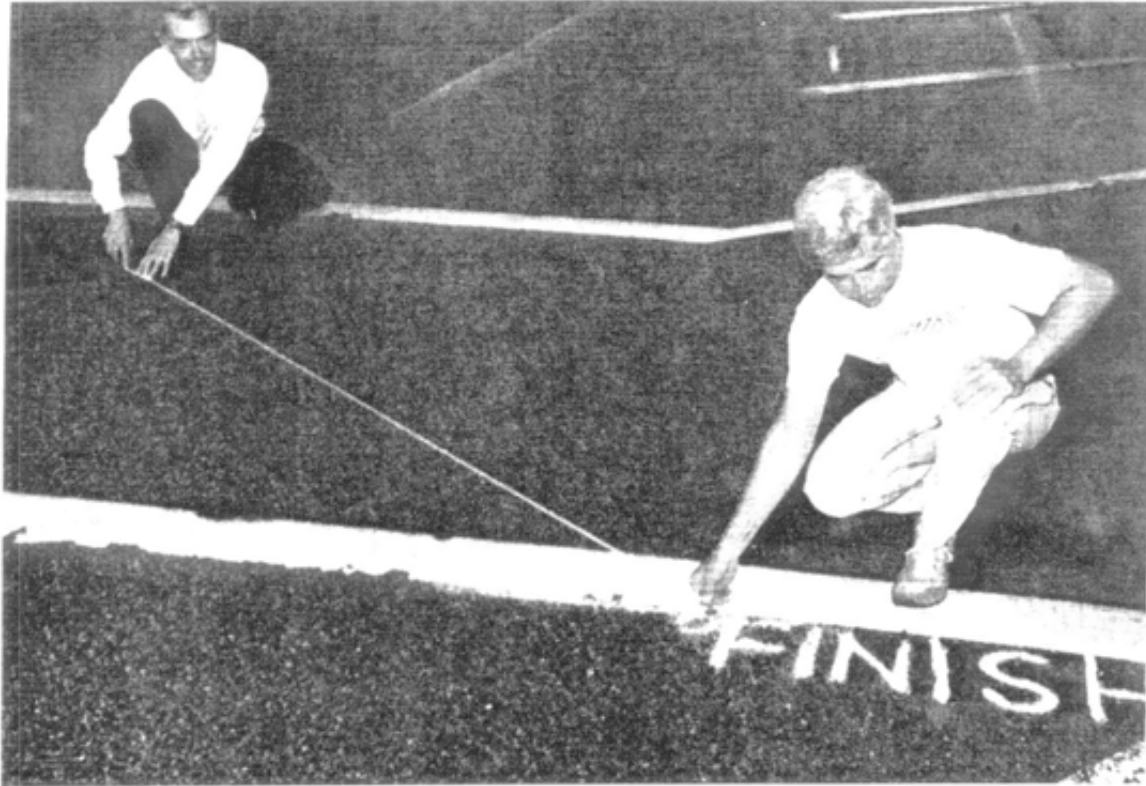
MEASUREMENT NEWS

#42 - July 1990

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NEW APPOINTMENT

Bob Harrison has been appointed as TAC/RRTC certifier for Mississippi. He will serve an apprenticeship under Wayne Nicoll until fully qualified as a national certifier (final signatory).



By JAY SAILORS/Staff

Bob Harrison, left, Ernie Smith check out the course measurements at finish line for Saturday's Jubilee Run

Jubilee course certified

■ Bob Harrison and George Nelson make sure the course meets the standards of The Athletic Congress

By JOHN REIMER
Advertiser Sports Writer

The 1,000-plus runners who gather for this weekend's Jubilee Run and Lightning Route Run will cover courses certified to be accurate in distance.

Thanks in large part to the efforts of Bob Harrison and George Nelson, 16 race courses in Montgomery, Millbrook and Prattville are Athletic Congress certified. Harrison estimates that 90 percent of the courses in the Montgomery area, ranging from one-mile to a half-marathon, are TAC certified or have been accurately measured.

Nelson measured the 8K Jubilee Run course for certification. Harrison measured the two-mile Lightning Route Run course for certification. Both courses are TAC certified.

"Montgomery is fortunate to have professional and responsible race directors that want their races run on accurately measured courses," Harrison said. "My attitude, and TAC's attitude, is when a runner pays an entry fee he's entitled to an accurately measured course."

Harrison is one of six Alabamians who measured courses for TAC certification in 1989, when a total of 23 Alabama courses were certified. Harrison did the measuring for 11 of those.

Nationally, 314 people measured courses for certification in 1989. Harrison is one of 25 people who measured 10 or more courses during the year.

"A lot of people have helped me," Harrison said. "Every one of the race directors has been willing to help me. Ernie Smith and Bill Myrick have helped me more than anyone."

The measurer's tools are a bicycle, a Jones counter that is mounted on the hub of the bike's front wheel, a 100-foot steel tape,

a thermometer, notebook and pen, pocket calculator, concrete or masonry nails, washers, hammer, spray paint and masking tape.

It's an unusual assortment, but this task has detailed requirements.

"You don't have to be a rocket scientist to go out and measure a course for TAC certification and do a good job at it," Harrison said. "Lots of study, combined with good preparation and the ability to concentrate on detail are needed. Anybody who makes up their mind to can do that."

There are seven basic steps involved in measuring a course for TAC certification. They are:

- Using a steel tape, an accurate calibration course of at least 300 meters is laid out on a straight stretch of paved road, preferably level and relatively free of traffic.

- The bicycle is calibrated by riding it over the calibration course, taking care to ride in as straight a line as possible. Four calibration rides must be made immediately prior to measuring the race course. The working constant is the number of counts per kilometer or per mile multiplied times the short course prevention factor of 1.001.

- "TAC is very short-course conscious," Harrison said. "They want to be sure any course is at least the stated distance. An expert who remeasured a course laid out by a novice would generally find it to be a bit shorter than the novice thinks it is. Seven out of 10 courses remeasured come out to less than 1.001 times the stated distance. Without the short course prevention factor, they would have measured short."

- The bicycle is ridden over the course following the shortest possible route available to the runner on race day. At least two measurements are required for certification. The first measurement is used to establish tentative start and finish marks. The second measurement is used to check the distances between those same two marks.

- The course is measured by riding the bicycle over it following the shortest possible runnable route. Two measurements must be made with a difference of no more than .08 percent. If the difference is more than that, a third measurement must be made.

- "If you enter a right-hand turn and exit a left-hand turn you must ride a diagonal from curve to curve," Harrison said. "On straightways, you must ride one foot from the apron of the curb. In a turn, you must ride one foot from the curb. If there is no curb you must ride one foot from the edge of the road. In a turn, if there is no curb, you must ride one foot from the edge of the road."

- The bicycle is recalibrated by riding it over the calibration course four times immediately following the measurements.

- The proper measured course length is determined by recalculating each measured distance using the constant for the day.

- The final adjustments to the course are made. If the proper measured length differs from the desired course length, either the start or finish must be adjusted.

- Finally, the proper application, forms and field notes must be submitted to the regional TAC certifier.

Harrison said the entire process takes eight to 12 hours to complete. Harrison, for one, believes that work makes running a more enjoyable for its numerous participants.

"The reason I got started is I thought it would be a way to give something back to a sport that has given me so much," he said. "I thought I could enhance the overall quality of an already good service in the Montgomery area."

"For a runner to get his name in the Alabama state record book, the runner must run his time on a TAC certified course."

"Approximately 90 percent of state records are held by runners in the Huntsville area. Our race directors in Montgomery are submitting data on these TAC certified courses to our state record keeper in Huntsville. As a result, we are constantly getting our runners in the state record book."

The 12th annual Jubilee Run and Lightning Route runs will be Saturday. The 8K begins at 7:30 a.m. and the two-mile at 8:45. An awards ceremony will be held at 9:30 at Riverfront Park.

The pre-registration entry fee is \$9 and the day-of-race fee is \$12.

Entries are available at *The Montgomery Advertiser*. More information is available by calling Jim DeBortoli at 269-1663, or John Snead at 834-4836.

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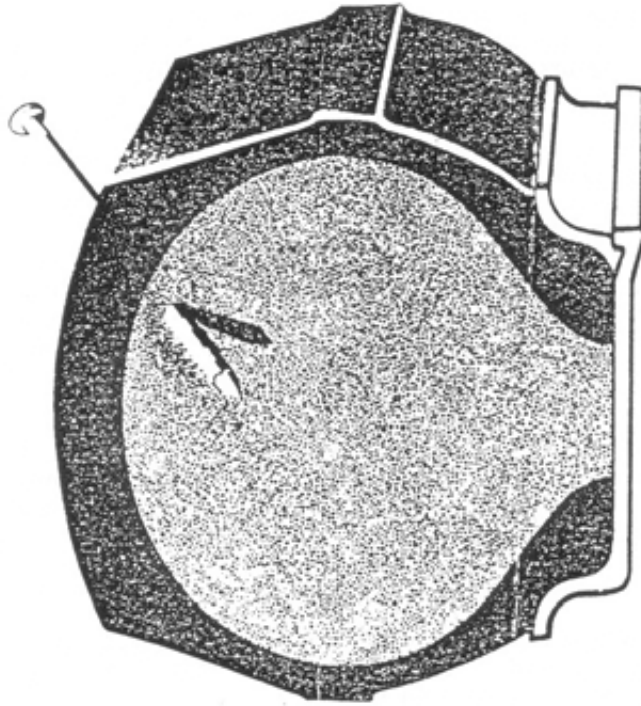
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MEASURERS

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Rate

INTERNATIONAL ROAD COURSE MEASUREMENT SEMINAR

International Amateur Athletic Federation (IAAF)
The Athletics Congress (TAC)

Columbus, Ohio - June 16-17, 1990

Twelve of North America's most experienced course measurers (11 Americans and one Canadian) came to Columbus this June to be examined for elevation to "IAAF approved measurer" status. The seminar, organized by Joan and Pete Riegel of TAC (the US member of IAAF), was centered around a 5 kilometer race course laid out in West Jefferson, Ohio, on roads at the recreational facility of Battelle Memorial Institute.

The course was laid out to include some deliberate errors. The measurers' job was to act as though an important record had been set on the course, and to determine its length. When they were done with that, they had to figure out what should be done to fix the course, so it would be correct for the next race.

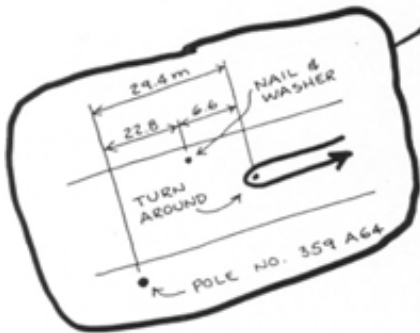
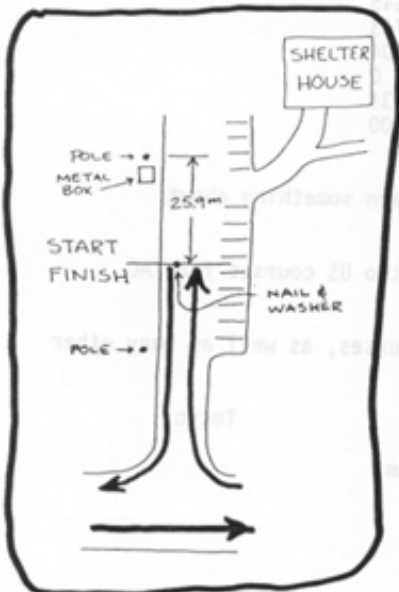
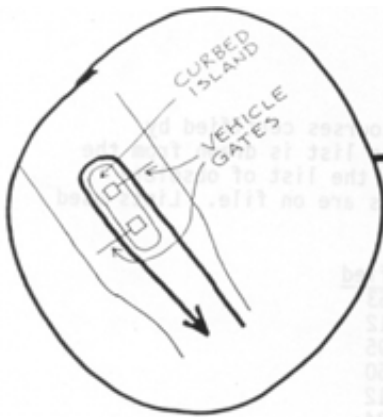
Several IAAF seminars have been held abroad, and the capabilities of many foreign measurers are already known. This seminar was the first to be held in the United States, and its purpose was to demonstrate to IAAF that US measurers are proficient in the art.

Evaluating the results was John Disley, IAAF road course technical coordinator. Disley earned an Olympic steeplechase bronze in the 1952 games, and set the world record in that event in 1952 and 1955. He has since been active in British mountaineering, and also organized the sport of orienteering there. A competitive orienteer (Welsh over-60 champion) and road racer, he is co-director of the London Marathon, and has been active in establishing course measurement techniques within IAAF, traveling the world to instruct member federations in the techniques of accurate course measurement.

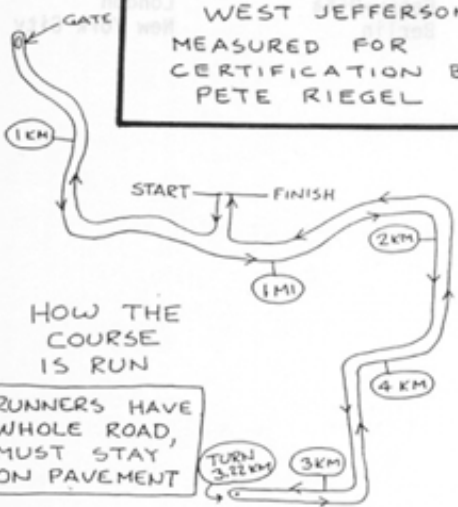
For a while it looked like the event would have to be held without Disley. Air conditioning equipment in his plane exploded during takeoff from Heathrow, and the plane had to be stopped while passengers evacuated via a large inflated rubber chute. No serious injuries resulted, but John had to work hard to get to Columbus in time, arriving late Friday night. He said he'd done some hard running in various airports.

The participants first laid down two 300 meter calibration courses using steel tapes. They used these to calibrate their bicycles before and after measuring the race course. Since an IAAF measurer is usually under severe time pressure, they were required to submit their preliminary results on the same day they measured. Each participant was also asked to report his activity after he or she returned home and had leisure to better check the work.

Although several minor errors were recorded, as expected for fast work done under pressure, nobody made a critical mistake, and it was apparent that US road course measurement is in good hands.



IAAF 5 KM TEST COURSE
WEST JEFFERSON, OH
MEASURED FOR CERTIFICATION BY PETE RIEGEL



HOW THE COURSE IS RUN
- RUNNERS HAVE WHOLE ROAD, MUST STAY ON PAVEMENT

- ALL COURSE ROADS ARE UNNAMED -

EXPERIENCE OF ATTENDEES

The following is a list of US courses measured and courses certified by attendees at the IAAF-TAC measurement symposium. The list is drawn from the list of courses currently certified and active, from the list of obsolete courses, and from the courses deleted because no maps are on file. Lists used were those existing as of May 1, 1990.

	<u>Measured</u>	<u>Certified</u>
Bob Baumel	36	453
Scott Hubbard	91	112
Tom Knight	73	195
Doug Loeffler	31	60
Tom McBrayer	148	212
Amy Morss	23	34
Wayne Nicoll	255	645
Pete Riegel	105	743
Bob Thurston	193	304
George Tillson	11	0
Mike Wickiser	30	34
Jay Wight	54	100

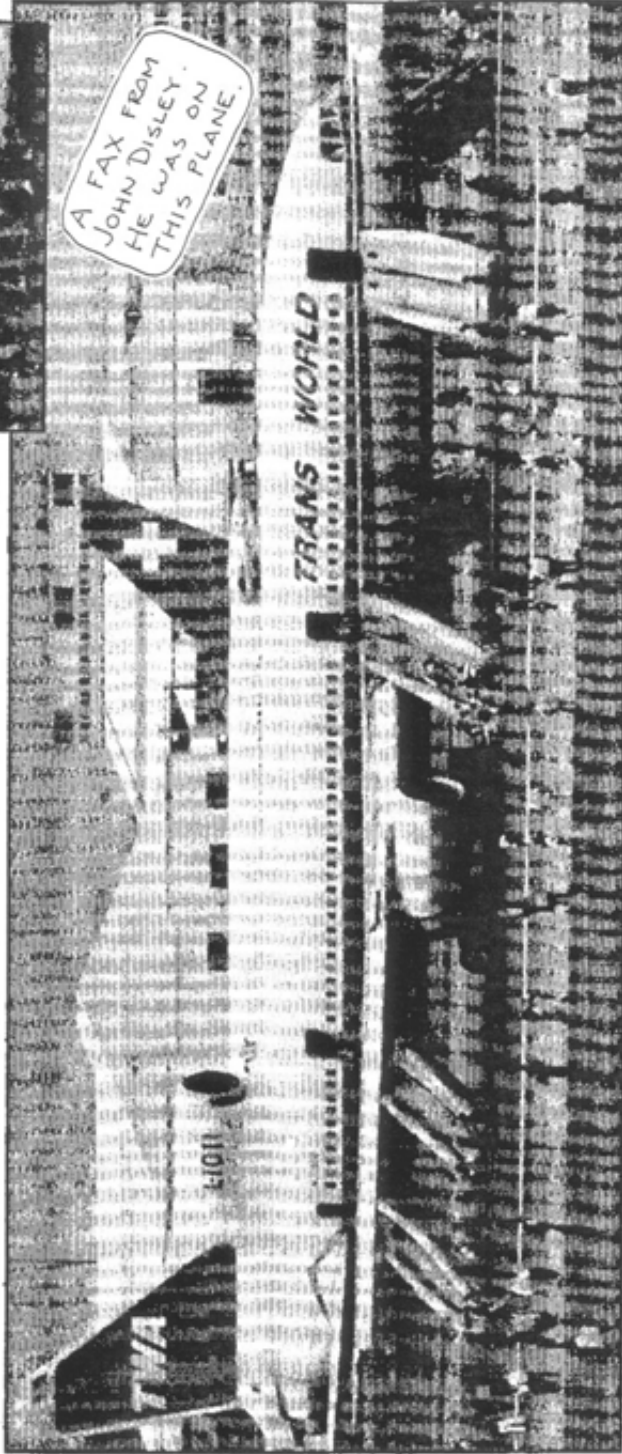
George Tillson isn't a certifier, but wanted to learn something about measuring, so he was welcomed.

Bernie Conway has measured 8 Canadian courses and two US courses for TAC certification, as well as other Canadian courses.

John Disley has measured the following marathon courses, as well as many other courses:

Beijing	Fukuoka	Osaka	Tokyo
Beppu-Oita	London	Rome	
Berlin	New York City	Rotterdam	

Blast shakes airliner in take-off to terror



SHAKEN passengers slide to safety from a jet at Heathrow yesterday after a terrifying end to a routine take-off.

They were forced to escape down the emergency chutes after an explosion shook the TWA TriStar just as it began its take-off run, showering the cabin with debris.

Fire and accident teams raced to the runway, fearing a terrorist

By PAUL MAURICE

bomb, but it was later found to have been caused by a burst air duct. Twelve of the 200 passengers and crew were slightly hurt in the evacuation and two received hospital treatment for shock and minor injuries. Services from Heathrow were disrupted for three hours.

Panic engulfed the New York-

bound flight TW709 after the explosion. British passenger Mrs Lynn Homer said: "My first thought was 'It's a bomb. Thank God we're on the ground'. I could smell burning and there were clouds of material falling from the ceiling of the cabin." She was going to help her husband Keith and children Kelly, five, and James, four.

"My daughter was screaming like crazy and one stewardess panicked," she said. "She first told people to get

out of their seats and then to sit down again, she was screaming and shouting. That caused some passengers to panic. A male steward took control and ordered everyone down. Then the plane came to a stop. The chutes came down and we got out. I think we were the last to get out. Things were handled well."

The captain alerted by a flashing fire was hit by the explosion, absorbed the take-off and radioed that he had a major emergency.

Darren Orr, 16, from High Wycombe, Buckinghamshire, was at the rear of the jet, close to the explosion. "There was a massive bang," he said. "Everyone was shouting 'stop, stop'. Quite a few people were hysterical, getting out of their seats to get away from the area."

The evacuation drama was well controlled, though by the time the reader Peter Cooper, whose office overlooks the runway

A PERSONAL VIEW OF THE SEMINAR

The seminar really began when I submitted our 1990 budget request, back in September, 1989. The RRTC request for funding for an international seminar was approved, and all we then needed to do was to organize it and do it. We talked about it a bit at the 1989 convention, and the upshot was that I decided to hold it in Columbus, since that would keep it on familiar ground.

Joan volunteered to organize the accommodations and food. I took on the technical end of things, relieved to be free of the rest of it. The first consideration was to find out when John Disley was available, and to marry his available dates with the times the shelter house was available. The weekend chosen represented the only date both John and the shelter house were available.

The announcement of the seminar was made in January Measurement News. This produced a response sufficient to give us a good-size working group, so no further announcements were made. As time went by, Joan organized mailings to tell the participants about how to register, while I prepared technical instructions.

About two months before the seminar I went to the site and laid out a slightly bent 5 km course, using an uncalibrated bicycle, judging the constant from past experience. I figured the course was about 5020 meters in length. To spice things up, I added a "construction zone" (actually two painted lines) through which the participants could not ride, having to tape across it instead.

In spite of John almost not getting to Columbus (we almost missed Bob Baumel too, because of a cancelled flight), all were present Friday night, and we spent a pleasant evening together talking about measurement and idly gossiping.

After breakfast we assembled in the hotel parking lot and drove the rural 20 miles to West Jefferson, arriving at the site at about 9 AM.

John and I gave a brief introduction to the event, and told the participants a new twist they had not figured on. They were given an answer sheet, and told they would have to hand it in by the end of the day. The idea of having to submit irrevocable answers seemed to make some participants nervous. They were also expected to submit a course map and a written report of what they did later, to me and John. This was intended to simulate the situation a validator often encounters. You arrive at the site with little time, measure the course once, and make same-day recommendations as to what to do. Later, when you have more time, you submit a written report to IAAF (or Sally Nicoll, Validations Chairman, in the USA). In that report you can discuss any mistakes you might have made on the day.

I conducted an orientation ride of the race course. Because some corners were uncurbed and crumbling, I put down curved paint marks and pronounced them curbs, to be sure everybody measured with the same perception of the course. Splits were marked with paint and nails. Also, two gates across the roadways forced measurers to use various techniques for measuring past them.

Wayne Nicoll was assigned to lay out a 300 meter calibration course on one side of the road, and Bob Baumel on the other. Bob Thurston checked Nicoll's course and got 300.01 meters. Tom Knight's check of Baumel's course yielded 299.98 meters. Thus it looks like both cal courses were about right.

Once the calibration courses were done, people calibrated, and started measuring the race course. They were allowed to ride around the course to check it out all they wanted, but to only obtain measurement data on one single ride. The idea here was that if it was a marathon course, there would be no time for a second ride. Thus they had to get it right the first time.

I got my measurement started early, and was nearly done when I saw Joan pulling up to the shelter house with our station wagon full of lunch. Sally Nicoll had helped her get all the food together. I finished up, recalibrated, and went back to the shelter house, glad I was done but nervous, hoping I had not made a transposition. I do that sometimes, and worry about it. Especially when I have made only one measurement, and have no way to check.

We all dug into the sandwich fixings and soda pop, and when I was done I figured out my answers. I didn't peek at what I had gotten before. Actually, anyone who read his May Measurement News saw it in advance, since I had used my data as an example for people to follow in measuring courses of this type. I didn't say, in May MN, that it was the same course they would be measuring, but it was. Those who read it may have profited from the experience. Shame on you if you didn't!

I entered my data at the top of the summary sheet and sat back waiting for others to get brave enough to hand in their answers. Once they were handed in, there were no permitted changes, even though several people smote their foreheads when they saw they had made obvious mistakes. I passed the word to the finishers that beer was available, and we enjoyed quaffing a few while we watched the others calculate.

Dinner that evening was a lot less tense, since everybody was done and nobody had really blown it badly. A few mistakes were made, which was expected. But nobody really botched it.

As I write this I'm already impatient to start getting each person's report, with all that data to play with. When I get it I'll send a disk to Bob Baumel, who is as anxious as I am to see what can be wrung from the data.

Next Measurement News will have a comprehensive writeup of the results. In the meantime, readers may see my course map and the summary of how everybody reported on the day.

It was a real family reunion. Many of us knew one another, but some of us were just names. Now we have put faces to the names, and we have seen that we ride and calculate about alike. One can't make final judgments based on a single ride, but it looked to me like everybody knew what he was doing.

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

INTERNATIONAL MEASUREMENT SEMINAR

Battelle Recreation Facility
West Jefferson, Ohio

TABULATION OF RESULTS

Measurer	Reported Length Meters	Recommended Course Adjustments, Meters					
		Move 1 km	Move 1 mile	Move 2 km	Move 3 km	Move Turn	Move 4 km
Doug Loeffler	5015.2	-5	15.3	-5.6	-5.4	-2.5 (b)	13
Jay Wight	5016.4	-6.4	14.8	-8.6	-9.5	-5.7	14.2
Bernie Conway	5016.5	-6.1	15.1	-8.4	-9.1	-5.7	3.1 (c)
Scott Hubbard	5017.5	-6.9	14.1	-9.2	-11.2	-6.3	0 (d)
Pete Riegel	5018.3	-6.4	15	-8.7	-10.2	-6.6	14.6
John Disley	5018.5	-6.6	14.3	-9.6	-10.7	-6.7	25.4 (e)
Tom McBrayer	5019.1	-7.2	13.7	-9.5	-10.5	-7.1	15.3
Tom Knight	5019.1	-7.2	13.7	-9.6	-11.1	-7.1	14.8
Bob Thurston	5019.2	-7.6	13.2	-10.3	-11.5	-7	14.5
George Tillson	5019.5 (a)	-6.7	14.3	-9.2	-11	-7.3	-13.9 (f)
Mike Wickiser	5019.8	-7.1	13.7	-10	-11.4	-7.4	-15.2 (g)
Bob BaumeI	5020.2	-7.6	13.2	-10.4	-11.6	-7.6	15.3
Amy Morss	5021.2	-9.8	11.8	-11.7	-13.2	-8.1	15.4
Wayne Nicoll	5023.2	-8.2	11.6	-12	-13.7	-9.1	15.8
Average	5018.84	-7.06	13.84	-9.49	-10.72		
Std deviation	1.981	1.063	1.087	1.485	1.891		

(a) - Tillson actually reported 5014.5, but used 1.001 in figuring his calibration constant. 5019.5 is used here for comparison purposes.

(b) - Loeffler knew the course was supposed to be 5005 meters long, but threw in an inadvertent extra 1.001, and only shortened the course by 5 m instead of 10.

(c), (d), (e) - Conway, Hubbard and Disley got confused in figuring the effect that removing distance at the turnaround had on their 4 km split.

(f), (g) - Tillson and Wickiser got the 4 km adjustment right, but got it in the wrong direction.

NOTE: Positive adjustments indicate the point is to be moved in the direction of running, toward the finish. Negative values indicate the point is to be moved against the direction of running, toward the start. In the case of the turnaround, negative values indicate the course is to be shortened.

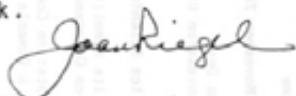
IAAF/TAC Measurement Seminar

It was a pleasure to meet so many of the certifiers whom I have come to know over the years from typing courses into the TAC course list.

Measurement day was VERY hot and humid -- I promised only that it wouldn't rain -- will work on the temperature for next time! Sally Nicoll and I arrived with the picnic lunch and found everyone deeply engrossed in the task on hand. We were impressed by everyone's intense concentration.

I enjoyed the dinners, which were much like a family reunion, and the camaraderie of the entire weekend. Your kind comments and notes of enjoyment made our efforts all worthwhile.

Y'all come back.



CALIBRATION COURSE NAMES

When naming a calibration course, give it the same name as the street it is on. This way someone looking in the certified course list will have a better idea of where the calibration course is located within the city.

PUZZLES PAST AND PRESENT

Sometimes our puzzles turn out to have practical use. Dave Poppers, in solving the January puzzle, produced a possible configuration (see May MN) for the first 3.64 miles of the Zoo Run, the Columbus Roadrunners' biggest race. I showed them the idea, and they decided to use it! You will see my course map elsewhere in this issue.

Now for this month's puzzle: I tried very hard to do a good job on this one, and to get everything just perfect. I fell short. The first reader to find my mistake on the map (I hope there's only one!) will be the winner of the July puzzle, and will be awarded a race t-shirt from Malaysia or Indonesia.

THE TAC CONVENTION

TAC's 12th Annual National Convention will be held from November 27 to December 1, 1990. You will find a complete schedule on the next pages. Note that RRTC meets on the evenings of November 28 and 29. If you need a registration form or hotel reservation card, contact Tref Love or Anne Phillips at TAC - PO Box 120 - Indianapolis, IN 46206. (317) 261-0500.

For your information, **United Airlines** has been named as the official carrier for TAC's 1990 Convention -- and they are offering a 5% discount off any published United or United Express round-trip fares from first-class to discounted fares (provided all rules and conditions of already discounted fares are met), or a 40% discount off unrestricted round-trip coach fare (Y/YN).

To obtain the United discount, either you or your travel agent should phone United's toll-free number (1-800-521-4041); this number is serviced daily from 8:00 a.m. to 11:00 p.m. EST. When the reservationist answers, the special TAC account number of 0148J should immediately be referenced.

Time	Wednesday, November 28	Number	Set-up	Time	Thursday, November 29	Number	Set-up
3:30-5:30	Rules Committee Standards - Men's & Women's Subcommittee Women's Development Committee Men's Development Committee ASBA Race Directors Associations Executive Committee Race Walking National Team Subcommittee	20 18 150 250 75 20 20	C-T C T T C-T C-T		Women's Long Distance Running Committee Youth Athletics Committee Men's & Women's Race Walking Committee Records Committee Rules Committee Grants Committee U.S. Women's Track & Field Coaches Association Men's Development Committee Women's Development Committee Associations Committee Seminars U.S. Women's Track & Field Coaches Association U.S. Olympic Festival Committee Road Running Technical Committee Athletes Advisory Committee Men's & Women's Race Walking Committee Rules Committee National Training Center Committee Cultural Exchange Committee Men's Decathlon Subcommittee Officials Executive Committee	100 150 75 30 20 30 20 20 150 75 100 150 150 75 20 18 30 20 20	T T T S-T C-T C-T C-T C-T C-T C-T C-T C-T C-T C-T C-T C-T C-T C-T C-T
6:30-8:00	POTLATCH HOSPITALITY	900		3-6	Men's Development Committee Women's Development Committee Men's Development/B Men's Development/C Men's Development/D Youth Athletics Committee Master's Track & Field Committee Budget & Audit Committee Rules Committee Awards, Logos & Medals Committee Road Running, Technical Committee Women's Track & Field Schedule Subcommittee Women's Heptathlon Subcommittee Athlete's Advisory Committee	20 75 75 100 100 150 75 30 20 15 18 20 20 20 150	C-T C T T T T T S-T C-T C-T C-T C-T C-T C-T C-T
9-11:30	Thursday, November 29 Registration Desk National Convention Office Typing Room Press Room U.S. Athletics Calendar Office			8 a.m.-6 p.m.	Friday November 30 Registration Desk National Convention Office Typing Room Press Room U.S. Athletics Calendar Office		
8:30 - 11:30 a.m.	Masters Track & Field Committee Masters Long Distance Running Committee Men's Long Distance Running Committee Women's Long Distance Running Committee Youth Athletics Committee Sports Medicine & Sports Science Committee Year-Round Testing Committee Records Committee Law & Legislation Committee Women's Cross Country Subcommittee Travel Oversight Committee American Plan Advisory Committee	75 75 100 100 150 100 75 30 20 20 20	T T T T T T T T C-T C-T C-T C-T	7 a.m.- 11 p.m. a.m. 7-8:30 9-12 Noon	Convention Committee Men's Track & Field Committee Joint Men's & Women's Long Distance Running Committees Masters Track & Field Committee Masters Long Distance Running Committee Women's Track & Field Committee Youth Athletics Committee Men's & Women's Race Walking Committee Rules Committee Law & Legislation Committee	20 150 250 75 75 100 150 20 20 20 18	C T T T T T T T C-T C
12 Noon - 2 p.m. p.m. 2:30-6	AWARDS LUNCHEON Joint Masters Track & Field & Long Distance Running Committees Men's Long Distance Running Committee	900 150 100	T T T	1-3 1-5	Men's Track & Field Committee Sports Medicine/Development Coaching Symposium Women's Track & Field Committee Athlete's Advisory Committee Associations Committee Seminars Rules Committee	150 250 100 250 150 20	T T T T T C-T C

RRTC

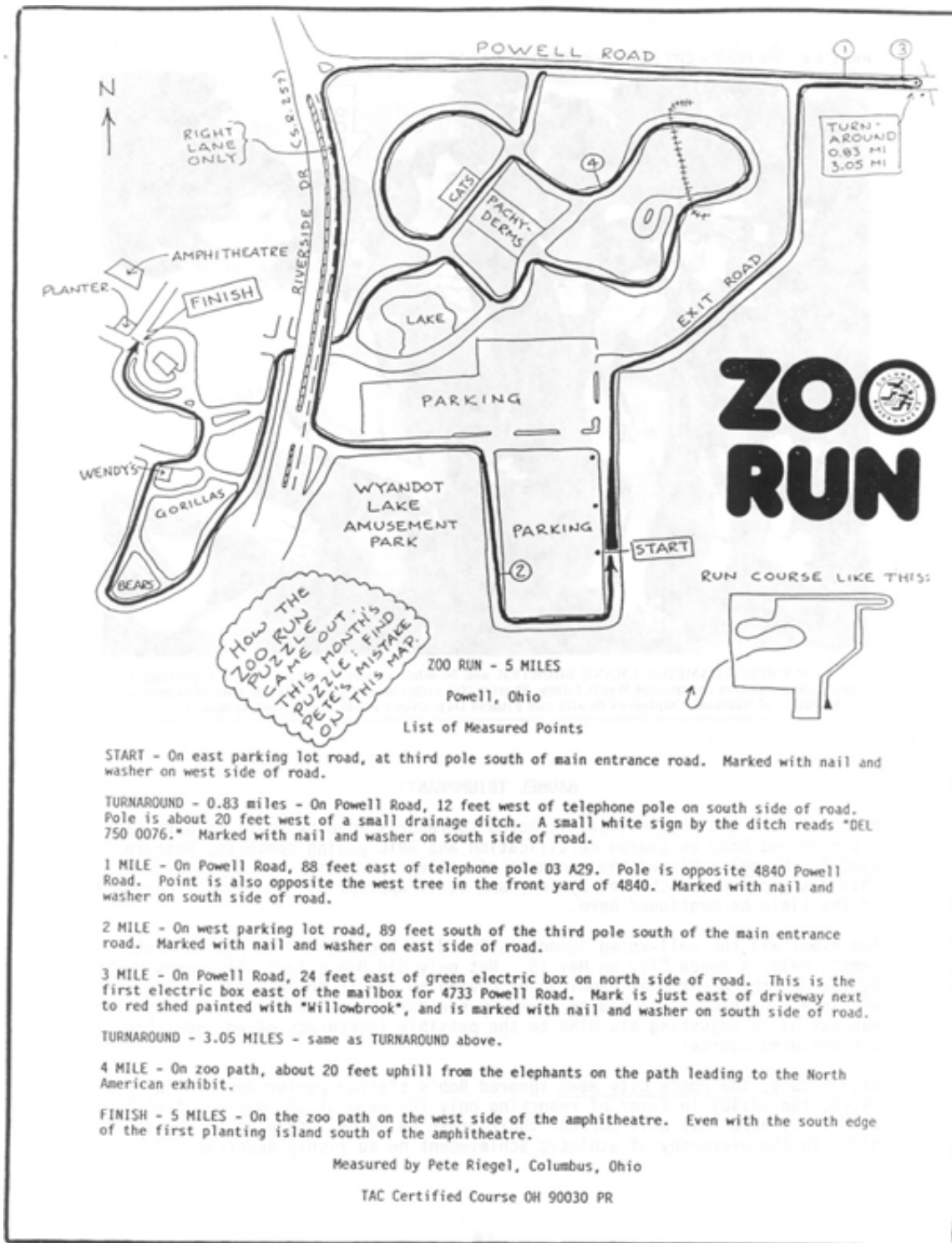
Time	Activity	Number	Set-up
Friday, November 30			
3:30-5	Cultural Exchange Committee Joint Men's & Women's Track & Field Committees	30 250	S-T T
6:30-7:30	COCKTAIL HOUR	900	
7:30-???	BANQUET		
Saturday, December 1			
7 a.m. - Finish	Registration Desk National Convention Office Typing Room Press Room U.S. Athletics Calendar Delegates Race		Set-up
9-11:30 a.m.			
9-11:30	Voter Service Women's Long Distance Running Committee Men's Long Distance Running Committee Youth Athletics Committee Masters Long Distance Running Committee Athletics for the Disabled Committee Rules Committee Emerging Elite Committee	75 100 150 75 30 20 30	Special T T T T S-T C-T S-T
12 Noon-Conclusion*	The Athletics Congress - General Meeting	900	T
P.M. 5-6**	SATURDAY AFTERNOON MASS	100	T

* Estimated conclusion of General Meeting is 4:00 p.m.
 ** Will commence one half-hour following conclusion of General Meeting in the event that conclusion is earlier than 4:00 p.m.



REMEMBER
 THE NORTH
 ARROW MAPS!
 YOUR







OLYMPIC CHAMPION FRANK SHORTER and 50 other runners were on hand for Tuesday's two-mile prediction run around Wentz Camp. Shorter (far right) was in Ponca City as part of Conoco's celebration of National Employees Health and Fitness Day. (News Photo by Michael Kennedy)

BAUMEL TRIUMPHANT!

His technical and physical skills honed to razor's edge by years of hardening his mind and body on course certification and RRTC pacing contests, Western Veep Bob Baumele achieved the pinnacle of athletic success - he won a race! This distinction is achieved by few, and it is appropriate that Bob's conquest of the field be mentioned here.

The event was the well-known "Conoco's Two Mile Prediction Run Around Wentz Camp", held in Ponca City on May 15. Not only did Bob defeat all comers, but he carried the additional handicap of having to adjust to an Imperial distance! He reports "I had to lower my standards considerably." He was also successful in adjusting his mind to the possible inaccuracy of an uncalibrated car-measured course!

Regrettably, the Ponca City News ignored Bob's stellar performance (predicted 14:43, ran 14:40) in favor of reporting only the name of the guy who finished first! We hope this will correct their grave omission, and elevate Bob to the place in the hierarchy of athletic achievement he so richly deserves.



← PROBABLY A
BADLY-DESCRIBED
SPLIT POINT.

"Well, no wonder...This ain't the place."

TABLE OF EQUIVALENT TIME RATIOS

	5 km	5 mi	10 km	15 km	10 mi	20 km	HMar	30 km	Mar
5 km	1	1.652	2.078	3.187	3.432	4.317	4.567	6.621	9.489
5 mi	0.605	1	1.258	1.929	2.078	2.613	2.765	4.008	5.744
10 km	0.481	0.795	1	1.534	1.652	2.078	2.198	3.187	4.567
15 km	0.314	0.518	0.652	1	1.077	1.355	1.433	2.078	2.978
10 mi	0.291	0.481	0.605	0.928	1	1.258	1.331	1.929	2.765
20 km	0.232	0.383	0.481	0.738	0.795	1	1.058	1.534	2.198
HMar	0.219	0.362	0.455	0.698	0.752	0.945	1	1.450	2.078
30 km	0.151	0.249	0.314	0.481	0.518	0.652	0.690	1	1.433
Mar	0.105	0.174	0.219	0.336	0.362	0.455	0.481	0.698	1

This table can be used to calculate potential running time for one distance from a known time at another distance.

Example: You have run a 10 km race in a time of 37:38. Based on this, how fast can you expect to run a marathon? Figure like this:

- 1) 37:38 is 37.63 minutes.
- 2) Find "10 km" in the left-hand column.
- 3) Move horizontally to the number in the "Mara" column (4.567).
- 4) Multiply 37.63 times 4.567 to get 171.86 minutes, or 2:51:51.

Thus, a person who can run a 37:38 10 km should be capable of a 2:52 marathon

The chart can also be used to reduce all your races to equivalent 10 km times TACSTATS does this, based on a similar model, to rank people. Use this table to rank your own races, and help you set your goals. Here are more examples:

$$20 \text{ km in } 80:00 = 80.00 \times .481 = 38.48 = 38:28 \text{ for } 10 \text{ km}$$

$$10 \text{ mi in } 53:20 = 53.33 \times .605 = 32.26 = 32:16 \text{ for } 10 \text{ km}$$

$$5 \text{ km in } 18:22 = 18.37 \times 2.078 = 38.17 = 38:10 \text{ for } 10 \text{ km}$$

$$\text{Marathon in } 2:51:51 = 171.86 \times .219 = 37.64 = 37:38 \text{ for } 10 \text{ km.}$$

The table is based on the following relationship, which represents the way fast runners behave across the 5 km-to-marathon range:

$$\left[\frac{\text{time}_2}{\text{time}_1} \right] = \left[\frac{\text{distance}_2}{\text{distance}_1} \right]^{1.055}$$

NOTE: This is a revision of the table which originally appeared in Measurement News, September, 1989. This new table is based on TACSTATS' latest list of world records. (June 5, 1990 - P. S. Riegel)

Peter Riegel
 3354 Kirkham Rd
 Columbus, OH 43221

1 June 1990

Peter.

Your letter of 22 May inquired about our altimeter. We purchased a Swiss made Thommen altimeter to strengthen what we felt to be a weak point in our measuring efforts - obtaining course elevations. Its use eliminates the hunt for topographical maps on Sundays and depending on race directors or town halls for elevations.

You're right, it is affected by atmospheric pressure. Here is our procedure. We set the altimeter to the elevation of our office which we obtained from topographical map 41071-D8-TF-024 (1983) of our area. We then drive to the starting line of the race and record the elevation. Next we drive the course and record the highest and lowest elevations and that of the finish line. Then we return to the starting line. This entire drive does not take very long, usually less time than it takes atmospheric conditions to change. A change in atmospheric pressure would be indicated by a difference from the starting line elevation recorded earlier.

After measuring the course with the bicycle, we again drive the course to mark the intermediate miles. During this drive we record elevations every .2 miles and use this data later to produce a course profile map. We finally check for atmospheric pressure changes by comparing the start/finish line elevations to those recorded earlier.

We feel that this method of obtaining the start and finish line elevations is at least as accurate as depending on "the town engineer", the race director or even using a topographical map. With the revision of the now infamous Rule 185.5 an error in elevation reporting could affect the TAC Record Quality status of a course. Our purchase eliminated the element of error in elevation reporting.

This is actually our second effort in purchasing an altimeter. Our first attempt resulted in our acquiring an instrument called a "Wrist Warrior". It promised results which we could not obtain so back it went. The Thommen altimeter on the other hand has performed as advertised. Some may feel the price - over \$200.00- to be prohibitive but we feel the resulting data is worth the cost.

We have enclosed a copy of the specification sheet per your request. The course profile map which we think Sally sent you was made on a design computer at work but Macintosh Excel has a chart function that could also be used. We need to figure out how to stretch the horizontal axis on that so the course doesn't look like a series of cliffs. Copies of these profile maps are also enclosed.

If we can be of further service please contact us. As always we welcome any comments, suggestions or questions.

GV/Gu

Guido Brothers Escort Service
1037 Shewville Road
Ledyard, CT 06339
(203)-886-2809



Altitude 330 m
Pressure 730.6 mm Hg (red scale)

Dear Peter & Gianni,

Thanks for the altimeter info. The procedure you use certainly seems to minimize the effect of atmospheric pressure change. I suppose if you get a different reading at the end of the course tour than at the beginning, you could use a linear adjustment to correct things. That would be easy.

I'd guess that if I was using the thing, I'd try to interpolate to the nearest meter, between the 10 meter marks on the dial. That seems possible. I also suspect some tapping of the instrument is necessary to get that last little bit of needle movement.

Your map of the Rose Arts 10.4M is a real beauty, and I will use it for next map of the month, along with your letter about the altimeter.

I think you've taken an intelligent approach to elevations. \$200 may seem like a lot, but time is money, and topo maps aren't free either. You have made me itch to get an altimeter to play with. Thanks for the information. MN readers are sure to be interested.

Best regards,

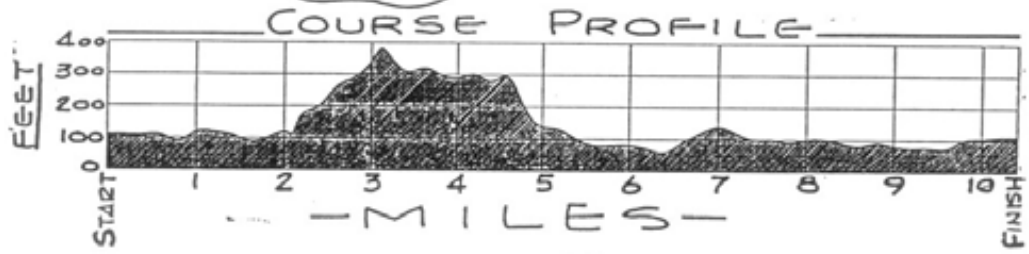
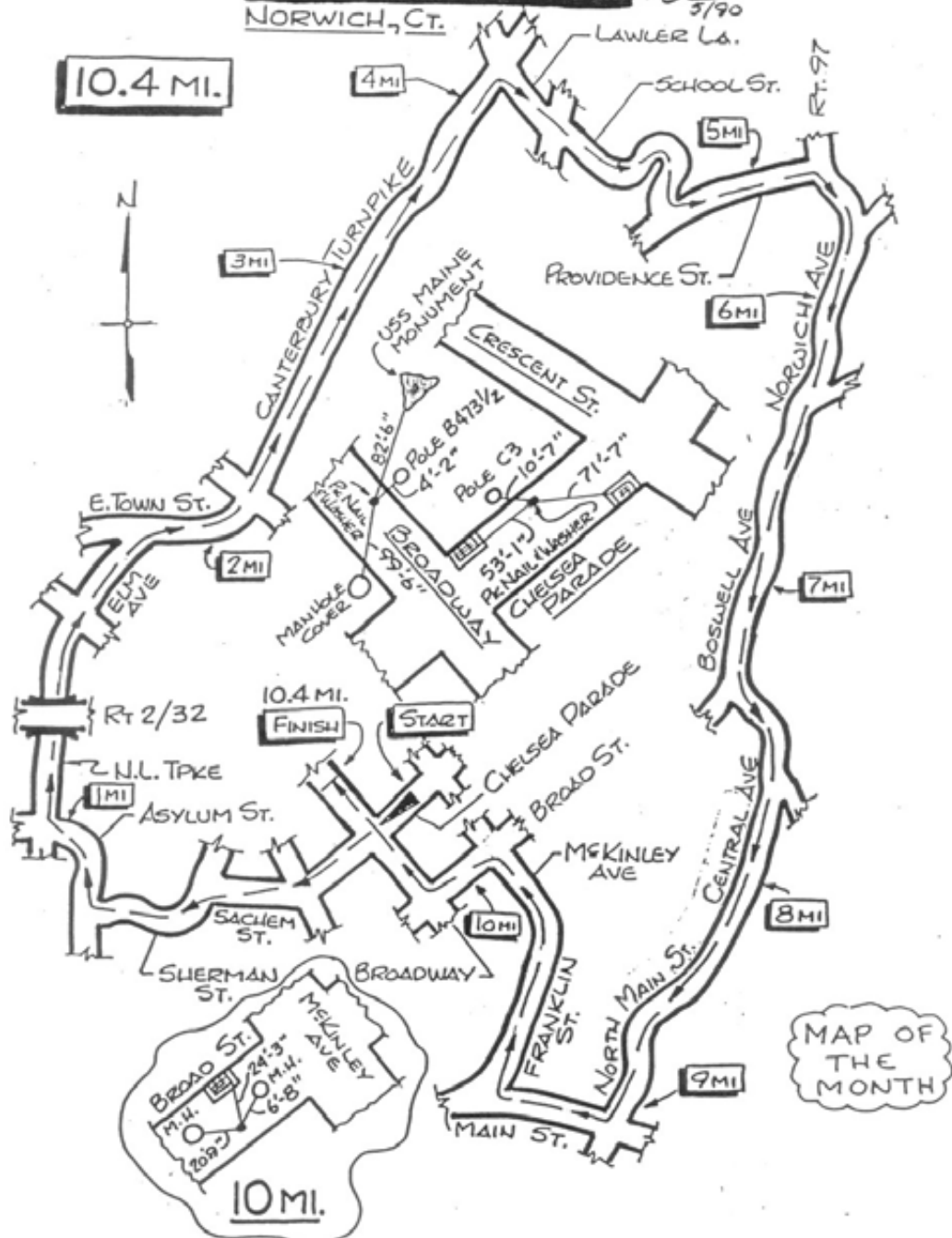
Pete

ROSE · ARTS · FESTIVAL ROAD · RACE

62865
5/90

NORWICH, CT.

10.4 MI.



THE ATHLETICS CONGRESS
OF THE USA

Road Running Technical Committee
Peter S. Riegel, Chairman

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

May 2, 1990

Mike Wickiser - 2939 Vincent Rd - Silver Lake, OH 44224

Dear Mike,

Thanks for the comparative measurements using the Jones Counter II. It was interesting to see that the old and new versions seem to have remained locked together in the 1.5 ratio throughout. Here is a rundown I did, using the data you sent:

WICKISER'S 100 KM COMPARISON OF JONES COUNTER AND JONES COUNTER II

	JONES	ELAP	ELAP*1.5	JONES II	ELAP	DIFF
START	77767.5			40540		
5	152966	75198.5	112797.75	153337	112797	-0.75
10	229573.5	76607.5	114911.25	268251	114914	2.75
15	335814.5	106241	159361.5	427606	159355	-6.5
20	412337.5	76523	114784.5	542393	114787	2.5
25	488084	75746.5	113619.75	656009	113616	-3.75
30	563902	75818	113727	769737	113728	1
35	638383	74481	111721.5	881458	111721	-0.5
40	712002	73619	110428.5	991887	110429	0.5
45	786354	74352	111528	1103415	111528	0
50	859475	73121	109681.5	1213097	109682	0.5
55	933439	73964	110946	1324041	110944	-2
60	1005842	72403	108604.5	1432647.5	108606.5	2
FINISH	1038942	33100	49650	1482298	49650.5	0.5
TOTAL		961174.5	1441761.75		1441758	-3.75

I suspect the differences are explained by inescapable slight counter reading errors and cable wrap. There certainly doesn't seem to be any systematic difference between the two counters.

Where this leaves us I'm not sure. The Jones II certainly seems adequate to the task. The thing we need is to find a source for any counter that will do the job. While in Jakarta John Disley and I handed out Jones Counters, and at the same time encouraged all the Asian participants to look around for someone who could make more, at a potential selling price of about \$50 and an annual volume of 500 to 1000. If we ask around enough maybe we will get a nibble. If only the volume was higher we would have no trouble.

See you in June,



xc: Jones, Nicoll, Baumel

Reflections on the 1 m/km Drop Standard

by Bob Baumel

Exercise physiologist Jack Daniels was quoted in the Boston Marathon issue of *New England Runner* (March 20, 1990) as saying that "The new TAC marathon standard is much more strict than the track standard of allowable performance enhancement." He calculates that a 2 m/s tailwind is equivalent to a drop of about 4.5 m/km, and concludes that "if the allowed drop in a marathon were to save as much energy as the allowed wind in track and field," we could relax the drop limit to about 4.5 m/km.

Note that if the drop limit were relaxed to 4.5 m/km, then the Boston Marathon course (drop = 3.2 m/km) would qualify for records. Is this the solution to the controversy regarding last December's rule change?

My first answer is that, strictly speaking, our new road course drop limit of 1 m/km is **not** any stricter than the track standard; in fact, we **exactly match** the track standard. TAC Rule 62.7 states, regarding track measurement, "The downward inclination in the running direction shall not exceed 1:1000." This same limit is also in IAAF Rule 161.6. If we want to be correct, we must compare the road course drop limit against the track drop limit (not against the track *wind* limit).

For my second answer, I note first that Daniels is right when he says that a 2 m/s tailwind provides more aid than a 1 m/km drop. (In fact according to Pete Riegel's and my modeling calculations, the disparity is even greater than stated by Daniels.) But the 1 m/km drop standard must be considered on its own merits, based on the actual amount of aid it provides. When viewed this way, the 1 m/km drop limit is entirely reasonable, or even somewhat on the high side. The aid equivalent to a 2 m/s tailwind would be so great as to make a mockery of the record-keeping system.

Now for some numbers: How much aid do you get from 1 m/km of drop? Based on our latest estimate of the slope effect (see article by Alan Jones and myself in Mar 90 *MN*), a drop of 1 m/km is equivalent to shortening the course about 4.5 m/km. (Note: The number 4.5 has now appeared in two different contexts: On the one hand, Jack Daniels says that a 2 m/s tailwind is equivalent to 4.5 m/km of drop. On the other hand, we say that every meter per kilometer of drop is equivalent to 4.5 m/km shortness of the course. Please try not to get confused!)

What do our calculations say about the 2 m/s tailwind? Results by Pete Riegel in Sept 89 *MN*, and by myself in Nov 89 *MN*, suggest that a world-class runner moving at 3 min/km pace receives aid from this tailwind equivalent to about 35 m/km of shortness—which is about 8 times the aid obtained from 1 m/km of drop (a somewhat higher ratio than obtained by Daniels).

(But a middle-of-the-pack runner doing only 5 min/km pace receives less benefit from the tailwind, and we agree with Daniels that in this case the aid from the 2 m/s tailwind is equivalent to about 4.5 m/km of drop.)

Certainly, there is a disparity between 1 m/km of drop (currently the drop limit for both roads and tracks) and the 2 m/s tailwind standard used in the track world. Actually, there are many disparities between measurement standards used in different areas. All we can do is to keep the various standards as balanced as is reasonably possible.

To start with, we can't measure distance as accurately as time. We time road races to the second. But the course length is only accurate to about 1 m/km. For a marathon (42.195 km), the distance error is on the order of 42 meters, equivalent to about 8 seconds of running time for world-class runners—which is 8 times as great as the timing error. (But note: For a 10 km race, the distance error is only about twice the timing error. And for a 5 km race, distance and timing errors are nearly perfectly balanced.)

Regarding this discrepancy between timing and distance accuracy, we probably have little choice but to live with it. We could try proposing that marathon times be recorded in 10-second increments instead of 1-second increments, but I don't think such a proposal would be received very well.

Now consider the current 1 m/km drop limit. As noted previously, it provides aid equivalent to about 4.5 m/km of shortness. For a marathon, it's as if the course were short by about 190 meters, equivalent to 34 seconds of running time at world-class speed. (For reference, recall that the 1981 Salazar mark was disallowed because the course was found short by about 150 meters.) Thus, the aid from 1 m/km of drop is about 4.5 times as great as the distance error, or about 34 times as great as the timing error.

To reduce the disparity between the drop limit and the precision of distance measurement, Ken Young actually proposed, in articles in the Apr 84 and Jan 86 issues of *NRDC News*, that the drop limit be reduced as low as 0.5 m/km or 0.4 m/km. Ultimately, we settled on the 1 m/km drop limit as the best overall compromise (even though it's really higher than it should be) because it matches the 1:1000 track inclination limit mentioned earlier, and because it matches the proposed IAAF standard for world road records.

By the way, in bringing up the 1981 Salazar mark (in New York City Marathon), bear in mind that that course was judged short not only by present-day standards, but by the standards applicable to a 1981 race. Specifically, the standards for shortness on remeasurement were phased in gradually (TAC Rule 185.3): For a 1981 race, shortness up to 0.2% (84 meters in a marathon) was considered acceptable. For 1984 races, this was tightened to 0.1% (42 meters for a marathon). And starting with 1985 races, the remeasurement must not demonstrate any shortness at all.

Suppose now that we relax the drop limit to 4.5 m/km as suggested by *New England Runner*. As each meter per kilometer of drop is equivalent to shortness of about 4.5 m/km, a drop of 4.5 m/km would be equivalent to shortness of about 20 m/km. For a marathon, that's 840 meters (nearly a kilometer) of effective shortness, or about 2½ minutes of running time. This amount of aid would be 20 times as great as the error in distance measurement, or 150 times as great as the timing error.

Another way of viewing an effective shortness of 20 m/km is that it's 2% of the race distance, which is the sort of error you typically get when you measure courses by car odometer! If we make the standards this permissive, my inclination would be to forget about course certification and validation entirely, because the precision we've been trying to maintain in course measurement would become meaningless when compared with other factors that differ from one course to another. In fact, it would probably be best to forget about keeping records entirely.

In this regard, it is interesting to note that most of the arguments now being used by the opponents of our rule change were used years ago by people who opposed the original introduction of road race records. For example, they say that we shouldn't try maintaining strict standards for road racing, because every course is different.

These recycled arguments probably made more sense in their original context (opposing the introduction of road records). The people using them now do want road records, but they want the standards so watered down as to make the records essentially meaningless.

Road race records are good for the sport. They generate public interest, and they encourage numerous races to get their courses accurately measured, which benefits all runners and joggers (the vast majority of whom will never aspire to setting records). But if we want to have records, we must have meaningful standards. A record is supposed to be the *best* performance, not just the fastest time.

About 90% of our courses do comply with reasonable standards for record keeping. It is regrettable that the oldest marathon in this country cannot be considered eligible for road records. But this must not deter us from trying to maintain meaningful standards for the 90% of races that do comply. We must fight to preserve the amendment to Rule 185.5 enacted at the December 1989 Convention.

Course Measurement, Belgrade Marathon

To Mr. Ted Paulin, Chairman of NMS Technical Committee.

Please find attached full details of this measurement, i.e. application for certification + detail of calibration course + calibration data + measurement data + map showing full details of the course.

There were a number of problems with this measurement. It should have taken place during the inclusive dates April 13th to April 16th (i.e. including travel). An error by Yugoslav Airlines however meant that there was no ticket for me at Heathrow Airport on April 13th and I returned home after a wasted round trip of some 370 miles.

I arranged to travel again, but had less time available, the inclusive dates being April 16th to April 18th. Because the return flight on 18th was an early one, all aspects of the measurement had to be done on 17th. At a meeting with the organisers on the evening of 16th, I arranged a timetable which would have made the fullest possible use of the time available. The measurement itself was timed for 11am (with police escort), following the laying down of a calibration course, calibration and a drive around the course. Following a number of delays however, 11am saw just the first two of these completed. Then followed some considerably longer delays, for which I didn't receive an adequate explanation, although I gaskered that the police escort was not now available. Eventually however, I was driven around the course and finally was able to start the measurement at 6.30pm. As the data sheet shows, I finished (having had to lengthen the course by over 1km) at nearly mid-night.

I record this as explanation for the fact that a) I measured the course once only and b) I was unable to mark kilometre or mile points. The measurement itself was entirely satisfactory however. Thanks to an excellent police escort, I was able to follow an ideal line.

Jawe Bendy, 21/4/90

Belgrade Marathon. Course Measurement Data Sheet.

Measured point	Counter reading	No. of counts	Distance (km) (Working constant = 9605/km)	Accum. distance	Distance (km) (Constant for day = 9603.5)	Accum. distance
1. Start (see map)	71000					
2. Right turn from Bulevar Revolucije into Branka. (Edge of first tram line)	90214	19214	2.0004	2.0004	2.0007	2.0007
3. Dimitrija Tucovica: middle of roundabout. First lamp-post after sign to Zrenjanin/Pancevo	(1) 10848	20634	2.1482	4.1487	2.1486	4.1493
4. First lamp-post (numbered 2) after turning right into Bulevar Edvarda Kardelja. (Start of lap).	(1) 39511	28663	2.9842	7.1328	2.9846	7.1340
5. Traffic light, Milentija Popovica, immediately before left turn to complete lap.	(2) 88145	148634	15.4746	22.6075	15.4771	22.611
6. As point 4 (End of lap)	(2) 88940	795	0.0828	22.690265	0.0828*	22.693809
7. As point 5 (Bike carried back, wheel 'frozen')	(2) 88940					
8. Junction - Kneza Milosa. Edge of pedestrian crossing nearest finish	(3) 11150	22210	2.3123		2.3127	
9. Finish (see map). Bike carried to finish, wheel 'frozen': busy one-way street, police not able to provide escort against traffic.	(3) 11150					
10. As point 8	(3) 17830	6680	0.6955	3.007808 (Point 7 to Finish)	0.6956	3.008278 (Point 7 to Finish)

Pre-cal: 4318, 4317.5, 4317.5, 4318 10°C
 Post-cal: 4317, 4317, 4316, 4316 11°C
 - using 450 m cal. course *plh*

(* Complete lap is ∴ 15.5598 km.)

Summary (using Constant for Day)

From start to end of lap 1	22.693809
Lap 2 (ie from start to point 5 above)	15.477065
From point 5 [point 7] to finish	<u>3.008278</u>
(Note: point 5 [point 7] is a common point to both laps ie. where runners bear left to complete first lap and go straight ahead on second lap. The road is a wide dual carriageway.)	<u>41.179152 km.</u>

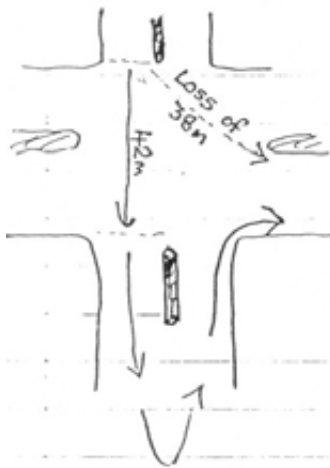
The course as it stands is thus 1.016 km (rounded-up) short of the marathon distance.

(cont.)

Measurement summary (continued).

- Note ① Re-calibration took place almost immediately after the completion of the measurement.
- ② There was then a break while all figures were checked, using the Constant for the Day, and while the final figure was discussed.
- ③ The organisers decided to make up the 1016 metres needed by adding an out-and-back stretch along Nehruvna at the south-west corner of the lap.
- ④ I duly carried out this measurement, having firstly measured the amount lost on the original left-hand turn into Turiya Gaganra.

Summary: 508 metres per lap required
plus 38 metres per lap lost on original turn
= 546 metres. This was carried out



by measuring across Turiya Gaganra to a point level with where the runners will now make a right turn from Nehruvna back into Turiya Gaganra. This was 42 metres. An out-and-back stretch of 252m was \therefore needed from this point.

- ⑤ By this time it was nearly mid-night. In view of this, I did not carry out a third calibration, particularly as the 8 previous rides had been very consistent and as the temperature had hardly changed all day.

[This is a new course. The preliminary measurement had been carried out by a local cyclist, using a cyclometer. He did not calibrate this, neither did he follow the 'shortest possible route'.]

Category	Effect of 1 lb weight loss			No. of Races
	Min/10k	Sec/10k	Sec/mi	
All Races	0.490	29.4	4.7	98
39-45	0.347	20.8	3.3	21
46-50	0.187	11.2	1.8	40
51-55	0.301	18.1	2.9	37
4 Best Races	0.331	19.9	3.2	4

From the above I conclude that one pound of weight is worth, on the average, about 18 seconds on my 10 km time, or about 3 seconds per mile. Naturally, since there's a lot of scatter to the data, I can't really predict my time from my weight. But I can believe that when I'm fat, I'm slow.

So, for me, I believe that:

1 lb = 3 sec/mile 1 kg = 4 sec/km

Whether this holds for other people I have no idea, since I have no similar data. It seems to work for me.

Anybody who wants to play with my data is welcome to it. I can send you a free printout of the data. Or, if you send me a 5.25 inch floppy, I can send you an ASCII file of the data, or a copy of the Lotus 1-2-3 program. If you don't want to mail me a floppy, send \$2.00 and let me know what you want on the floppy I'll send you.

I make no representation that this data has any real value. It's only my personal racing dope, and it may have no relevance to other people. It's a long way from elite data, but I can't help that.

