

Measurement News



AIMS

November 1997

Issue #86



The programs *Seismic/Eruption* and *Seismic Waves* by Geology Adjunct Professor Alan L. Jones are part of the newly opened Janet Annenberg Hooker Hall of Geology, Gems, and Minerals of the National Museum of Natural History of the Smithsonian Institution in Washington DC. In the exhibit, *Seismic/Eruption* runs on a 40-inch monitor displaying all earthquakes of magnitude 5.0 and larger and all volcanic eruptions from 1960 to the present. As the program runs, the visitor sees the tectonic plate boundaries emerge. The *Seismic/Eruption* program can also be used interactively on two volcano study stations illustrating where and when volcanic eruptions occur. Two earthquake study stations likewise use the *Seismic/Eruption* program to illustrate where and when earthquakes occur. The *Seismic Waves* program is also on the earthquake study station. It illustrates wave propagation through the earth and how earthquakes are detected at seismic stations around the world. You can download these programs from Alan's homepage (<http://www.geol.binghamton.edu/faculty/jones>). Shown are (right to left) Alan, his wife Barbara, and daughters Kendra and Adele, standing in front of the 40-inch monitor running *Seismic/Eruption* on the opening day. (Photograph by Paul Doyle.)

Alan is better known to course measurers as the inventor of the Jones Counter. Alan's son Clain, early manufacturer of counters, won the 1990 measurement-by-pacing contest at the USATF convention.

IAAF/AIMS NOTES

Readers will note two new logos on the cover page. They are placed in acknowledgement and thanks to AIMS and IAAF for their support of road course measurement.

IAAF contributes \$2000 yearly to cover the cost of printing and mailing *Measurement News* to all IAAF/AIMS "A" and "B" level measurers. Note: All US certifiers and final signatories are considered as at least "B" level, which qualifies them to measure any AIMS/IAAF course except Olympic Games and World Championships.

AIMS has pledged \$5000 for the use of the four Area Administrators (AA's) to use as they see fit to better develop course measurement. The Administrators have not yet figured out how to best use it.

Area Administrators:

Dave Cundy - Asia & Oceania

Jean François Delasalle - French & Spanish speaking Europe & Africa

John Disley - English speaking Europe & Africa

Pete Riegel - Americas

The Area Administrators met in Budapest in October with IAAF and AIMS, to review the past year and discuss future developments.

- Work is progressing toward establishment of a single database of measured courses.
- Many courses have been measured but no definitive maps exist outside the race administration. We are working to correct this. Without maps it is impossible to know whether the race followed the measured route.
- Some measurers may be asked to act as ITO's (International Technical Officials) to attend the races they have measured and act as trouble-shooters.
- World road bests will be validated. Although "post-race" seems to be what was decided, this needs clarification as some races do a fine job of doing it pre-race.
- Dave Cundy will be making revisions to the IAAF course measurement book to reflect its current status as a joint IAAF/AIMS publication.
- Chip timing has been accepted by IAAF/AIMS, just so the official results begin with the starting signal, not the time the individual runner crosses the start line.
- Six measurement seminars were held by AA's: South Africa (Disley), Netherlands (Disley), Finland (Disley), Australia (Cundy), France (Delasalle), Madagascar (Delasalle).
- Len Luchner discussed the desirability of using a calibratable electronic odometer as a measurement device. He gave one to Pete Riegel, who will evaluate it and report (next *Measurement News*).

In Americas, Pete Riegel has appointed Rodolfo Eichler as Measurement Coordinator, South America. Rodolfo speaks the languages and possess technical skills and enthusiasm. He will be the main point of contact for South American matters. This was approved at the meeting.

OOPS! NICE MAP, WRONG PERSON

Pete:

The "Map of the Month" in Sept. 97 MN was a real work of art: concise, easy to read, and well detailed. Regrettably, I can't claim that excellent work. Ron Scardera re-drew my map of the Run for the Library 10 km, as well as the 5 km and the Winters Rotary Run half marathon and 10 km, in an act of tremendous generosity. Perhaps Ron redrew my maps because we will always be sort of "blood brothers" because of what we went through at the Disneyland Marathon. (Ron: rarely have I let anyone else lead a race I direct since our adventure in the Magic Kingdom...).

Please give credit to Ron where credit is due.

Thanks, Doug Thurston
 Thurston60@aol.com

ATTENTION FINAL SIGNATORIES

There are two kinds of US final signatories: active certifiers, and former certifiers who retain the "final signatory" status as a reward for past work, in recognition of their expertise in course measurement. Final signatories who are not active state certifiers may create certificates for courses they measure themselves and put them into the system just as certifiers do. However:

No one but an active state certifier may certify the work of another measurer. To do otherwise undermines the work of the active certifiers.

CERTIFIERS - PLEASE PUT THE COURSE NUMBER ON THE MAP!

Doug Loeffler to Ryan Lamppa: "I would like to suggest that State Certifiers be required to write the certificate number on the accompanying map at the time they issue the certificate."

Ryan to Pete Riegel: "As we know, some measurers/certifiers do put the certificate number on the map (thank you) and like Doug, I support this requirement on all maps. When RRIC processes an age group record, a copy of the course certificate and its map are required. In some cases, we receive the certificate and its "map" but with no way of knowing that the cert and map go together. We take the race director's "word". The RD in California tried to pull a fast one and he was caught. He was also lazy because he measured the original course and the "new" uncertified course. Sadly, the athlete who set the pending record will probably lose the record although the altered course was at least 5km."

Mike Wickiser and Tom McBrayer agree that this is a good idea. So let's do it. Certifiers, in future, please take the time to put the course number on the certification map that resides as part of the certificate. This way, when the map is copied its identity goes with it. In cases where any doubt remains, the copy on file with the Course Registrar will settle the question.

LAST MONTH'S PUZZLE

The course had a nominal length of 25 km, and an addition of 2.55 meters was needed as a final adjustment. First correct answer was sent by Malcolm Heyworth, and the second by Bernie Conway, both by email. Roger Gibbons sent in the first correct answer by regular mail, and Jean-Francois Delasalle worked it out in Budapest at the AIMS/IAAF meeting.

COURSE ADJUSTMENTS AFTER VALIDATION

In the US, THE STANDARD FOR PREVALIDATION IS FOR THE PREVALIDATOR TO APPLY THE FULL SCPF. The race should be informed that this is required before the prevalidator shows up.

In the case of a postvalidation, if the course does not measure quite up to the full distance, including SCPF, the record may be accepted, but unless the course is modified to the full standard distance, it will not be considered as "prevalidated" for the next race, and can take its chances with the next validator. Most races will choose to add the few meters required, given the risk. This will require the issuance of a new or modified certificate.

When I made this the subject of a MNForum post I did not expect the volume of thoughtful responses that came back.

As an engineer I have always sought the simplest way to do things. I try to avoid complication as much as possible. For some time I have likened the measurement process to a factory which produces a standard product. Consider spark plugs. They appear superficially identical, but if measured closely you will see that they are not all exactly the same size. However, they are alike enough so that you can use them. This is achieved by setting standards at the factory. Drawings defining the product all include tolerances to be used by everybody making the spark plugs. All machine operators are not equally skilled, but the tolerances are such that if they all use them, the product is acceptable.

With race courses the same sort of approach should apply. We use a standard measurement method, and have found that in general it produces courses that work. Part of the standard method includes the use of a 1.001 SCPF.

There is no double standard. Experts and novices alike (can we always tell the difference in capabilities?) are supposed to do their best to follow the procedures exactly as they are laid out.

Will this make some courses "too long?" If we think of a 10 kilometer course laid out by the standard method as simply a "10000 meter course" and leave it at that, it makes things simple. Yes, some will be longer (most) and some shorter (few), but in general they will be reasonably accurate and can be considered for record purposes as identical. The track people do not torture themselves over the undeniable fact that tracks are not all exactly the same length. Why should we? They lay out the tracks in a standard way, and accept the minor differences that result. In their minds, all tracks are equal.

Can a track runner, by closely hugging curbs, run less than the measured distance? Certainly. In a track 10000, if a runner takes the lead he can merrily run as close to the curb as he dares, well within the 30 cm offset. He will shave 24 meters off the distance by running 15 cm from the curb. Does anybody feel he is cheating or taking unfair advantage? Certainly not. The standard is in place, the venue is established, and the assumption is that the length of the track is its nominal length. Roads should be looked at in the same way.

The track people do not measure 15 cm from the curb simply because some runners may be able to run at that offset. They have their long-established method for measuring 10000 meters, and it is seen as fair. In actuality most 10000 finishers cover more than 10000 meters during the course of a race, as they are often forced into an outside position. This does not bother statisticians nor should it.

Because our courses and measurement methods are cruder than those used to lay out tracks, people tend to worry about the "extra" distance that the runners must cope with. Differences of a few meters are easily detectable with a watch. Is there anything we can do about it? Not until we modify our measurement method to require every course to be measured by accurate surveying methods. To do this would be catastrophic, as the time and expense would be prohibitive, resulting in very few accurately measured courses. The only practical solution is to use the same standard method, and then assume equality of all courses for comparison purposes.

The purpose of a prevalidation is to assure that the course has been measured to the present standard. This includes riding 30 cm from the curb, and it includes the full 1.001 SCPF. Norrie Williamson has suggested if the measurer closely shaves every corner, cannot the SCPF be reduced? Perhaps it could, but are we prepared to change the offset from 30 cm to zero for everyone? 30 cm and a 1.001 SCPF works pretty well, and it is the worldwide standard. If measurers do not use the same standard, chaos results.

Does an athlete deserve to miss a record because of "extra" distance added? Certainly not. Does an athlete deserve to GET a record because of distance subtracted from the standard by a measurer who feels it's OK to chop off a few meters because he knows he is an expert? Again, no. Efforts to second-guess the measurement process in order to shave a few meters from a course are misguided and wrong-headed.

Is there a way to know for sure, on track or road, the exact length of a race course? Emphatically, NO. All we can do is establish a standard and use it. We have a standard, and it works. Jay Wight put it nicely: "I guess if I can accept that a 2x4 piece of wood is not exactly 2"x 4" I can accept that a 10,000 meter course is not necessarily 10,000 meters but is defined as being at least 10,000 meters."

You can bet dollars to doughnuts that if the track people worried about discrepancies in track lengths as we do on roads, they would be continually wrangling. Track differences, while generally smaller than roads, exist, and can affect times. The differences are there, and are measurable, but they lie within the range of "reasonably accurate."

We have a standard method. It works. When courses are laid out by the standard method, the assumption is that they are all equal to each other. In truth, this is very close.

When IAAF or AIMS sends an expert to fine-tune a course, the use of the full 1.001 is mandated without question. It does not matter how "expert" the prevalidator feels himself to be. There must be one standard for all.

David Katz has been in the very real position of seeing a WR missed by an amount less than the SCPF. If Steve Jones had got the record, he would have done so on a course that had not been laid out to its proper length before the race, although it could be argued that it did exceed the marathon distance. The next validator, checking a course with a 3 meter SCPF, could well find it short.

Standards are intended to simplify things, and reduce argumentation. We have a standard. Let's use it.

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

10/30/97

USATF RRTC VALIDATIONS
1997 Activity Report

Validations Completed

Pass/ Fail	Date of Race	Date of Validation	Course Name	Course ID	Measurer	Validator	Type of Race	Nominal Distance	Measured Distance	Percent Difference
P	17 Nov 95	31 May 97	Gibson Ranch	CA94032CW	Scott	Young	LDR	0.84734 mi	0.84945 mi	0.25
P	17 Sept 95	11 Jan 97	Tradewinds Park	FL88001DL	Millspaugh	Loeffler	RW	2500 m	2505 m	0.2
P	18 Oct 92	7 Sept 97	U.W. Parkside	WI90008WG	Grass	Wight	RW	2000 m	2004.36 m	0.22
P	17 Sept 95	28 Sept 97	Phil Distance Run	PA94016RE	Belleville	Hronjak	LDR	21097.5 m	21127.9 m	0.14
F	29 Sept 96	4 Oct 97	Monterey Bay Beacon	CA90040CW	Oerth	Young	LDR	10000 m	9969.49 m	-0.31
F	13 Oct 96	4 Oct 97	Primo's Run for Education	CA93018CW	Hurd	Young	LDR	5000 m	course not run	as certified
P	15 Dec 96	2 Oct 97	Palm Desert	CA95052RS	Scardera	Young	LDR	5000 m	5007.84 m	0.16
P	19 Oct 97	7 Sept 97	Chicago LaSalle Bank	IL97053JW	Hinde	Wight	LDR	42195 m	42232.49 m	0.089

Validations Pending

16 Nov 96	Helen Klein	CA96013CW	Scott	Young	LDR	50 mi	
12 July 97	Pacificare Bastille Day	CA97035RS	Scardera		LDR	8000m	
18 Jan 97	Jed Smith Ultra 50 km	CA97004KY	Young		LDR		
20 Oct 96	Chicago LaSalle Bank	IL95061JW	Hinde		LDR	42195 m	Course unavail. until 1998
31 May 97	Freihofers	NY96008WN	Nicoll		LDR	5000 m	
26 March 97	Azalea Trail	AL86007WN	Nicoll	Harrison	LDR	10000 m	
8 Mar 97	Gate River Run	FL97009DL	Aired		LDR	15000 m	
2 May 97	Indianapolis Life 500	IN94010PR	Riegel		LDR	21097.5 m	
18 May 97	Bay to Breakers	CA92003TK	Knight		LDR	12000 m	
10 May 97	Old Kent River Bank 25km	MI95012SH	Dewey		LDR	25000 m	
3 May 97	K.U.S. 24/48 Hour	KS96008BG	Demaree		LDR	0.5 mi	
22 Feb 97	Tomball Classic	TX97008ETM	Barnhill		LDR	12000 m	

Courses Reviewed

P	20 Oct 96	20 Nov 93	Humboldt Redwoods Half	CA94001CW	Knight	Wisser	LDR	21097.5 m	21118 m
P	6 Oct 96	26 Jul 91	Twin Cities Marathon	MN90017RR	Recker	Wickiser	LDR	42195 m	42233 m
P	13 Apr 97	9 Aug 92	Carlsbad	CA93001WN	Nicoll		LDR	5000 m	5005 m
	19 Sept 97	24 Oct 95	Chili's Forrest Park Scenic	IL94053JW	Nair	Wickiser	LDR	10 mi	10.013 mi
	21 Apr 96		Gitme Shelter				LDR		Time bettered before validation





ROAD RUNNERS CLUB OF AMERICA

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Don Kardong
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August 29, 1997

Carl Sniffen
Vice President

Pete Riegel
3354 Kirkham Road
Columbus, OH 43221

Jeff Hollister
Secretary/Treasurer

Dear Pete:

Freddi Carlip
Eastern Director

Thanks for your quick reply to my questions. I wish I were as swift in answering my own mail!

David Samuel
Southern Director

Although, as you mentioned, I've been in the sport a long time, I'm not as well-versed in the history of course measurement as you give me credit for being. Some of the developments you wrote about I certainly remember, but it was helpful to hear your description of the whole process.

Michel Puckett
Central Director

Laura Kulsik
Western Director

My interest here is in responding to issues raised by delegates at the last RRCA convention. Some of those people have been involved in the sport for decades, including the development and implementation of course measurement procedures. Their perspective is that RRCA people helped institute course measurement, but that the RRCA isn't given much credit for that or for the ongoing operation of the system. If an RRCA member happens to live in an area of the country where the local USATF association does little or nothing to support road racing (and may even be openly antagonistic), and if he/she spends considerable volunteer time measuring a course, I think it's understandable that a final "certified by USATF" on the entry form might be a problem. The RRCA might not be the governing body, but it does have a larger membership than USATF and a fair amount of credibility among runners.

Jeff Decker
Director At-Large

Nancy Hobbs
Director At-Large

Karen Jacobson
Director At-Large

Raleigh Mayer
Director At-Large

George Campbell, Esq.
Legal Counsel

Henley Gibble
Executive Director

Looking at it another way, USATF is receiving free publicity on millions of entry forms, even in areas where they're at odds with local road race organizers. USATF's funding of the RRTC to the tune of \$20,000 per year is certainly important, but so are the thousands of hours spent by course certifiers, many (if not most) of which are donated. I'm not sure what the dollar value of their time is, but it must be

40th RRCA Convention
Colorado Springs, CO
June 5 - 8, 1997

* The RRCA
RUNNING AMERICA
SINCE 1958 *

(cont.)

enormous. Their perspective on why they're doing it and what sort of credit should be given ought to be part of your considerations.

Please understand that I'm not responding to any perceived problem with the RRTC, which by all accounts has operated admirably. The problem is the perception of some RRCA members that their efforts are often credited to USATF and by inference to its member associations, but that USATF has had a spotty record (or worse) relative to the concerns of long distance runners. I think we're all hopeful that the new leadership at USATF will work toward a better relationship among USATF, its local associations, the RRCA and RRCA clubs. For now, though, this continues to be a sore point for many RRCA members.

Again, Pete I appreciate your perspective on this, as well as your ongoing work to ensure accurate courses. I'll share your letter with members of the RRCA's USATF Task Force and see if they have any further comments or questions on this issue.

All the best.

Sincerely,

Don Kardong
President, RRCA

CC: RRCA's USATF Task Force, Henley Gible, Craig Masback

Why 400 Meter Tracks?

IAAF Magazine reported an interesting history by Alphonse Julliard about just how standard tracks came to be 400 meters and why events through the 800-meters are even multiples or quotients of 400 meters, while those above are not (1500 meters, 5000 meters, and 10,000 meters). The bottom line--in the late 19th century the British (considered to be the pacesetters for modern track and field) were working with 440-yard ovals, which were converted to 400-meter ovals on the continent.

Meanwhile, across the English Channel, the French were pushing 500-meter tracks (making the 1500 meters three laps, the 5,000 10 laps and the 10,000 a 20-lapper). The present system represents a compromise, with the 500-multiple distances surviving due to the influence of Frenchman Pierre du Coubertin, father of the modern Olympics, while the 400-meter distances were favored by the IAAF.

From **Road Race Management**, <http://www.rrm.com/news.html>



Don Kardong
1610 W. Riverside
Spokane, WA 99201

Dear Don, September 8, 1997

I have your August 29 response to my letter of July 5. I am a bit puzzled at the idea that RRCA members do not get credit for the work they do in course certification. I disagree strongly. Since I designed the present form of the course list, it has always been my objective to give credit to people. That is why you will see the name of the person who measured the course on each listing. That is why each certifier has his own unique set of initials to put on each course number. I believe this gives very good individual, if not organizational, credit, to the people who do the work. This work is summarized yearly in our newsletter *Measurement News*, the object being to give credit for work done.

The people do the work, not the organization. And the people get the credit.

I am not sure of the general thrust of your letter. Is there some action you would like me to take? If so, what is it?

I was the Ohio certifier and Eastern Vice-Chairman before it ever occurred to me that it would be nice to support the organization that supported the work we in RRTC do. Accordingly, I joined USATF, and have been a member ever since. I have never inquired as to whether our certifiers are members. In our work, it is irrelevant. The work gets done, and all benefit. Do I agree with all USATF's policies? Certainly not. Is there another organization I feel could do a better job? Sorry, but although I am a member of RRCA, and like the people I find there, I think USATF is the best vehicle under which to have course certification and record-keeping.

I would have to be senseless not to know that RRCA has problems with USATF. Most of those problems lie outside the area of course certification.

Your expression of organizational concern about who-gets-the-credit is the first I have received in my time as Chairman. None of the certifiers have expressed any interest in the subject, and they are the people who do the work. Neither have I heard from individual measurers on the subject. Most of the people I work with are more interested in getting courses accurately measured than in the politics of the game.

I urge you to bring up the subject with RRCA's USATF Task Force. I will be most interested in any comments they may have.

Do not take this letter as antipathy to RRCA. If I had any I would not be a member.

Best regards,

xc: Henley Gibble (by email), Craig Masback

9 September 97

150 W. 225 St., Apt. 8H Sect. 4, New York, NY 10463-5015

FROM: Ted Corbitt

TO: Peter Riegel

I have some comments on the exchange of letters between you and RRCA President Don Kardong, as noted in the September 1997 MEASUREMENT NEWS.

One sentence in Kardong's letter was a bit strange, but the basic question was legitimate. I think that your reply was on the mark. I can add something to your response, working from my memory. As I mentioned in my recent letter, I will write a history of the first twenty years of the Standards Committees.

Comments on Kardong's letter:

The RRCA and the AAU Standards Committees were always separate altho they evolved concurrently and to some degree jointly, by sharing personnel and using the same procedures and standards.

After I wrote an article on measuring which appeared in the RRCA Newsletter FOOTNOTES, and had spent about five years searching for means to measure race courses accurately, I recommended that the RRCA establish an RRCA Standards Committee, patterned after that of the Road Runners Club of England. This was done. I declined to serve as chairman of the RRCA Standards Committee (my coach/advisors thot that I should be training, not getting involved in that stuff). I recommended my New York Pioneer Club teammate John Sterner to chair the RRCA Standards Committee, since he had some surveying experience, and because inaccurate race courses had been a long time complaint of his. Sterner was appointed and I agreed to serve as a consultant on the RRCA Standards Committee, but ended up being a working member.

Soon after the RRCA Standards Committee was organized, I accepted the chairmanship of the newly formed AAU Standards Committee (a sub-committee of the National AAU Long Distance Running Committee). The AAU Standards Committee's job was to certify Junior and Senior National AAU Championship running courses, and to do other things to improve the lot of long distance runners.

A few courses were certified by the RRCA Standards Committee. Both the AAU and the RRCA decreed that championship races must be held on certified courses, but it was not happening, at first. I was better prepared for this rejection and resistance from race directors than was John Sterner, because I had been warned by the RRC of England's Standards Committee Chairman John Jewell, that getting a measurement program underway was going to be slow, difficult, and patience testing.

Sterner, short on patience by nature, became frustrated at the lack of cooperation from race directors, especially the major marathon race promoters, and at the failure to get the RRC national marathon championship courses certified sooner, and at what he considered a lack of support from the then president of the RRCA. Eventually, Sterner suspended operations of the RRCA Standards Committee, as a protest for what he felt was a lack of support from the RRCA Prexy. He waited in vain for something good to happen.

Ron Daws of Minneapolis, Minnesota, was named Chairman of the RRCA Standards Committee. I supplied him with information to get him oriented and encouraged him. That latter move angered John Sterner, and he didn't talk to me for several years. Eventually he got over it, and he helped out with several tough measurement cases for the AAU Standards Committee.

Ron Daws certified at least one course. I do not remember if he set up a real committee or went it solo. I would guess that he worked the local courses and others.

Next, the President of the RRCA and the Chairman of the National AAU Long Distance Running Committee, consulted with each other and decided that henceforth, the National AAU Standards Committee would certify all courses in the USA. Courses certified by the AAU Standards Committee would be recognized as certified by both the RRCA and the AAU. That is the way it was from the beginning. I do not remember if there was ever a merge of the two lists of certified courses, from Sterner and Daws (AAU/RRC).

Ed O'Connell of the Boston, Mass. area succeeded Daws as RRCA Standards Committee Chairman. I attempted to orient him to his task. The RRC Standards Committee could still measure courses, encourage others to measure courses, and administer the RRC Standards Certificates program. This Committee died from inactivity.

The RRC Standards Certificates program allowed RRC members to run three races, at three different distances, e.g. 10K, 20K, 30K, or 20 Miles, Marathon, 50K (as examples), in specified times and when successful the runner got a certificate for the achievement. These races had to be run on certified road courses or tracks. This program gave runners a real challenge, and it was a sneaky way to get more courses certified.

Theoretically the AAU had more "muscle" than did the RRCA, but since the RRC Standards Committee had not gotten the help needed to determine if the courses were certifiable, I recruited three measuring teams to check the three major marathon course lengths.

The Culver City Marathon in Culver City, California, was measured by National AAU 30K champion Bob Carman and his wife. They spent most of two days measuring the course with a calibrated measuring wheel. This was done Dec. 4 and 5, 1965.

The Boston Marathon course was measured by members of the New England RRC: Larry Berman and his wife and John Booras, a BAA marathoner. This was done in April 1967 using the calibrated bicycle method. They found the course to be 107 yards long.

The Yonkers Marathon, held in Yonkers, NY, the site of the then annual national marathon championship course, was measured in Oct. 1965, by Aldo Scandurra, Chairman of the National AAU Long Distance Running Committee, and Ted Corbitt, using the calibrated Bicycle Method.

The list of certified courses generated by the AAU/TAC Standards Committee was available to the RRCA and to anybody who needed it.

Comments on your reply to letter from Kardong:

I've been a registered amateur athlete since 1939 and a member of the RRC since 1958. I did a lot of work for both organizations, as you have done.

I served on both the RRCA and the AAU Standards Committees, to help keep them alive. Early in the game, I asked for and received \$60.00 from the RRCA to buy some Veeder Root counters to sell, at costs, or to rent, to measurers using the calibrated bicycle method. This was the first bicycle wheel revolution counter that we used. When the company stopped making this counter along came the Jones counter, and the Senechalle counter. I did not ask for additional funds from the RRCA, and did not ask for any money from the AAU. I did get a promise from you for funds for an as yet unfinished project to honor some of the people who helped the measurement movement survive and thrive. I got a small amount of money for writing an article for a running publication and I divided this up among the then active members of the Standards Committee to partially reimburse them for stamps and stationery.

In the early days I distributed copies of certification applications to two or three members, but up to as many as 12 Committee members and consultants, including John Jewell of England. Later, I did some solo work, but also got a lot of sure things as experienced, expert measurers emerged.

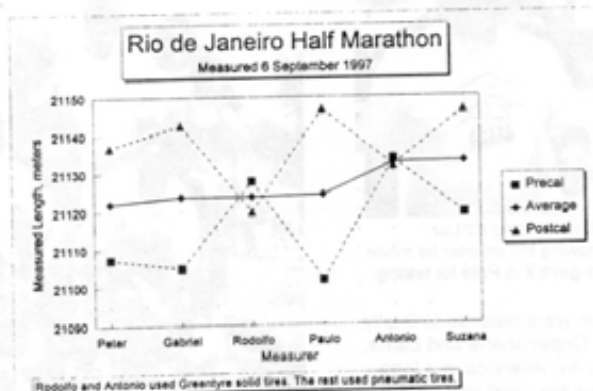
I believe that the RRCA has not been involved in the implementation of the course certification process for close to a generation. However, if there had been no RRC there may not have been a measurement program until much later. The RRC's role has been that of a sprinter rather than a long distance runner. Or, think spark plug.

We are indebted to the late John Sterner, Bronx, NY; to John Jewell, Wokingham, England; to Bob Letson (The AAU/TAC Standards Committee's Patron Saint) of San Diego, California; and to Peter Riegel, Columbus, Ohio, who shepherded the RRTC thru an important growth period. I believe that the RRCA has a service Hall of Fame. If so, these fellows belong in this place of honor, if they are not there already. Others to follow.

Ted Corbitt

New York Pioneer Club

Ted Corbitt



MEASUREMENT AND OBSERVATION OF RIO DE JANEIRO HALF MARATHON

Measurement of the course:

I was contacted by Rodolfo Eichler, IAAF "A" Measurer in Brazil, and asked to come to Rio to check his measurement of the course and to observe the race. I have always enjoyed working with Rodolfo, and I accepted. Rodolfo explained that he would be going to Rio on 31 August with a group of measurers to lay out the course, and that we would prevalidate on Saturday, 13 September, two weeks later. The Saturday was chosen for measurement because the traffic is much less than on weekdays.

The flight to Rio was exceptional in that I had three seats to myself both ways, thus was able to stretch out during the 12 hour overnight flight to and from Atlanta. Very nice. Not exactly like a bed, but a lot better than sitting upright in an economy-class seat.



Suzana and Rodolfo laying out the precalibration course.

On Friday I met with Rodolfo and his team - Suzana Gnaccharini, Paulo Silva, Gabriel Monteiro and Antonio Varela. We toured the course. It's quite beautiful, running as it does along the beaches and ending in Flamengo Park, with the Sugar Loaf as backdrop. The race was sponsored by O Globo, a Brazilian TV firm, and they wanted a finish that would show up well on TV.

In São Conrado, at the start, we laid out a 300 meter calibration course, for use the next morning. We had no sticky tape for marking, but we had a plentiful supply of paper. Each mark was made on a piece of paper, which was firmly held in place until it was no longer needed. When we were done we went for a drive through the Tijuca Forest and a beer in a small bar at the edge of the forest.

Next morning we collected the bikes and people and went to São Conrado, where we were met by the O Globo TV crew, who wanted to film the measurement process. They grabbed my bike and moved to a sunny spot, then spun the front wheel and took pictures of the Jones/Oerth counter as its digits moved. I had a bit of trouble riding around one cameraman who leaned into my calibration path, but I held firm and he moved.



Flavio Cretaro da Luz, showing the counter he made. He gave it to Pete for testing.

The course from São Conrado is two lanes wide for the first 3 km, and very winding with a few small hills. The police did a fine job of stopping cars on the blind curves, but we were relieved to finally get to the beaches of Leblon, Ipanema, Copacabana and Leme, where the course continued on the wide Av. Atlantica in a long, sweeping right-hand turn. The SPR was easy - just ride on the right, and the police had it easy there. In the first kilometer I had one minor problem with the TV cameraman, who established

himself on the SPR. I had to shoulder him out of the way, but managed not to fall nor deviate from the SPR.



Antonio taking a count.

At Leme, at the end of the beaches, at about 13 km, the course doubles back to the Meridien Hotel, then turns right through a tunnel, emerging on Botafogo Bay and continuing to the park and beaches of Flamengo, to the finish. As we had to cross the median and ride against three lanes of traffic here, the police had some difficulty, but got the job done. I never felt a moment's unease - we were superbly protected

At the finish we pounded two nails and recalibrated, then got out the steel tapes and measured the length between the nails, completing the data gathering. By then it was noon, we were hot and tired, and we went to the hotel to shower and calculate. Measurements agreed within 11 meters for all six measurements, quite agreeable. They also showed the course to be about 24 m oversize (full SCPF plus 24 m), which Rodolfo had known beforehand. Measurements confirmed the original layout closely. Because the TV people had already set up, and did not wish to change, the course was left as it was.

Observation of the race:

The race was to start at 9:30 AM. This is a bit late when there is a chance of hot weather, but O Globo wanted to be sure their potential audience was awake. Besides, it was winter in Rio, and a hot day had not been expected. Surprise! It was about 30C (86F) at the start, and later rose to the high 30's (high 90's) at the finish.



The measurement is finished, and all are smiling.

The 6000 runners were held back before the race by a crew of people who kept them 20 meters back from the start line. Just before the start, the elite runners were permitted to take their place at the start, and the crowd permitted to move up.



Gabriel getting set to lead the race.

As observer, I was assigned a "moto" (motorcycle) on which to ride ahead of the race. The area in front of the start was crowded with two big press trucks, a commercial radio reporter in a car, and 20 or 30 motos. I smelled a potential problem. During the first two winding kilometers on the two-lane road the vehicles were caught by the runners, with runners pounding on the press truck to make way. Since I could not see the runners anyway, and was only needed to verify the route, I asked my driver to speed up and get as far forward as possible, well out of the traffic. This we did, riding in sight of Gabriel (former Colonel of Marines, now retired and a Rio policeman), who was leading the race on his police motorcycle. I had no idea what was happening behind me, but in front could see what looked like millions of people lining the beaches and watching the race.

Near the finish I was caught by Rodolfo's moto, and he said to hang back until the leader appeared. We followed him for a while. He was absolutely surrounded by motos. Once he looked over his shoulder to check out the competition (he was well clear), but I doubt he was able to see anything. It is interesting how so many races would love to have a fast time, yet permit conditions to exist that impede the runners.

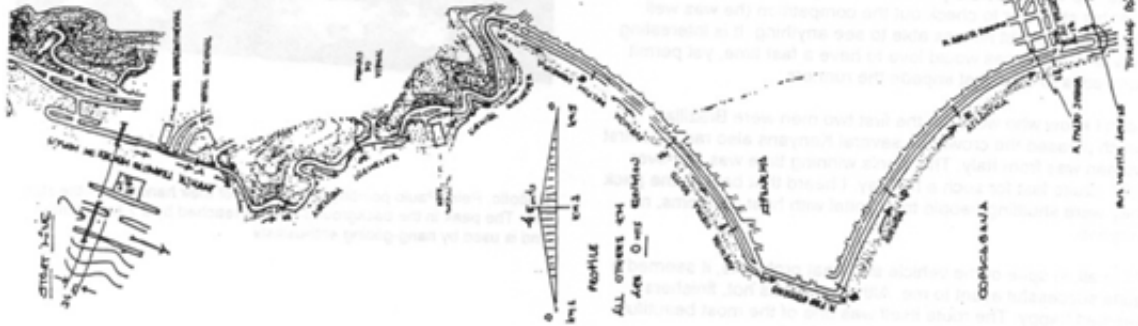
I don't know who won, but the first two men were Brazilian, which pleased the crowd, as several Kenyans also ran. The first woman was from Italy. The men's winning time was just over 1:04. Quite fast for such a hot day. I heard that back in the pack they were shuttling people to hospital with heat problems, no surprise.

All in all, in spite of the vehicle and heat problems, it seemed a quite successful event to me. Although it was hot, finishers seemed happy. The route itself was one of the most beautiful I've seen, and the race was well-organized.



Rodolfo, Pete, Paulo pointing at the result of their handiwork - the start line. The peak in the background may be reached by a 7 hour climb, and is used by hang-gliding enthusiasts

97 Rio Half Marathon

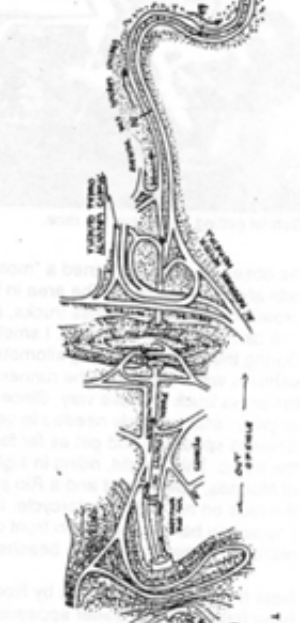
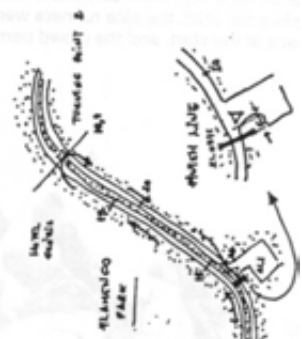


MEIA MARATONA DO RIO 97 - LOCALIZAÇÃO DOS KM

- | Kilômetro | Localização |
|-----------|--|
| KM 01 | Av. Prof. Manoel de Moraes, em frente ao edifício São-Carvalho, nº 1150 |
| KM 02 | Praça de Itália - "Alameda" - Duas ruas 18. |
| KM 03 | Praça de Moraes, em frente a Câmara da PM, antes do H. Nacional |
| KM 04 | Av. Niemeyer, em frente a estação (Praça) 20m antes do estacionário |
| KM 05 | Início da Descida da Niemeyer. 20m antes das escadas de Pedra de Arsenio ao Mar. |
| KM 06 | Av. Niemeyer, em frente ao muro do ad. Nº 100, depois do Vidua. |
| KM 07 | Labores, Av. Delfim Moreira nº 1172, em frente a rua Rita Ludwick, antes da Biblioteca e cabina da PM. |
| KM 08 | Delfim Moreira nº 110, em frente a Alameda de Melo Franco. |
| KM 09 | Em frente ao nº 482, virado antes do Casuar Park Hotel. |
| KM 10 | Vista Sotoca em frente a Gomes Carneiro (antes do Baril 1800). |
| KM 11 | Av. Atlântica - Ponto 06 altura do nº 4240 - Rio Palace Hotel. Sem antes da Cabana da PM. |
| KM 12 | Av. Atlântica 2196, antes Rio Olhos Palace, na Xavier de Silveira. |
| KM 13 | Av. Atlântica 2172, centro do Ponto da BR (Sra. Sra. Sra.), antes a Estação Central. |
| KM 14 | Edifício 1122, em frente ao edifício dental entre Paulo Jr. e Princesa Isabel. |
| KM 15 | Leme, na volta em frente ao nº 154 - ad. Aracuanis. |
| KM 16 | Princesa Isabel altura do nº 500 - antes do final do túnel, em frente ao Real Rendimento Hotel. |
| KM 17 | Início do 2º Túnel (Túnel do Passadizo) - Intercomércio. |
| KM 18 | Praça de Bonifácio, contra mão, altura da rua Mariana de Orléans e Jardim Alentejo do Flamengo, curva antes do muro da Vista, Mar do Paraná. |
| KM 19 | Placa Ref. "Pista Escorregadia". |
| KM 20 | Antes - início da passarela subterrânea, Contra Mão, antes o Rio's. |
| KM 21 | Antes - fim após passarela sob a pista, início das quadras de futebol. |
| KM 22 | Antes - início da passarela subterrânea, entre a quadra horizontal e a de Chappas. |
| KM 23 | Antes logo após o retorno final da área de Laser, antes do Rio's. |
| KM 24 | Em frente a retorta de acesso ao restaurante Rio's. |

MAPA 03
MOUTH
ROOF EICHER

VISIT
RIO!



ROUGH TEST OF A NEW COUNTER

When I was in Rio de Janeiro I met a man named Flavio Cretaro da Luz. He had made a counter similar to the Jones/Oerth counter, and he wanted me to look at it. I saw a greasy, obviously well-used counter which was very similar in appearance to the Jones/Oerth counter. The method of attachment between the counter and the gear was interesting. The counter appeared to be encased in a hard putty, probably a form of epoxy. It enclosed all of the counter except its face, and also surrounded the geared portion, all the way to the point where the small plastic gear protrudes. The attachment seemed quite strong.

Flavio said I could have it for testing if I wanted it, so I took it and tested it, nondestructively. I did not cut it open to see how the counter shaft was fitted into the plastic gear. This is a VERY important feature of any counter, as the counters come from the factory with a round shaft, and this must be carefully ground square to fit the square hole in the plastic gear.

I mounted Flavio's counter and mine on opposite sides of my front wheel and took readings from time to time as I was doing various measurements, until I had accumulated about 400,000 counts on my counter.

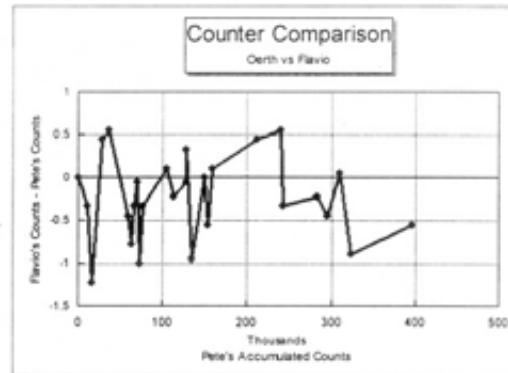
The number of counts in one wheel revolution depends on three things: The number of teeth on the big gear, the number of teeth on the small gear, and the number of counts the counter produces when the counter is given one revolution. Counters over the years may have had various characteristics (see table below).

Teeth on Big Gear	Teeth on Small Gear	Counts per Shaft Revolution	Counts per Wheel Revolution	
20	9	10	22.22222222...	Possible, but I never saw one
20	10	10	20	Original Jones model
20	11	10	18.18181818...	Possible, but I never saw one
26	9	10	28.88888888...	Flavio's counter
26	10	10	26	I saw one of these years ago
26	11	10	23.63636364...	Jones/Oerth version

Present Jones Oerth counters have 26 teeth on the big gear and 11 on the small gear. Flavio's has 26 on the big gear and 9 on the small gear. Thus, if both counters are working properly, Flavio's counter will record (28.8888.../23.6363...) or 1.2222... times my counter's reading.

The table also explains the puzzlement that arises when one counter is switched for another, and the constant appears to change. If the gearing is not identical, different constants will arise. As long as the same counter is used for the entire precal-measure-postcal procedure this is not a problem.

Results may be seen in the graph. Although there are small differences, these may be attributed to errors in reading one or both counters. Both counters appear to work without skipping counts. Flavio's counter is thus seen to perform properly. I can see no reason why he should not proceed with any plans he may have for it.



Note: a decade ago I checked with Veeder-Root about the recommended rpm limit on their counters. As I recall, the then-standard 20 count per revolution counter was pushing the RPM limit a bit, when the bike was ridden fast. The higher the counts per wheel revolution, the better the precision - but also the faster the counter will spin. Anyone contemplating counter manufacture should check with the counter supplier about their rpm limit.

RUN
INTO THE NEXT 1000 YEARS
THE MILLENNIUM MARATHON
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1st JANUARY 2000

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9 September 1997

Pete Riegel
Measurement News
3354 Kirkham Road
Columbus
Ohio 43221-1368
UNITED STATES OF AMERICA.



"THE WORLD'S FIRST MARATHON OF THE NEW MILLENNIUM"

Dear Pete,

Firstly I must say how delighted I am that the IAAF has decided to sponsor 'Measurement News', at least as far as international distribution is concerned. Well done.

Recently (end of July) I was invited by Hajime Yuki, Race Director of the Amagasaki Half Marathon in Japan, to go with him to Ulaanbataar, capital of Mongolia, to measure a course for an international half marathon there. Yuki is a big Japanese man (around 6'3") with an even bigger heart and this event was just another in his long list of events he has put on to raise money for those less fortunate. Last year it was a half marathon in Angkor Wat, Cambodia for victims of land mines, this time in Mongolia for street children and always his own event in Japan raises large amounts for worthy causes.

I flew to Osaka (Kansai), overnighed in Kobe (gradually getting back to normality after the dreadful Hanshin Earthquake) and then next day to Ulaanbataar on Mongolian Airlines - not too bad at all.

Inevitable meetings with government and athletic officials and then a search for a suitable course. There did not appear to be any street maps of any consequence and certainly none to scale, so we firstly looked for a starting point and decided that the centre of the large square outside the Mongolian Parliament was ideal. The only problem was that this meant crossing the major road in the city (population around 600,000) and the race was to be held on a workday. It was decided that as this major road was only a few hundred metres from the start point, traffic could be halted while the runners en-masse went through, but no way the same point could be used for the finish line. We opted for a finish at another smaller square about 600 metres up the road.

Calibration was no problem with a straight piece of road within a nearby park. 400 metres duly measured by tape in the normal way and checked then marked with steel nails and painted. Good quality bicycles were provided by the local members of the race cycling club together with two of their top cyclists.

After calibration, we measured from the start to the finish point and then measured in sections as shown on the map which follows. At the end of the rides (unfortunately one cyclist got a puncture in the front with an unrepairable tyre) the second cyclist and I were just 4 metres apart, but both with figures which showed the course, as measured to be 2.708 kms short of the required 21.0975 kms. However no problem we extended one leg of the two lap course by 677 metres (covered 4 times being out and back) and ended up with an interesting course and a good course measurement which we checked again the next day.

I have spoken to Yuki recently and the event held on Tuesday 12th August was considered successful although only around 200 runners (about 80 from Japan) and Yuki raised some US\$3,000 for the street kids of Ulaanbataar.

A few interesting problems encountered during the event. It was held at morning rush hour as everyone was going to work. A trolley bus tried to skirt a line of cones and lost contact with the overhead lines and of course, all power. Everyone had to jump out and push the heavy vehicle to a spot where it could again make contact with the overhead power lines. Then Yuki stopped all traffic and many buses laden with workers jumping up and down about being late for work were about to riot, but despite the police telling him he would have to open the road, Yuki (just as well he is BIG!) stood his ground until the runners had all passed and in the end the race was considered a great success.

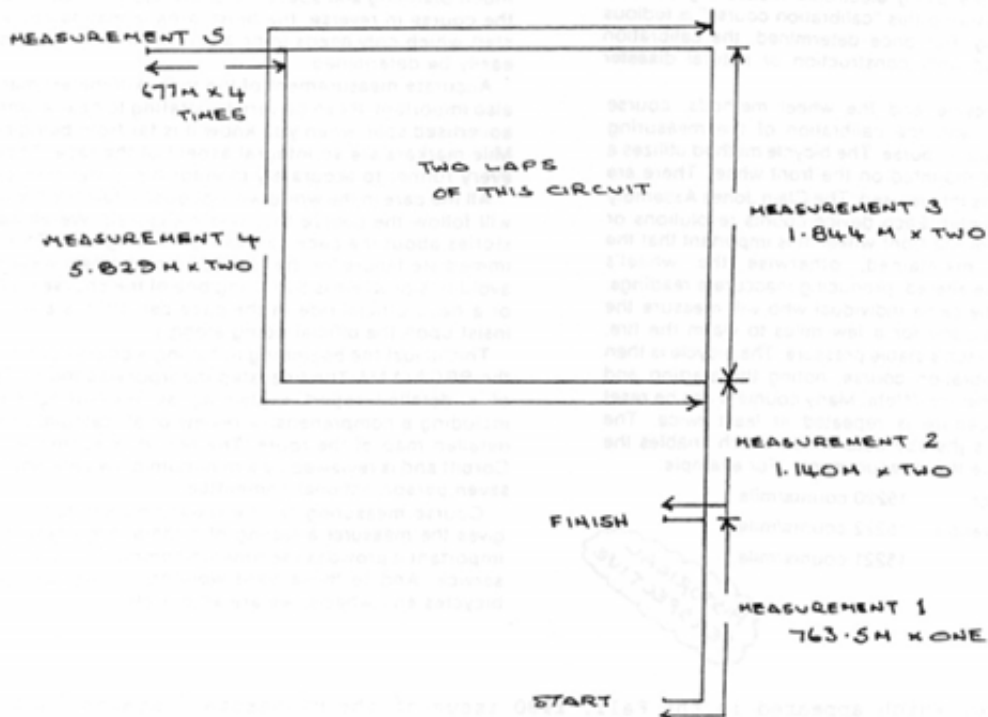
Next month I'm off to re-measure Amagasaki Half Marathon for the UNICEF Cup, for Hajime Yuki.

Just so that I have something to do in my 'retirement' The Millennium Marathon I'm organising is really hotting up despite it being over two years away and already have requests for entry from 3,500 overseas runners. Undoubtedly it will be New Zealand's biggest ever marathon. Could be around 8,000 to 10,000.

Best regards,



Andy Galloway.



Course Measuring Requirements

David C. Katz

With the growing number of races, today's road runner has become more discriminating as to which event to attend and the competition among race directors has increased, each vying for the "Perfect Race." The absolute basis of a good event is an accurate course. Many runners believe that if a race organization can't provide an accurate course then they should not have the race at all.

The days of automobile measured courses are long gone, especially with the simplified methods of measurement used today. Any individual with a small amount of desire and care can accurately measure a road racing course.

Regardless of the course, the route should be accurately measured and its distance advertised. Without this information, runners cannot effectively determine their pace and monitor their rate of improvement.

Two methods of course measurement accepted by the RRCA and AAU Long-Distance-Standards Committees, are the calibrated bicycle and the calibrated measuring wheel methods. After measuring over 85 courses in the past year using both instruments, I have determined that each method provides an equal degree of accuracy. Ted Corbitt, Chairman of the Standards Committees, favors the calibrated bicycle method but admits that, with care, the calibrated wheel offers comparable accuracy.

Both the wheel and the bicycle methods are dependent on an accurately measured known constant. The committee suggests at least a half-mile stretch on a straight, flat road. This half-mile should be measured several times using a surveyor's steel tape measure of one hundred foot length and applying a tension of ten pounds for each tape measurement. Some race organizations have the distance double checked by professional surveyors using electronic measuring devices. The process of measuring this "calibration course" is tedious and time consuming. But once determined, the calibration course can be used until construction or natural disaster changes the road.

With both the bicycle and the wheel methods, course measurement starts with the calibration of the measuring device on the calibration course. The bicycle method utilizes a small counter that is mounted on the front wheel. There are basically two counters that are used: The Clain Jones Assembly and the five star counter. Each device counts revolutions or parts of revolutions of the front wheel. It is important that the tire pressure be maintained, otherwise the wheel's circumference will be altered, producing inaccurate readings. The bicycle rider (the same individual who will measure the course) first rides around for a few miles to warm the tire, allowing the tire to reach a stable pressure. The bicycle is then ridden over the calibration course, noting the starting and finish counts of the device. (Note: Many counters can be reset to 0000.) This procedure is repeated at least twice. The average "constant" is thereby determined which enables the measurer to calculate the measurements. For example:

First calibration	15220 counts/mile
Second calibration	15222 counts/mile
Average	15221 counts/mile

HISTORICAL
PERSPECTIVE

This article, which appeared in the Fall, 1980 issue of the Minnesota Distance Runner, is reprinted by permission of that publication and David C. Katz. A small part specific to Minnesota courses is omitted. The committee referred to is the National Standards Committee, of which David C. Katz is a member. It is recognized as the sole authority on approval of certified road running courses by the RRCA, TAC, and the NRDC.

The measurer then proceeds to the start or finish of the course, notes the number on the counter and adds the constant over and over to determine each mile or fraction of mile to be measured. After the course is measured, the bicycle is "recalibrated" on the calibration course. This process must be repeated each time you measure a course. Because the measurer is working with relative numbers, it is important that there be a minimum of two measurements for each course. It is preferred that two bicyclists measure a course together. This allows each independent measurer to check his or her figures against the other's, thereby decreasing the chance of error.

The calibrated measuring wheel is used in the same manner as the bicycle method. The wheel must be calibrated before and after each measurement on the calibration course. The major drawback of this method is time. The wheel must be walked at slower than three miles per hour to achieve best accuracy. Even a slow jog will produce gross errors. I personally prefer the wheel because of the consistency of the solid rubber tire. The degree of circumference change is negligible as compared with that of a bicycle tire over a day's worth of measuring.

With both methods, the course should be measured following the path the runners will follow as closely as possible. According to Corbitt "give the runners a chance to cut a corner and they'll take it." Therefore, the measurer should cut every corner possible, without going off the course. In addition, all courses should be checked with an alternate method. I make my initial measurements with the bicycle and my final measurements with the wheel. The actual mile markers, start and finish are determined by taking the average of the two (or more) measurements made.

I have found it easier to measure all my courses from the finish to the start. Most of today's finish line areas require much planning and space for chute systems. By measuring the course in reverse, the finish area is maintained and the start which only needs to be a scratch line on the road, can easily be determined.

Accurate measurement of the mile (kilometer) markers is also important. It can be very frustrating to hear a time for an advertised split, when you know it is far from being correct. Mile markers are an integral aspect of the race. They allow every runner to accurately monitor his or her own pace.

All the care in the world will not guarantee that the runners will follow the course that was measured. We all have our stories about the pace car taking a wrong turn. This means immediate failure for the race. One of the best ways to help avoid this problem is by having one of the course measurers or a head official ride in the pace car. (If it is a police car, insist upon the official going along.)

This is just the beginning to having a course certified with the RRCA/AAU. The final step incorporates the completion of a detailed report explaining all measuring methods, including a comprehensive review of all calculations and a detailed map of the route. The report is submitted to Ted Corbitt and is reviewed by a minimum of two members of the seven person national committee.

Course measuring can be rewarding and fun. It not only gives the measurer a feeling of pride and success, but most important it provides the running community with a valuable service. And to those hard working individuals with their bicycles and wheels, we are all grateful.