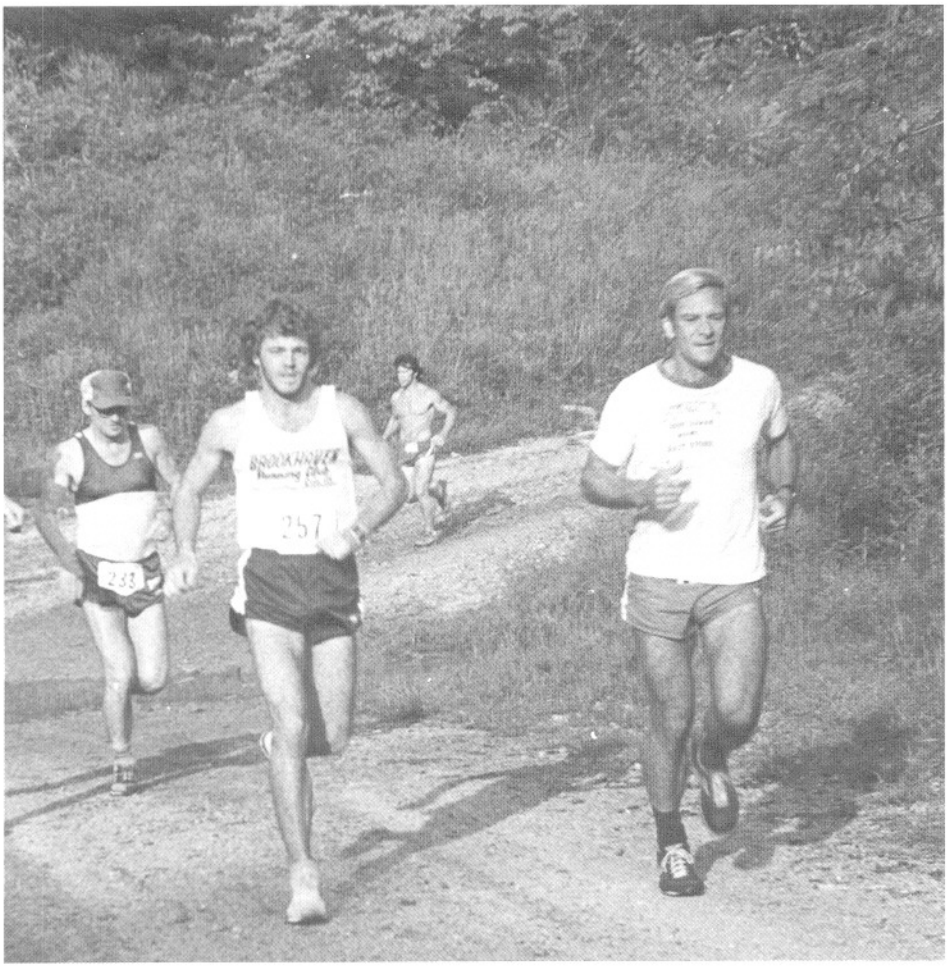
THE ATHLETICS CONGRESS TAC USA

Road Running Technical Committee

MEASUREMENT NEWS

January 1987 Issue #21



MN Editor Pete Riegel (on right) leading the pack in a back-roads run in Tennessee. Where did the measurer ride on this turn?

MEASUREMENT NEWS

#21 — January, 1987

CATCH-UP ISSUE

The last issue (December 1986, #20) went out hot on the heels of the TAC Convention, and I had to hurry to get it out before the Christmas rush. Haste makes waste, so beginning now MN will start its year in January. And the last issue of the year will come out just before the TAC convention. I think it will work better this way.

MASS DISTRIBUTION

This issue of Measurement News is being sent free to everybody on NRDC's mailing list. Welcome, folks! I hope you'll find enough in this issue to convince you to part with a $15 subscription. The Road Running Technical Committee consists of all the people who help out in the certification process, and we cooperate strongly with TACSTATS and the TAC Records Committee. A list of recently-certified courses will appear in each issue of MN, just as it used to appear in NRDC News.

RRTC will be cooperating strongly with TACSTATS to keep up the quality of records-keeping. See the FREE OFFER elsewhere in this issue.

Although you may not be members of RRTC your opinions are welcome, and I invite you to write about your concerns. We can't solve problems if we don't know they exist.

THINGS IN THIS ISSUE

1) The first new update of the Certified Course List.

2) A list of who the regional certifiers are.

3) A chance to get a copy of the Seoul Olympic Marathon measuring report. It's a honey.

4) Some new directives about how to treat your certificates.

5) Abbreviations to identify those mysterious certifiers whose initials grace the course ID's.

6) A magic equation to play with.

7) A Running Performance Rating Guide

8) Short Calibration Courses now OK for Regional Certifiers

9) A FREE OFFER - a charter subscription to TACTIMES

CERTIFICATION — ADMINISTRATIVE PROCEDURES

As you can see from the certified course update list (elsewhere in this MN), the format is different from the way it used to appear in NRDC News. The one-line format used now is more easily adapted to fast computer-sorting than was the old format.

Here is some new information, not yet cast in stone. Suggest improvements! We can learn as we go!

1) The new course-keeper ("Registrar of Courses") is:

John White - 4865 Arthur Pl - Columbus, OH 43220

2) Certifiers should send their certificates to Bob Baumel (west) and Wayne Nicoll (east). Do not send them directly to John or Pete Riegel. They will not be accepted.

3) By and large everybody is doing just fine. However, in a few isolated areas quality control has slipped and there is work to do. Therefore certificates will be checked before entry onto the list. On quality, we assume that all final signatories know how to check measurements. Therefore once you OK a course, no measurement data need accompany the certificate. What is needed is:

a) The certificate itself.
b) A good quality reproducible map that shows the entire route.
c) Everything on one piece of paper. It has been done in the eastern US for years, with few exceptions. This simplifies filing and duplicating.

These requirements are not new - they merely reflect what we have collectively been trying to do for years.

4) Send a registration fee of $2.00 with every separate certificate. If you use checks, make them payable to John White. This fee is necessary to underwrite the cost of maintaining and publishing the list. It should come from the $25 you are authorized to levy as a review fee. Note that many certifiers sent NRDC $5.00 per course for years. John is willing to give his time, but I refuse to allow him to give his money too. That's a sure path to burnout. Adequate operating funding is essential to good work of any type.

5) Certificates on file may be obtained for use of the general public by sending John White $2.00 per certificate and a stamped, self-addressed envelope. Identify what you want by using the course ID. Example "OH 86112 PR". This procedure also authorizes you to charge $2.00 for providing this service in the area you serve. No need to refer people to John if you want to do it.

6) You'll see a list of certifier abbreviations in this issue. You now have the option of using 3 initials in your personal certifier code, i.e. "OH 86112 PSR". We already have a couple of code duplications. If you want to change your personal brand, here's your chance.

ON-SITE SHORT CALIBRATION COURSES OK

Our standard calibration course has an 800 meter (1/2 mile) minimum length, and can be hundreds of miles away from the race course it is used to lay out. As long as we get the measurements within a 24 hour period we consider things to be all right.

Bob Baumel showed us (see MN #15, Feb '86) that roughness of the road has a significant effect on measurement variation. A remote calibration course is less likely to duplicate the quality of the racecourse than a calibration course on-site.

Pete Riegel's experiment performed by eight people who stopped frequently during calibration (also in #15 MN) showed that using shorter calibration courses had a minimal effect on overall accuracy.

Most people, given the choice, will use an already-existing remote calibration course even if it is a long way from the racecourse because it is legal and handy, and laying out a full-length calibration course on-site is not always possible.

But it seems likely that even a short calibration course, laid out on the racecourse itself, will yield better measurement results than one that is far away. Therefore:

New Temporary Experimental Policy - Short cal courses may be used until further notice by RRTC regional certifiers only under the following guidelines:

1) Minimum length 300 meters or 1000 feet

2) One careful cal course measurement is OK if a bike-check is used to assure the proper tape count. Correct the taped length for temperature. Document what you did for your records.

3) The bike may not be transported in any vehicle from the time the measurement process is started. It must be ridden throughout the entire procedure. This assures that the cal course will be nearby the race course.

4) The cal course should have a surface that's similar to the race course. Try to get this. A cal course that is actually a part of the race course itself is best.

5) The cal course should not be certified for re-use. It's used only for the local course where it is. We don't want others to use these shorties for remote measurements. Keep it in your personal notes but do not broadcast the existence of the cal course.

6) Show the general location of the short cal course on your race course map, and note on the certificate the length of the calibration course that was used.

The purpose of the above is to encourage the use of on-site calibration courses, which leads to more accurate measurements. I hope you will pass on your opinions of and experience with this new process so that we can soon get a sense of whether it is a good idea.

Pete Riegel

THE AGE STANDARD TIME EQUATION

The Age Standard Time (AST) equation is an expression I derived a couple of years ago in an attempt to make order out of chaos. I wanted a numerical tool that would allow me to compare performances of men and women at any distance from mile to marathon. After a lot of curve-fitting and fooling around I came up with the expression shown.

Some readers will find the expression complicated and some will not. Those of you who are numerically inclined will note that the expression has the virtue of being continuous across the ranges of distance and age. This makes it easy use in your computer programs. Have some fun playing with it. The uses are too numerous for me to go into all of them here. If you are a real numbers freak you will find them.

The AST will yield answers that are close to record performance levels for the age and sex involved, but expect some difference. Some inaccuracy is the price that was paid for a manageable expression. Use outside the specified ranges will produce preposterous answers.

* * * * * * * *

Rather than explain further I will use a couple of examples. The following relate to <u>elite</u> performers:

1) A woman of 52 can run 10 miles in 63:51.

2) A man of 44 can cover 19.24 km in the one-hour run.

3) A man of 63 will nearly tie at 8k with a woman of 44.

4) A man of 50 can run 10 miles at the same speed he could run a marathon when he was 40.

* * * * * * * *

For the non-elite, Speed Ratios (SR's) are used as follows:

$$\text{Speed Ratio, SR} = \frac{\text{World class time}}{\text{Athlete's time}}$$

1) A 48 year old woman runs a marathon in 4:08:24. Five years later, at 53, she runs 4:25:11. Both performances were run at a speed ratio of .700. Does this mean she is holding her own? Seems like a reasonable thing to assume.

2) A man runs a 2:57:00 marathon at age 44 (AST, for age 44, predicts 2:18:02). At 49 he runs 5 miles in 31:00 (AST predicts 24:40 for age 49). Which was the better performance? According to the AST, the marathon was run at a speed ratio of.780. The 5 mile was run at .795, making it the slightly better performance.

3) Older performers will never again PR. Instead they can figure out their Personal Speed Ratios (PSR's) from the AST equation and keep progress of their performance as they age - at any distance.

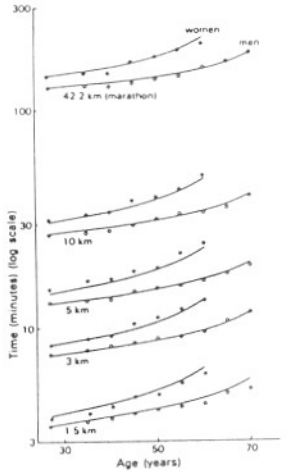
The Age Standard Time (AST) equation may be formulated in six ways, as follows:

$t = c\,(x/8)^{b}$	(time vs distance)	(1)
$x = 8\,(t/c)^{1/b}$	(distance vs time)	(2)
$v = 8c^{-1/b}\ t^{(1-b)/b}$	(speed vs time)	(3)
$t = (c^{1/b}\,(v/8))^{b/(1-b)}$	(time vs speed)	(4)
$v = c^{-1}\,8^{b}x^{1-b}$	(speed vs distance)	(5)
$x = (8^{-b}\,cv)^{1/(1-b)}$	(distance vs speed)	(6)

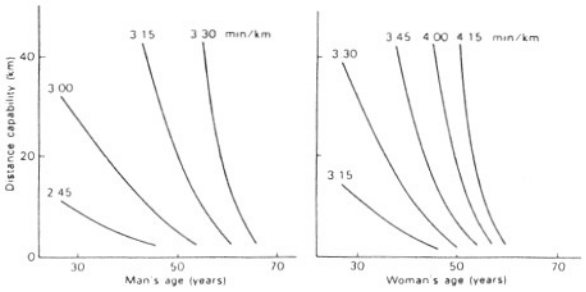
In the above, t = time, minutes, x = distance, kilometers, v = speed, kilometers/minute. "c" and "b" are as defined below, wherein "N" = age, years

Constant	Men 27 to 70	Women 27 to 60
c	$55.524\,(80-N)^{-.23805}$	$72.506\,(70-N)^{-.28866}$
b	1.07742-.000984 (N-27)	1.08542-.001086 (N-27)

Pete Riegel 1982



World-record times vs age are shown for five race distances, for men (o) and women (•). The points shown are actual records; the lines are the times as calculated by the AST equation.



Distance capability vs age for men and women at various paces. A woman of 30 can run 31.8 km at a 3:30 min/km pace. At age 50 she can cover only 1.9 km at the same pace. The younger woman is capable of 17 times more work than the older one at the work rate represented by the 3:30 pace.

FOLDING BIKE — RECENT DISAPPOINTING EXPERIENCES

Like Wayne Nicoll, I also bought a folding bike. I wanted to have one for use in out-of-town situations where I had to fly and a regular bike was too much hassle. I bought a DaHon, a honey of a little bike that folds up to suitcase size. I really love the little thing - it is a whole lot of fun to ride. I did some measuring with it on a local course I'd measured with my bigger bike, and was encouraged at the agreement. I bought an Eliminator tube for the front wheel.

Then I took it to Pittsburgh to validate a couple of race courses. I rode with Mark Courtney, a measurer of long experience I'd never ridden with before. We rode a steeply uphill 10k (forced by traffic requirements - the runners get to run downhill). I rode behind Mark, and with only three speeds on my bike I was huffing and puffing on the hills, which were numerous. I did not do a very good job of riding, while I could see that Mark was doing a better job than I was.

When we figured up the dope the numbers showed that I had beat him by 15 meters in a 10k. My measurement showed the course to be 15 meters shorter than his. Later that day we rode a 5k, and I zinged him by 6 meters, in spite of the fact that I could see that he was riding properly and as well as I was.

I refused to believe that the results were real. I believed that the very small, fat wheels on the DaHon (16x1.75) had something to do with the difference. I love to outride somebody, but only by a meter or so. More destroys my faith in the validity of the measurements.

Because Mark's riding was impeccable, his rides were considered to provide the definitive validation info. Mine I considered only a check.

Recently I tried an experiment. On a local hill I rode uphill and downhill between two paint marks, much as I had done months ago on my bigger bike (See MN, August '86). At that time I obtained no difference. This time, however, I got as follows:

	Dec '86 - 16"wheel	Aug '86 - 27" wheel
Uphill:	5086, 5087 counts	2927, 2928.5 counts
Downhill:	5094, 5095 counts	2928.5, 2925.5 counts

The (downhill - uphill) difference amounts to about 0.16 percent, or 16 meters in a 10k. This effect alone could explain a large part of the difference between me and Courtney.

Another disquieting thing. My wheel's constant, based on my home calibration course, is about 26500. On the Pennsylvania cal courses, one of which we checked with steel tape, my constant was higher than I thought proper. Those roads were rougher than my own cal course, so I suppose that the surface roughness affected my wheels too.

Although I really like my folding bike a lot, I am not going to use it for any more official measurements. It has its uses, but laying down a truly accurate course is not something I can use it for. I will continue to explore its capabilities. Traveling through the airport with the bike in an ordinary suitcase sure beats waiting on that big cardboard box and trying to jimmy a full-size bike into a cab.

CERTIFIER ABBREVIATIONS - The following abbreviations have been or will be used in course ID codes. For example, NE 84019 JL was certified by Jim Lewis. Where there are two names for the same initials, figure it out from where they live and where the courses are.

ACL - A. C. Linnerud
AP - Al Phillips
AS - Allan Steinfeld
BB - Bob Baumel
BG - Bill Glauz
BH - Basil Honikman
   - Benjamin Hablutzel
BN - Bill Noel
BS - Brian Smith
BT - Robert Teschek
BU - Ben Buckner
CEG - Charles E. George
CJ - Carl Jeansonne
CW - Carl Wisser
DB - Dan Brannen
DK - David Katz
DM - Dan Millet
   - Dale Matty
DR - David Reik
ETM - E. T. McBrayer
FH - Finn Hansen
GBD - Gabriel Duguay
GD - George Delaney
GLD - Gordon Dugan
GM - Greg Mix
GN - Gregory Nelson
HWC - Harold Canfield
JD - John DeHaye
JL - Jim Lewis
JMC - John McGrath
KL - Kevin Lucas
LE - Len Evens
MR - Michael Renner
PC - Paul Christensen
PR - Peter Riegel
RL - Bob Letson
RR - Rick Recker
RS - Ron Scardera
RT - Robert Thurston
SH - Scott Hubbard
SV - Steve Vaitones
TB - Tom Benjamin
TC - Ted Corbitt
TD - Tom Duranti
TF - Tom Ferguson
TK - Tom Knight
WG - Bill Grass
WH - Bill Hughes
WN - Wayne Nicoll
WS - Wade Stockman

OLYMPIC MARATHON MEASUREMENT REPORTS

Copies of the 1984 Los Angeles Olympic Marathon measurement report, and that of the 1988 Seoul course are available. I am selling them at the cost of reproduction and shipping. What I intend to do is to take orders until March 1. At that time I will have all the reports printed and shipped. If your order is not in by then, be prepared to do without or pay a hefty premium.

Report	Before March 1	After March 1
1984 Los Angeles report (approx 200 pages).....	$17.00	$25.00
1988 Seoul report (approx 300 pages).....	25.00	40.00

Prices include postage. Send check to Pete Riegel. Orders will be shipped soon after March 1, first class mail.

The above costs are pretty horrendous. Copying costs money. If you wish, ask for a loan copy and I will send you one. Keep it for a week, copy what you want, and send it back to me. Be prepared to wait. The list of people who want to borrow will probably exceed the numbers of loaners I'll have. I may put it on a round-robin basis. Read it and forward to the next person.

Pete

How to use Running Score for Records

I am addressing this letter to State Record Keepers who are also purchasers of my program, Running Score II, and copying Peter Riegel, Linda and Basil Honikman, and Ken and Jennifer Young.

As a result of conversations with Jim Lewis and Neil MacDonald, I've begun to think about the possibility of using Running Score for keeping state records. I have looked over the statistics that Ken and Jen Young provide and realize that there is no way I can do the things they do. Therefore, I believe that Linda and Basil are correct in deciding they must develop their own tools and cannot depend on something existing.

But before I get into how to use Running Score for record keeping, I think some comments are in order about how Ken and Jennifer did the job. I visited them about three years ago. Perhaps their technique has changed but at the time Ken would get results in the mail and scan them for possible records. He kept most of the records in his head! If he found a record or a result that should be recorded (like the 5th best 50-55 year male for 10K), he would enter it into his database which was merely a word processor program. His method had the disadvantage of requiring a lot of manual effort but it had the advantage of human judgement. He would not automatically insert a time of 30:30 for this 50-55 year old male. And he kept all the results sent to him in file cabinets in case questions arose later.

After toying with Running Score for awhile, I am quite pleased with the things it CAN do. However, there is much it cannot do.

What I am suggesting with this letter is that Running Score be used by the state record keepers. However, Running Score sells for $200 which, I think, is a reasonable price for a meet director when one considers the expense of putting on a race these days. However, I do not think it reasonable for each record keeper to pay this since the record keepers are volunteers. Therefore, I would be willing to make it available at cost (about $20.00) to the record keepers as long as they promised to use it only for record keeping and not score races with it.

I know this offer could be viewed cynically since I could probably sell more programs if Running Score were used for this purpose due to the publicity. I don't know how to address this question other than to say I get a kick out of many people using Running Score in the same way that Clain got a kick out of all the people using his counter. (Can't let Clain get ahead of me, right?)

If record keepers were using Running Score, the processing of data from races would be very easy for races that also used Running Score. The meet director would merely have to mail a diskette which the record keeper could process.

Running Score keeps the names, ages, etc. in one data base file and keeps the times and competition numbers in two other files. This arrangement, while fine for scoring races, did not lend itself to the type of data manipulation one would need for record keeping. Therefore, what I have done is generate a set of results for a race, including the times, and put these results in a data file. The attached "RECORDS.LST" command file does this job.

As results came in from different races, these could easily be added to the file. In order to make things more manageable, I would propose keeping all results from one distance in one file. However, they could be kept in one file and through use of Running Score's "Select" capability, select out the distance of interest.

Note that the file could have the same person listing several times if the runner had good performances in several races or in different years. Therefore, the age that is kept for each runner is the age at the time of the performance -- not the present age.

I have included copies of two command files and the listings they produce. The large character headers (double-high/double-wide) are done just to show off one of the capabilities of the new IBM Proprinter XL that I bought this week.

My data were obtained from my race, the Vestal XX, so the listings are not records. However, the technique would not change. These data could just as well been the merger of data from many races. The listings included give the single age-record for 20K and the listing by age.

After playing with this awhile found I can:

1. Produce a list of single age records. I do this through the "Unique AGE" function. That is, it only produces one line of a listing for each age.

2. Produce a listing "By AGE". This lists all runners in your file with those of the same age together and by sorting on times, the times will be sorted within the age.

3. Produce listings by age-group. This is the same as is done in races.

4. Of course, the results could be output to a file in any form that Linda and Basil would require for their purposes.

5. At any time the file can be re-cloned with a sort done on age-group and time so that those runners in a similar age group would all be together and in order of performance. One could then, manually, delete out slower times which are no longer of interest.

Of course, there are a number of things I cannot do. I would welcome suggestions from Neil, Bob, Joe, and Jim on what new functions I should provide to do these jobs as well as others that I have not thought of.

Here are some jobs I would like to do but can't with the present level of code:

1. Automatically cull out people whose times are not fast enough to make the listings.

2. Keep track of statistics. I think some general purpose database program might be more suited here. However, as mentioned above, Ken did a lot of his record keeping just using a word processor.

The additional tasks that a record keeper would have to do could be handled through BASIC programs. These programs could be developed by the record keepers and shared.

Let's keep a dialogue going and compare notes on what we come up with.

3717 Wildwood Drive
Endwell, NY 13760
15 December 1986
(607) 754-2339

Sincerely,

Alan Jones

THE ATHLETICS CONGRESS
OF THE USA

Road Running Technical Committee
Bob Baumel, Vice-Chairman West

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Ponca City, OK 74601
405-765-0050 (home)
405-767-4655 (work)

January 4, 1987

Tom Ferguson
4191 Halupa Street
Honolulu, HI 96818

Dear Tom,

I'm writing to let you know that I received your letter of 10 Dec 86 as well as the certification you sent with it (Friends of Kailua High 5 mile). This course had a considerably better map than the two you sent previously, so I have sent this cert to Pete Riegel for listing. (I do have a few more comments on this course — see below.) I hope I didn't cause you too much distress by returning those two previous courses.

You raised a great many points in your letter of Dec 10. I will try to say something about all (or at least most) of them. I should say right away that I'm very pleased at your positive reaction to my request for including metric splits.

Friends of Kailua High course:

Before sending this cert to Pete, I made two minor changes on the certificate. First, I changed the certification code to standard form (from H-86-F-012 to HI-86012-TF). And secondly, in the space for "Advertised distance", I added the parenthetical note "(also 8 km)" because, so far as I can tell, your certificate describes both a 5 mile course *and* an 8 km course.

This brings up an area in which Pete Riegel and I are not in total agreement. Pete thinks there's nothing wrong with combining several courses on a single certificate, and is apparently trying to *encourage* it. I've just seen some advance copy from Pete intended for Measurement News. In discussing the new $2.00 certification listing fee, Pete indicated that this is really $2.00 *per certificate*. So if you can combine several courses on a single certificate, with a single ID code, it's still just $2.00 for all of them.

Personally, I have made it a policy since early 1984 to always write out a separate certificate for each course (and thereby assign each one a unique ID code), even when I draw a single map including several courses (in which case I will xerox this same map onto several different certificates).

Pete's motivation is evidently to reduce the amount of paper that John White has to keep on file for the national course registry. My own feeling is that when several courses are combined on a single certificate, there's a good chance the certificate won't have all the information needed for each course,

especially elevations and start-finish distances. It can thus happen that one course qualifies as a loop course while the other is point-to-point (i.e. start and finish separated by more than 10% of the race distance, or elevation drop exceeding 0.2%), but people won't be able to tell this from the certificate. For the "Friends of Kailua High" courses, neither course is point-to-point, but the start-finish distance is zero for one course and non-zero for the other.

Certifying courses for TAC insurance:

It seems to me that what the race directors need in order to get TAC race insurance is a TAC sanction, rather than TAC course certification. If the Hawaii Association of TAC requires course certification before granting a sanction, you should probably try getting them to change this. At the national level, there was much discussion at the recent TAC Convention of proposed ammendments to Rule 131 which was titled "Fun Runs", but has now been given the more appropriate title, "Running Events".

Rule 131 distinguishes between two types of events: 1) competitive road races, and 2) participation events or "fun runs." (It is possible for a single event to have both competitive and participation sections.) Regarding course certification, the rule says that courses for either type of event "should" be certified, but that the course for a competitive event "shall" be certified (unless RRTC deems it uncertifiable). The latter ("shall") statement was a proposed change which I think was probably approved. On the subject of sanctioning, the rule states that competitive events "must" be sanctioned, while participation events "may" be sanctioned. An important proposed addition, for participation events, reads as follows: "If a sanction is obtained, the sanction shall clearly state that the event's organizer needs to comply only with those rules as stated in Rule 131 as they apply to participation events or 'fun runs'."

These changes, if approved, would make it clear that certification is required for "competitive" events, but that a "fun run" can get a sanction (and thus TAC insurance) without having to comply with all the technical requirements for competitive events.

Unfortunately, I don't know exactly what this rule consisted of by the end of the Convention. At the final General Meeting, a compromise was reached by members of the Rules Committee sitting with several affected parties, so it did not come to the floor for general discussion. I don't know what was finally approved. (Although I think I heard rumors that certain statements involving sanctioning or certification were dropped.)

If you consider it crucial to know the exact wording of this rule as finally approved, and you don't want to wait for the 1987 rule book to be printed, you may wish to contact the TAC national office, or perhaps Rules Committee chairman Heliodoro Rico (89 Lexington Dr., Croton-on-Hudson, NY 10520).

Course Certification and Runner Safety:

Your point that course measurers should try to provide a safe course for the runners is a good one. But I think Pete is right when he says that all we

certify is the accuracy of the course distance. (Indeed, this is stated on our certificates, although it's hard to say how it would turn out if tested in court.)

In one sense, concern about safety of the runners is antithetical to much of what we've tried to accomplish. In the interest of safety, it is often best to restrict runners to a limited portion of the road. But we've been strongly emphasizing the notion of measuring the shortest path using the *whole* road, instead of measuring the restricted path that would be "safest" for the runners. (For his own safety while measuring, the measurer should use "offset maneuvers" instead of trying to ride long diagonals across busy streets.)

I think it is the race director's responsibility to restrict runners to a safe portion of the road. At the same time, we know that some runners often don't abide by the race director's wishes in this regard. We also know that course officials will generally *not* disqualify the runners in such cases. So we'd like to have the course measured so that the certification remains valid in these cases (which means that the course should be certified *without* any restrictions on the runners' path).

In my measurer information letter dated Nov 21, 1986, I wrote "Note that even if the police say they won't let the race use more than a selected portion of the road, they can't stop you from **measuring** as if the entire road were available!" This statement is based on sad experiences, such as the famous "recreation lane" incident in Central Park in New York City:

In the mid 70's, the police told the New York Road Runners that all their races using the road in Central Park must be restricted to a single lane designated a "recreation lane." So the Road Runners duly measured all their courses (including the New York City Marathon) within this lane. But in the actual marathon race, the entire road was closed to traffic, and runners were not restricted to the recreation lane. This is a major reason why the 1981 New York Marathon course was found short when validated.

TAC and AIMS:

Unfortunately, measurers around the world are not unanimous in their choice of short course prevention factor. While TAC requires 0.1% of the race distance, some measurers in Europe and elsewhere would prefer only 0.05%. (Maybe if my data on surface roughness — which appeared in Measurement News, February 1986 — were more widely disseminated, they'd realize that 0.05% is far too small, since *just a single source of error* can produce innacuracies on the order of 0.05%.)

It is nevertheless my understanding that most AIMS marathons are measured by our standard TAC procedures, including the 0.1% SCPF. The IAAF booklet "Guidelines for the Conduct of Road Racing" (IAAF Development Programme — book no. 4) recommends "that 1/1000 of the distance be added to the course to make it slightly longer", although this is not *required*. (Note: My copy of this booklet is dated January 1984, so it's probably not the latest version.)

It's also worth noting that Pete Riegel has measured with AIMS measurers on several occasions (in Rotterdam and in Brazil), and these experiences show that at least *some* AIMS measurers are riding the SPR just like American measurers.

It would be interesting to know just *how many* meters oversize Galloway and Wallach found the Honolulu Marathon. Assuming that they are knowledgeable about measuring, they ought to realize that in a hurried measurement, they won't get as tight a ride as possible. Hopefully, your thought that the Honolulu Marathon might shorten its course to please AIMS was just a false alarm. You are right that such shortening would invalidate the current TAC certification. If you really think they might do this, you ought to contact the Honolulu Marathon people, and explain some facts about TAC certification, validation remeasurements, etc. In this way, you might stop any controversy before it starts.

I was interested by your comment that "if AIMS failed to follow the same measurement 'line' as the original measurer (Bartolini), it is obvious the course would have come out long (or short, which was doubtful due the hurried nature of the measurement)." I'm a little disturbed because you thought there's some possibility AIMS might find it *short*. This suggests to me that the course wasn't measured along the shortest path using the whole street, but assumed some restrictions on the runners' path, which aren't fully documented on the certification map. If so, you probably don't need to recertify the course, but you might want to prepare some new paperwork.

In particular, you might want to have Bartolini draw a new map, since our standards for maps several years ago were not what they are now.

By the way, you said the Honolulu Marathon was last measured in 1984. But according to the last course listing from NRDC, the most recent certification of the Honolulu Marathon was HI-83005-TC with date of measurement listed as 24 Sep 83. Was the error in NRDC's listing or in your recollection?

Before leaving the subject of TAC, AIMS and safety factors, I can't resist commenting on the measurement report I've just seen for the 1988 Olympic Marathon. They used a safety factor of only 13 meters (where we had used 25 m in 1984). I think some of their methods don't stand up to critical scrutiny. So maybe if enough of us write letters, they could be persuaded to increase their SCPF. The Koreans did an uncanny job of copying our 1984 work, right down to the use of 13 cyclists (a pure accident in our 1984 measurement). I wish they had asked us first, since most of us would do it differently now. (In particular, I think Riegel, Nicoll, and myself would be unanimous that it should be done "by the book" including the whole 0.1%.)

To their credit, the Koreans did have a few original ideas. Most importantly, they arranged it so that their 13 cyclists obtained significantly smaller variations between their measurements than our cyclists had done. (And that's why they calculated a smaller safety factor than we had, even though they used the same statistical methods of calculation.) Unfortunately, their method of performing the measurement completely undermined the statistical basis of these safety factor calculations.

The main strength of our Los Angeles measurement was that we had 13 experienced course measurers, each independently (or nearly independently) judging the correct path to ride. The Koreans couldn't use our approach, probably because they don't have any experienced course measurers in Korea! What they did was to paint an "SPR" line on the pavement, and then instruct their cyclists to simply ride on that line. Their cyclists didn't exercise any independent judgment — in fact, they didn't need to think at all! The use of statistics for this measurement was invalid because they did not, in any sense, get independent measurements of the SPR. The entire measurement stands or falls based on the accuracy of the painted SPR line (which was only painted *once*). According to at least one observor (Lennart Julin of Sweden, who rode with Pete Riegel in the Rotterdam validation), that painted SPR line wasn't accurate enough.

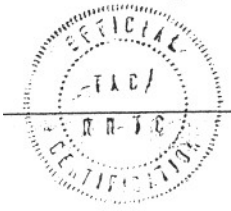
Best regards,

Bob

Bob Baumel

cc: Pete Riegel, Wayne Nicoll

MIKE RENNER BOUGHT A SEAL FOR $35. ADDS A DRESSY TOUCH!



AS NATIONALLY CERTIFIED BY:

Michael Renner Date: 12/15/86

TAC/RRTC IDAHO & WASHINGTON

THE ATHLETICS CONGRESS
OF THE USA

Road Running Technical Committee
Bob Baumel, Vice-Chairman West

129 Warwick Road
Ponca City, OK 74601
405-765-0050 (home)
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12 December 1986

Robert Thurston
2135 Newport Pl NW
Washington DC 20037

Dear Bob,

You'll probably get this letter just after you've returned from the Far East, and have lots of interesting stuff to report. But I'm writing now to pass on a newspaper clipping found by Jennifer Young. The clipping concerns a new 400 m track at a high school in Washington. If it's true that this track was found to be 2 m short, as stated in the article, it would probably be some sort of record. But, as Jennifer asked, "who does the 'official' measurements?"

One possibility is that the 2 m mistake was actually made by the "official measurer" rather than either the architect or the contractor. Perhaps this "official measurer" thought that the length of a track is just the circumference measured along the curb face. (As you surely know, the proper length of a track is calculated along a hypothetical line 30 cm outward from the curb. And this exceeds the direct curb-face measurement by the amount of $2\pi\,(0.30\text{ m}) = 1.885\text{ m}$.)

A perfectly good track, with a length of exactly 400.000 m along the legal path 30 cm out from the curb, would measure only 398.115 m along the curb-face. Thus, a measurer who thinks that the curb-face measurement is the official length of the track, can check a perfectly valid track, and will conclude that it's about 2 m short! This isn't necessarily what happened, but it *is* one possible explanation.

Since you live in Washington, maybe you can do some investigation of the Eastern High School track. If it's true that the mistake occurred on the part of the "official measurer" rather than the architect or contractor, and if you get there before they actually start ripping up the track, you might be able to save them a lot of expense and inconvenience. In any case, maybe you can find out who does the "official" measurements of tracks (information that has so far not been revealed to anybody in the RRTC or the Records Committee).

Best regards,

Bob

Bob Baumel

cc: Jen Young, Pete Riegel, Wayne Nicoll

High school's new track just doesn't measure up

Eastern High School in Washington, D.C., expected to be proud, not embarrassed about the new 400-meter track circling its football field. It was to be Washington's first official 400-meter track, a state-of-the art facility for area runners.

But when it came time for official measurements, the track came up two meters short — an architect's miscalculation, according to city spokesmen. The track has to be ripped up and rebuilt, at the expense of the architectural and contracting companies.

It also made the football field off-limits this season.

Reported by Carol Herwig, Ann Liguori and Jon Saraceno

8 Jan 87

TO: Measurement News
FROM: Dan Brannen, RRTC/New Jersey
RE: Issues in MN #20

With MN continuing to provide such an exciting forum for idea exchange, it's almost enough to make up for the loss of NRDC News. I'd like to comment on issues raised by Tom Ferguson and David Reik in the last issue.

1. Re Ferguson:

Tom's suggestion to raise the issue of course safety liability in a coffee break at the TAC convention made me wistful. The only coffee break I managed to squeeze in each day in Tampa was right after my 11:00 PM beer break. If Tom can lobby for coffee breaks at next year's convention in Hawaii then I for one will make the trip and hope to meet him there!

But seriously, folks: I tend to agree with Pete's response to Tom, but I also think the issue points to genuine problems which have to be addressed by the RRTC in regard to the certifier's role in the overall process of putting on a race. These problems are somewhat compounded by the fact that a certain degree of autonomy and personal discretion are allowed to each certifier. Solutions to many of the fascinating-but-nitpicking little issues peculiar to certain course situations can never be programmed into a strict format to be rigorously followed by all, and neither a TAC/RRTC certificate, nor a more carefully written TAC/RRTC Course Measurement Book, nor a combination of both will ever be able to pre-answer all eventualities in black and white. What we really have to do to cover ourselves on these issues is to somehow formalize a process of communication about the role of judgment-based-on-experience in such matters. I believe that a sufficient communication formality for all certifiers could take the form of a cover letter which would accompany both pre-review and post-certificate correspondence between certifier and measurer. The cover letter doesn't have to be a national form letter, but the RRTC could draw up a basic required list of topics which it must address. That way, individual judgment and interpretation could be formally incorporated into any correspondence between certifier and measurer.

In regard to Tom's situation, there could be two cases: 1) If he is asked or hired to do the layout and measurement of the race, then I agree with Pete that he could be held liable for a deficiency in safety. 2) If he is merely asked to certify the measurement of others, then I would say to go ahead and evaluate the paperwork objectively, completely ignoring the issue of safety (if someone submitted adequate paperwork on the New Jersey Turnpike, then I'd feel obligated to certify it). BUT: I'm now proposing that, in addition, we certifiers be required to attach a cover letter to all measurers whose work we review, carefully explaining their responsibilities as liaison between the director/organizing committee/sponsors on the one hand, and TAC/RRTC on the other. Those responsi-

bilities should include issues such as traffic control, railroad crossings (basically, any safety issue pertinent to the physical course), course monitoring, coning, definitive proof that the course was run as certified, proper finish line procedure, etc.

2. Re Reik:

This notion of a cover letter which must address certain issues then has a direct bearing on the issue raised by David. David raises an important point that the term "Road Running Technical" is broader than the term "Measurement," and that since we are defined as the former and not the latter (and, I believe, at one point formally rejected a suggestion to define ourselves as the latter), our responsibilities go beyond the subject of measurement. This is where we have to make a critical difference in kind between the certifier who issues a certificate and the certificate which is issued by a certifier. The "certificate" is limited to the realm of measurement. But the "certifier" must deal with both measurement and race conduct. This bears on my above proposal as follows:

There are two distinct ways in which a certifier can relate to an event: 1) as measurer; 2) as evaluator of the work of the measurer. Under my proposal, any certifier could simply play Pontius Pilate, avoid doing measurements, and draft his own form cover letter explaining to all measurers that, in addition to the measurement paperwork, they are responsible for keeping the director/organizing committee/sponsor informed of all safety and record requirements. But if a certifier hires himself out for measuring, then he should take responsibility for handling all liaison activity himself. You don't have to know a thing about punching a stopwatch or ripping a number tag. But you have a duty to point people toward people who do know, or toward the Finish Line Manual. In case (1), the certificate should go to the measurer, along with a cover letter enumerating his further responsibilities and explaining, however the certifier wishes to do so, that SPR cannot be undercut. In case (2), the certificate should to the person who signed the check which paid the certifier's fee. A different kind of cover letter, again explaining everything one needs to know about safety and record requirements, should be attached. We should be forbidden ever to send out a certificate without a cover letter.

I'd like to open this proposal up to discussion, and if its not offensive to the majority of us, I'd like to see the Executive Committee (or at least the 3 chairs) come up with a list of points which must be addressed in the cover letters.

As for the issue of restricted SPR raised by David: Although I'm a newcommer to the RRTC, my limited experience has me absoltely convinced that "SPR" is an amazingly elusive term for race directors and measurers to comprehend. On a regular basis I find myself in races (regardless of distance, field size, or reputed quality of organization) which have restricted SPR's, cones, and marshalls, in which the runners en masse ignore all three. The marshalls are usually helpless (is some race suddenly going to announce that 50% of its field is disqualified?), the runners seem oblivious, but, most important, the total distance shaved is usually minimal.

Well, if it's minimal going in one direction, it will be minimal going in the other. The RRTC should insist that we certifiers, and the measurers whom we evaluate and coach, measure unrestricted SPR in all cases where it is possible. Sometimes this will mean securing a police escort, sometimes riding at 3 AM. The only case where it is not possible for either measurers or runners is that involving heavily trafficked roads which are not closed during the race. In that case, define your course by SPR within the shoulder lane, or the single lane which is closed to traffic, and let the traffic take the place of cones and marshalls. Heck, take a few polaroids of the traffic and include them in your record application.

In explaining SPR to unseasoned measurers and race directors who want to know why you aren't taking the route the "normal" runner would take, don't tell them that it's the shortest possible route any runner could take. Tell them it's the shortest possible route a laser beam could take from turn to turn. Of course, there is another way of identifying the functional SPR during a race: just have the director follow a mid-packer who's shooting for a PR and the last award in his age-group..... and watch them cones bite the dust.....

Best to all,

Dan

Dan Brannen

FROM JIM KISLING ON HIS MAP OF INDIANAPOLIS MARATHON / PAN AM GAMES MARATHON.

- UNRESTRICTED SPR!

NOTES ON MEASURED ROUTE

The course was measured entirely on the pavement of the roads as described in the map. On corners and turns, the measured path is one foot from edge or curb. In between turns, the course takes the shortest possible route without regard to direction of vehicular traffic.

There is only one exception to above axiom. West Street is a divided four-lane thoroughfare as the course turns right (N) onto West Street from Ohio the runners are to stay on the north bound lanes to such time they can turn left (W) onto Michigan Street;--the only restriction here is the runner must keep the median to his left.

PAN AM '87 marathon course is to be run with all streets to be closed; course was measured with this in mind; runner can use any side of road. This is not the case with the Indianapolis Marathon. Runners were restricted to different sides of the street--thus this course will be longer than the PAN AM route.

FOR 8½ x11 COPY SEND SASE TO PETE RIEGEL

NOTE: WORLD CLASS MAN = 1000 PERFORMANCE LEVEL