



MEASUREMENT NEWS



May

1987

Issue #23



Sally Nicoll, Validations Chairperson and Wayne Nicoll, Western U.S. Chairman at TAC Convention December, 1986.

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#23 — May, 1987

METRIC SPLITS

Bob Baumel has been trying very hard to push the western US into the twentieth century by strongly urging all the western certifiers to make sure that 5km splits are included in metric-length courses. In this effort he has been frustrated by several certifiers who do not believe Bob can force them to do this, since it is the overall distance that we certify, and many race directors do not ask for nor want metric splits.

It is true that Bob can't force them to put in metric splits. But that doesn't mean it's a bad idea. Ted Corbitt urged 5k splits for years in the early days of the certification program. He recognized the international nature of the sport, and wanted us to move that way. I agree also that 5k splits are desirable.

You don't have to ask a race director if he/she wants 5km splits. Just put them down and record them just like the miles. It won't break your hump. Race directors are often not as sophisticated as the runners they serve, and 5km splits are a classy addition to any race. I have seen race directors delighted to have a 5km split they hadn't expected. It had just not occurred to them how nice it would be. Runners like them too.

We can't make anybody - east or west - put down 5km splits. But I'm urging you as strongly as I can to try to get into a metric mode as regards those 5k's. Sure, you'll forget once in a while. And the people who send you courses may not be clued in. But if you pass the word it will happen. Please give it a try.

DRUG TESTING

Every year John White and I co-direct the Wolfpack 50 Mile Run. The last two years it's been the National Masters 50 mile Championship. A few weeks before the race John got indications from TAC that we might be drug-tested. Given the probable nature of our field we were astounded, but to try to give the runners some information John prepared his own version of the drug-testing procedure. It's not official, but it's a pretty well-prepared overview of the situation as one race director sees it. You'll find it elsewhere in this issue.

NEW CERTIFIERS AND FINAL SIGNATORIES

Congratulations to Scott Hubbard (MI), Tom McBrayer (TX) and Brian Smith (SC), who have been appointed final signatories. Also, welcome aboard to George Tuthill who has taken over certification duties in Montana, and to Felix Cichocki, who was just appointed Arizona certifier.

SALAZAR'S SHORT COURSE

Few marks have caused as much misery as Alberto Salazar's 2:08:13 in the 1981 NYC Marathon. After years of dispute it was finally decided that the race was 148m short, and that it wouldn't have any kind of record status. Yet we carried the mark on our all-time list in the January issue, which produced a letter from TAC Road Tech Committee member Dan Brannen ("To Box 296," February), which initiated a response from us regarding the unknown nature of course length on most other leading all-time marathons. Got that all straight?

OK, here's part of Brannen's reasoned response to our rationale:

"I find it hard to believe that a publication which has been known to throw out or devalue marks based on such things as observers' reports that sprinters 'caught a flyer,' scientists' evaluations of the influence of altitude and other statistical fine points would then turn around and uphold a time for a 42,047m course as if it were a 42,195m course. . .

"Salazar isn't being judged harshly—he's not being judged at all. He happened to run a great race which in no way, shape or form was equivalent to 2:08:13 for the marathon distance. . .

"If you feel bad about throwing the mark out altogether, then do the best possible thing the evidence will let you do. Extrapolate a projected time. You come up with 2:08:40. Use *that* time. If it still fits into the Top 10 all-time, fine! If not, at least it now fits where it belongs."

Well, we can't say we like the suggestion, but since it's better than all the other rotten alternatives, a converted 2:08:39 it is. That still leaves Alberto as the fastest marathoner in U.S. history, even if he can't claim the official AR.

PUZZLE FOR THE METRIC-MINDED

Guess who won Ultrarunning Magazine's t-shirt, and is undisputed US metric champion? Read the enclosed article from UR's April issue!

As soon as he saw the puzzle Pete Riegel hurriedly submitted a lame answer of one million yards, and sent a copy of the puzzle to Bob Baumel, who pointed what should have been obvious to Pete - that his answer could be divided by four and was thus incorrect.

Although he was too late for the official UR competition, Brian Smith sent MN his answer, to which I replied as follows:

Dear Brian,

CLOSE BUT NO CIGAR!

Your answer is based on the old definition of the foot. I responded to the UR puzzle in haste, using the correct foot, but neglected to notice that my answer could be divided by 4. Baumel, of course, was not so careless. And he really took the problem apart!

One of the cute things Bob B noticed was that even if the old foot held, your answer of 18 laps (3937 yards) is still not quite right, since 3937 is not an even number of yards. So the answer would have to be 36 laps.

So far RRTC has a .333 batting average on this seemingly innocent little problem.

Of course, Baumel did redeem our honor by winning the t-shirt.

CERTIFIED AIRCRAFT CARRIER?

April 20, 1987

Harold Tinsley - 8811 Edgehill Dr. - Huntsville, AL 35802

Dear Harold,

Had a call today from a guy seeking info on certifying the deck of his aircraft carrier, and did the best I could to steer him right.

After I answered his questions on certification he asked me about forming a running club, and specifically wanted to know about the Road Runners Club of America, about which I know little. The guys on the Enterprise want to form a running club, I gather.

The sailor's name is:

EW3 Lass
OW/OPS USS Enterprise
FFO San Francisco, CA 96636-2810

I know he'd appreciate it if you'd send him some RRCA getting-started stuff.

FROM *ULTRARUNNING*,
APRIL 1987

How Long is a Foot? Our Readers Have Their Say

There was a good response to our metric puzzle in the March issue and the worldliness and intellect of our readers is confirmed by the fact that we received more right answers than wrong. But it was close.

The puzzle asked for the least number of laps one could run around La Rochelle's 200 meter track so that the total distance converted to an exact number of yards. It is understood here that we are asking for the least positive number of laps, so Al Hromjak's suggestion of 0 laps as an answer, though imaginative, is incorrect.

The key to solving the problem is the knowledge that (at least as of 1959) the basic conversion factor of 2.54 centimeters to an inch is exact. This implies that a yard is exactly 0.9144 of a meter, and the desired number, n , of laps can be found by finding the least positive n for which

$$\frac{200n}{.9144}$$

is a whole number. This is the same as asking that $200 \cdot 10000n/9144$, or $50 \cdot 5000n/1143$, be a whole number. Therefore a runner who completes 1143 laps will have run a cool quarter of a million yards (i.e., 142 miles and 80 yards), exactly.

Some of our number-crunching readers erred by not being up-to-date with their metric conversion factors. From 1893 to 1959 the factor of 39.37 inches to a meter was deemed exact; only in 1959 was this changed to the 2.54 cm/inch, which means that a meter now equals 39.370078... inches. Thus the answer obtained by using 39.37, though simpler (a mere 18 laps suffices), is wrong.

Ultra News

Bob Baumel has pointed out that some recalcitrant American surveyors weren't thrilled about changing all their coordinates (in feet) just because the foot changed by about two parts per million in 1959. Thus, at least in American surveying circles, there are two accepted values for the foot, the "International Foot" (=12x2.54 cm) and the "U.S. Survey Foot" (=1200/3937 meter). Since ultrarunning is an international sport, we use the international foot. If you ever hire a surveyor to certify a course, make sure you ask him which foot he uses!

Finally, we note that all this is fine if you wish to know what a yard is in terms of a meter, but what is a meter anyway? That too changes from time to time, and a new definition was just put into international use. Now a meter is defined so that light travels exactly 299,792,458 of them in a second. As we learn more about the exact speed of light, we'll know more about the exact length of a meter. This new definition seems pretty elegant, at least when compared to the definition of a second: the time it takes for the radiation from a cesium 133 atom to oscillate 9,192,631,770 times.

Correct solutions to the puzzle were received from Bob Baumel (Ponca City, Okla.), Kenn Carpenter (Marysville, Wash.), Eric East-erberg (Chicago), Ed Furtaw (Raleigh, N.C.), Al Hromjak (Simi Valley, Calif.), and Ken Lundgren (Omaha). Just as we do not list DNFers in the results of an ultra, we won't list the names of those who sent in incorrect solutions, except to say that they came from Columbus, Ohio; Idaho Falls, Idaho; Loveland, Colorado; Ketchum, Idaho; and Seattle, Washington. The lucky winner of an Ultrarun-ning T-shirt was Bob Baumel.

Stan Wagon

OFFSETS

We have been using 30 cm from curbs and 20 cm from edges/lines ever since we began using the present procedures back in late 1982. We now have around 4000 currently-certified race courses. It has recently been suggested by Lennart Julin of Sweden that it might be better to measure courses as tight as possible, and nevermind the offsets. This would clear up ambiguities such as what happens when you are measuring right next to a wall or a dropoff and can't (or don't dare) get close as 20 or 30 cm. It would, of course, also affect the certification status of every US course used under international rules.

For course layout the conservative measurer will probably already do this, in the interest of a bit more safety. However, for validation purposes I think it's best to have a standard and stick to it. Bob Letson also has some opinions on this, as he wrote:

"The 20cm/30cm offset for tracks is well established because tracks contain curbs 2" tall. However, road races contain curbs/walls taller than 2", which leads people like the Koreans to invent rules such as '61cm from wall' (for the '88 Seoul marathon). We all are aware of this problem, but we have never attempted to design a new rule to accommodate this offset from tall curbs for road races. If Lennart Julin gets his way, the rules will remain ambiguous and decisions will be based on the discretion of the measurer. It's also possible to invent a precise unambiguous rule that can define the exact offset for a specific curb height. A simple rule could be:

OFFSET = CURB HEIGHT
MINIMUM OFFSET = 20 CM
MAXIMUM OFFSET = 1 METER

A variation of this rule for ultra simplicity is to have no minimum offset (measure on the line).

Another variation, for track traditionalists, could be to use track offsets for curbs up to 30 cm tall, and use the above proposed offsets for curbs taller than 30 cm.

The maximum offset can be debatable. One meter is a nice round number. The Koreans use 60 cm which seems reasonable, and could just as easily be the maximum.

What I propose is to issue a questionnaire into an issue of MN, asking for responses from everyone. See what people think/want. It could be interesting."

As of publication time I have not received the questionnaire from Bob. However, I do have some opinions on the above, which I'll save for next MN, and hope to combine them with yours. Anybody got some thoughts on the above?

NOTE: Bob Hersh just returned from attending the IAAF Technical Committee meeting. See the copy of his letter elsewhere in this MN.



**The
Athletics Congress
of the USA**

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Cable Address: ATHCONGRASS IND • Telex 27-332

National Governing Body for Athletics in the United States

20 April 1987

Please reply to
BOB HERSH, Chairman
Records Committee
92 Club Drive
Roslyn Heights, NY 11577
(516) 484-1793 Home

Memo to Messrs. Riegel, Baumel, Steinfeld, Honikman, Young

I just wanted to bring you up to date on the Technical Committee activity with respect to road measurement. At our last meeting, we approved a Swedish proposal to add the following to Rule 165:

In events over roads, the course shall be measured along the shortest possible route that a competitor could follow within the section of the road permitted to use for the race. The length of the course must not be less than the official distance for the event. In meetings under rule 12, paragraph 1 (a) to (c) and in races sanctioned directly by IAAF the uncertainty in the measurement must not exceed 0.1% (i.e. 42m for the Marathon) and the length of the course should have been certified in advance by an IAAF approved course measurer.

Note 1 - For measurement the "Calibrated Bicycle Method" is recommended.

Note 2 - To prevent a course to turn up short on a future remeasurement it is recommended that a "short course prevention factor" is built in when laying out the course. For bicycle measurements this factor should be 0.1% which means that each kilometre on the course will have a "measured length" of 1001m.

Based on our discussions and correspondence, Pete, I thought this language represented a good forward step. But I believe that it does not go far enough. Until the IAAF embraces the concept of post-race validation, I would not support the recognition of World Records in road racing.

In this regard, I intend to prepare a submission for IAAF action in 1989 (the next possible occasion for its consideration). This proposal would be patterned on TAC's rules and would lay a proper foundation for World Records. Needless to say, I shall circulate a draft to the RRTC Executive Committee well in advance of the 1989 deadline.

NATIONAL OFFICERS President/Dr. LaRoy Walker, 1208 Red Oak Avenue, Durham, N.C. 27707 • Executive Vice-President/Frank E. Greenberg, 1715 PSFS Building, 12 South 12th Street, Philadelphia, Pa. 19107 • Vice-President/Willie Banks, 2323 Bentley - #305, Los Angeles, Calif. 90064 • Vice-President/Robert R. Bowman, 51 Chatsworth Court, Oakland, Calif. 94611 • Vice-President/Barbara Palm, 229 Mt. Hope Drive, Albany, N.Y. 12202 • Secretary/Dr. Neil C. Jackson, West Gym, SUNY-Binghamton, Binghamton, N.Y. 13901 • Treasurer/Steve Bosley, P.O. Box 9032, Boulder, Colo., 80301

CHEATERS RUN OFF WITH \$\$\$\$\$THOUSANDS\$\$\$\$\$?????

This is a sanitized version of a report I received from one of our number who recently served as a technical observer for the organizers of a major marathon. It is sanitized because of the obvious reasons. Pure truth is elusive and it is possible that things are not what they seem. Nonetheless, it looks like this:

Two runners who finished in the top 10 were nowhere to be seen during the middle of the race. At around 20 miles they suddenly showed up in high places in the top 10. Split times showed that they set a couple of world records for shorter distances enroute, including a three-minute mile!

The two runners walked off with several thousand dollars in prize money, because it was not until several hours after the race that the above information became available. Also, our correspondent was busy on other technical chores for the race.

Our reporter wrote to the race organizers expressing his opinion that "at least two runners jumped into the race after mile __, far enough up in the group of lead runners so as to "win" ____ in prize money". He prefaces the above with "Since our timing/spotting teams were not expert and may have missed some of the runners, the following cannot be taken as "proof" but rather should be taken as a real possibility".

This is a frustrating situation for our observer, who, I believe, is pretty sure the cheaters really did it. The marathon organizers are also in a bind. What are they to do? Certainly they do not relish the publicity that could come out of a public wrangle over this. It's a tough situation for all concerned - except, of course, for our two "competitors" who are now running straight to the bank.

CERTIFIER LISTING POLICY

In some states, such as California, Texas, New York, and Hawaii there is more than one certifier in operation. In the MN list you will see only one person listed for each state (except CA). It is not our intention to slight anyone, but this came about as a consequence of the rapid growth of RRTC. We found ourselves with lots of certifiers in some areas and few in others. Organizationally it was felt that it was easier on outside people if they had only one name to respond to in a given state. We did not do it by TAC Association, because those we serve are not very aware of TAC and cannot be expected to know what association they are in. But by and large they know what state they're in.

So on the list of certifiers, there's only one name for each state.

PARTIAL REMEASUREMENTS AN CERTIFICATION

Sometimes a course gets a slight change, say a relocation of the first mile of a marathon. Is it necessary to remeasure the entire course for certification? Here's a guide:

- 1) If the roads haven't been changed, the measurer can just measure from a common point on the course to the old start. Then lay out the same number of counts to the new start. Do it twice, of course. You don't even have to calibrate the bike, since the two distances are the same.
- 2) Don't assume that it's exactly one mile from mile 3 to mile 4 unless the splits were very well documented. Better to measure the portion removed and lay the same distance back in.
- 3) Regardless of what you do, be sure your method is easily explained to your certifier. Don't drive him crazy with elaborate explanations. But at the same time be complete.
- 4) This sort of adjustment can't be done indefinitely. If the course is extremely well-documented as to intermediate points you can use those forever, but normal splits are not laid down that exactly, and you can't count on them. As a guide, one or two recertification adjustments are all that can be tolerated. Then a complete remeasurement is called for.
- 5) When you submit your data, be sure to submit data for the whole course, not just the remeasured part. The reviewer must certify the accuracy of the whole thing. If you don't have this data you are probably on thin ice as regards your knowledge of the course.
- 6) Similarly, a map of the whole course must be submitted with the certification application, unless you wish to apply only for certification of the first 2.6 miles.

In a past year, a measurer found that he had to add 42 meters to the already-certified Boston Marathon. He laid on the distance and applied to me for certification. But he had included only the data for the 42 meters, and had no other measurement data for the rest of the course. Also, no map was submitted. The measurer felt that I should have had the measurement dope on file somewhere. I didn't. I wrote to people I thought had it, without luck. So I didn't certify Boston that year. It would have been interesting if a big record had been set.

Remember - it is the measurer's job to give the certifier everything that's needed for an assessment of the course accuracy. It cannot be assumed that we have everything on file somewhere. Try that approach on the IRS sometime and see where it gets you.



TAC/RRTC
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Texas Regional Chairman
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(214) 320-8359

April 14, 1987

Arizona Running News
c/o Forerunner, Inc.
4609 East Thomas Road
Phoenix, Arizona 85018

Attn: Peter S. Fairman, Publisher

Dear Pete,

Thanks again for having my name on your mailing list. I always enjoy reading your "publisher's message". This month's "message" hit the nail on the head.

When I read "The big ones from New Times Phoenix 10km on down are certified. They can't afford the time or investment for most of the smaller ones to do a full certification, but here's the good news - they are all measured, not by car or other estimate, but with a calibrated bicycle. There, for the most part, they are accurate", I had to comment.

The calibrated bicycle method of measuring is the best AND the world accepted method of measuring a road running course. For Harvey Beller and Running Masters to go through a road course measurement and not apply for TAC/RRTC Certification is ridiculous.

The time for a measurement is about 4 hours per 10km, calibration, measurement (twice) and recalibration. The paperwork is a 2-3 hour process, mostly drawing a detailed course map. Not documenting all that work is like "milking a cow and not drinking the milk".

Besides race participants deserve an accurately measured course. TAC/RRTC standards ensure us (runners) that our race course is an accurate distance. TAC/RRTC standards are like a good quality t-shirt, all others just do not make the grade. TAC/RRTC standards are world wide, why reinvent the wheel. When I hear "accurately measured" I cringe. Accurate to what standards, what method, etc.

Harvey Beller and Running Masters should try to find that little extra time to have their courses TAC/RRTC certified. If they are using the calibrated bicycle method let them get credit for their hard work by going one more step in the process.

As for "investment", what investment is there? \$6.00 for a TAC/RRTC Course Measurement Procedures Manual (the how to booklet), \$30.00 for a Jones Course Measuring Device,, \$6-\$8.00 for a thermometer, \$20.00 for a 100 foot steel tape, pk nails, paint and hammer for another \$20.00 totals \$82.00. This first investment will cover the costs for many road course measurements to come.

The National Certification fee is only \$15.00 per course. Having a reviewer like Bob Baumel for the state of Arizona, you get more than \$15.00 back in his expert analysis of your work.

Here in Texas advertising "TAC Certified" without our National Certification Code Numbers makes runners ask questions. We get calls weekly asking if XYZ course is certified. Race directors are benefitting from their advertising "Certified to be Accurate by the TAC/Road Running Technical Committee - TX 87000 KL". 25% of all race participants will not run in races that are not TAC/RRTC Certified.

Harvey - you will be rewarded for all your efforts. Just take that last step, the benefits are "ten fold".

Regards,



Kevin P. Lucas
TAC/RRTC Texas Regional Chairman

ED. NOTE:
HAS ANYBODY
SAID IT
BETTER?

COURSE LISTS NOW AVAILABLE!

Jennifer Young has completed the monumental task of converting the NRDC list of certified courses, which was written in Radio Shack/Scripsit into WordPerfect language, which can be easily translated into Wordstar. The list is now IBM compatible and we have the NRDC list, and all of John White's updates to the present time, on 5 1/4 inch floppy diskettes.

If you would like a printout of your state, or of the courses you personally have certified, send me an SASE. If you have a PC and want to play with the lists yourself, send me two 5 1/4 inch floppy diskettes with a return mailer and I will reformat the discs and copy the list on to them. It can barely fit on one diskette now - we have 4071 courses as I write, occupying 309000 bytes of disc space.

Lists can be printed out about any way you want. Please be clear about what you want. Call if in doubt. We can give you, for instance, a printout of all the courses you've ever measured yourself. Or a list of all those you've certified. Or arranged by date, or by distance. Just tell me what you want.

CHANGES TO THE COURSE LIST

Now that we once again have the course list in one place we can make changes to it, as you request. The most common request is to have a certain course taken off the list because it has been replaced by a newer course for the same race. Some courses may be removed because a validation found them short.

Whatever the reason, changes can be made. Who can make them? The certifier for the state in which the course lies may have changes made. Or Eastern or Western VC's. Or RRTC Chairman.

So if you wish to update the course list, just send John White the changes you need, whether it be a renaming or a removal. Be sure to use the course number in your request.

At the same time as we will strive to maintain as up-to-date a course list as we can (it will depend on your updates) we will be maintaining a separate archive of all the courses without changes. We are still not sure of the best way to do all this, but as experience teaches we will learn.

DECERTIFICATION OF COURSES

When should a course be decertified? Kevin Lucas measured a certified 10k and came up with around 9995 meters, and asked that the course be decertified. Once the additional 15 meters is added, the course can be recertified.

This does not happen very often. In cases of doubt, the controlling authority over the courses in a given state is that state's certifier as defined in the list of certifiers published in MN.

RRTC SEEKS SPEAKERS FOR TAC CONVENTION PROGRAM

A special two-hour Technical Program of the RRTC meeting in Honolulu has been planned for the purpose of listening to approximately 10 speakers present a so-called 10-minute paper on a topic of their choice. The deadline for submitting a request to be on this Technical Program is August 1. The paper selection committee will seek advice on any questionable submissions. The preliminary program will be announced by September 1 and an updated program will be announced on October 1 so that the participants will be informed. We anticipate that one or two invited speakers will be included and that one or two "to be announced" topics will appear in the program.

The organizer of this Technical Program is John White, the RRTC Certified Course Registrar. You may write to him at the above address or call him at [614] 424-7011(w) or [614] 459-2547(h) to announce or discuss your interest. He would like to know your name, address, relationship to RRTC (if any), and title of your presentation. If the title of your talk is hard to understand, he may ask you a question or two to find out what your topic really concerns. The guideline for topics for this session is simply "material appropriate for the RRTC and/or for Measurement News".

Background: John White suggested to Pete Riegel that some advantages for a more successful RRTC meeting at the 1987 TAC National Convention in Honolulu might occur if part of the meeting were devoted to an organized session of talks by members of the community. Technical societies thrive on a series of so-called 10-minute contributed papers. Usually a series of 10 of these talks are scheduled for a two-hour period. A session chairman introduces the speakers, tightly controls the formal period of speaking, and then moderates two or three question and answer exchanges between the speaker and members of the audience. This approach encourages organized and competent people to speak, promotes the delivery of thought out viewpoints, and dispels any notion that contributions from newcomers or from people on the political fringes cannot receive proper attention and respect. Measurement News represents this type of open forum.

RRTC Finish Line Sub-Committee

Alan Jones
3717 Wildwood Drive
Endwell, NY 13870
March 17, 1987
(607) 754-2339

To members of the TAC RRTC Finish Line Sub-Committee and RRCA Computer Committee

I wasn't sure how to address this letter since some of you are members of the The Athletics Congress USA Road Running Technical Committee Finish Line sub-committee and some are members of the Road Runners Club of America Computer Committee. In any case, if the shoe fits, wear it.

Enclosed with this letter is a distribution list. If there are others who should be copied on any correspondence, please let me know.

After being appointed sub-committee chairperson by Pete Riegel at the TAC meeting in December, I've spent a lot of time trying to figure out what our charter actually is. At the meeting there was talk of policing finish line companies but the feeling was that this is a bag of worms. I, for one, do not want to touch it.

The one suggestions that I think really worth following up on is the production of a Race Director Guidelines Series. This has been suggested by Wayne and Sally Nicoll and by Ken Newhams. The purpose of such a series is to continue providing up-to-date information to race directors and others involved in race organization. The course measurement manual and the finish line manual have been completed and stand as our constant reference documents. However, I am afraid that too many race directors do not often refer to their manuals or do not even have copies. If we could produce a series of short documents on various aspects of race organization it would accomplish the following goals:

1. Keep issues on race management in front of directors
2. Provide a set of material which could provide a basis for future updates to the TAC manuals.
3. Have information in a form which is easy to distribute and update.

It would seem that the information produced in this fashion could be printed in all of the following places:

RRCA Footnotes

Measurement News

Road Race Management

TACStats Newsletter

I'm sure Pete would be glad to put these in MN.

At the Road Race Management Meet Directors Meeting in Washington in November, Ken Newhams suggested that I start such a series by publishing a one page information sheet on bar code readers. It has taken me a bit longer than I had thought to get around to this. Such a sheet is enclosed. Also, Ken wrote a piece in the Spring issue of Footnotes on the use of computers in running. Wayne Nicoll has sent me one that he wrote called "TOPIC #3 Tender Loving Care of a Road Race Course". It is well done. I'd sure like to see topics #1 and #2.

So, what we need now are suggestions on other topics and people to write them. I'm sure that any race with which you are involved has things happen that makes you Put your thinking caps on. Here are some suggestions. Any takers for any of these or any addition topics:

- Handling multiple finish lines
- How to keep runners in a chute
- How to spot the leading female finishers
- How to get results out fast
- How to evaluate a finish line company
- Methods of ensuring that runners to not cheat on course
- Put your own here _____

Some of these topics have been covered in issues of RRM and NDRC news but they are important enough that we should keep them before the runners and the organizers.

Sincerely,



Alan Jones

03/30/87

RACE DIRECTOR GUIDELINES SERIES

BAR CODE READING OF BIB NUMBERS

When the Road Runners Club of America did a survey in 1986 of their clubs concerning computer usage, the information most requested by clubs were (1) producing race day results and (2) bar code readers.

Many of the larger races have gone to bar codes to read bib numbers into computers. The technology has gotten to the point that this technology is now within reach of all but the smallest races and clubs. The use of bar codes can greatly increase the speed and accuracy of results.

There are three common codes used for bar codes: (1) UPC for digits only (this is what is on items in a grocery store), (2) "3 of 9" which can print digits and alphabetic characters, and (3) "2 of 5" for digits.

The bar codes are typically printed on mail labels which in turn are attached to the tear-off tag of the competition number. Some companies which sell numbers can provide numbers with bar codes already printed or can provide pre-printed bar codes on labels. Or, some programs for scoring races can print the bar codes. The advantage of printing your own is that you can put more information on the label such as name, age-group, sex, etc.

One key to the successful use of bar codes is making sure they are printed on material which will hold up to most any weather plus the slopping of many different liquids. Do not use normal mail labels but buy labels from a company which can provide latex based material. Then test the labels by subjecting them to realistic conditions.

The bar code reader itself can be a wand which is stroked across the number or a laser gun-like affair. The laser readers are faster and read without having to contact the label. However, they are more expensive than the contact readers. Contact readers typically cost \$500 to \$1000. The bar code reader can fit between the keyboard of a personal computer and the keyboard connector. This type is called a "wedge" reader since it wedges between the computer and the keyboard. There is a good summary of bar code readers in the November/December 1986 issue of Bar Code News, The Journal of Keyless Data Entry. (This journal is now called ID Systems, The Magazine of Keyless Data Entry, 174 Concord Street, Peterborough, NH 03458.) The companies that manufacture and sell bar code readers are summarized on one page in this magazine. If you send me a stamped self-addressed envelope, I will send you a copy of this page.

When collecting the bar code tags at the end of the chute, all of the usual precautions must be followed such as putting them on a stringer one at a time and face down. In addition, the finish order should be written down as a backup since if someone drops the stringer and the labels come off, all is lost. As the bar codes are read into the computer, the person doing the scanning should read off each number and another person check the screen of the computer to ensure good reads.

One key point when using bar codes is to remember that they do not really change anything you do. You still have to have all the usual redundancies in place since Murphy takes no holidays.

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RRTC Finish Line Sub-Committee

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Endwell, NY 13870
April 12, 1987
(607) 754-2339

Peter S. Riegel, Chairman
Road Running Technical Committee
The Athletics Congress of the USA
3354 Kirkham Road
Columbus, OH 43221

Dear Pete,

I was pleased that I have received some feedback on my letter and suggested guidelines note about bar codes. The responses were from you, Wayne Nicoll, Harold Tinsley, and Jack Moran.

Wayne says that he is ready to write guidelines on "Operation of a Certified Split Finish Line", "Tips on Laying Out Calibration Courses", "The Verification Concept". He also suggests one which clearly and concisely states what Ken and Jen have already written on the use of timing devices. He says that Sally can write one on validations and there needs to be one on the reconciliation of raw data for completion of race results, and probably one of select timing methods.

Wayne adds some comments about evaluation of finish line companies:

Rather than try to evaluate finish line companies, I have in mind a different approach. I have discovered that the race walkers really have their act together on officiating. All their officials are TAC accredited. They have had basic training and have advanced from Association to National to International level as officials. They know how to comply with TAC Rules. I think we need to push for accreditation of road race officials, as differentiated from track and field officials. It will require training, test taking, and some evaluation of credentials as to the level of officiating you would qualify for. Road racing (LDR) will need a sub-committee within the TAC Officials Committee to handle this. Eventually, if you don't have TAC trained and accredited officials filling the key roles on your major road race, then don't expect to have records recognized.

Sounds good but also sounds like a lot of work. What should be done to get Wayne's ideas off the ground?

Harold Tinsley's comments:

Thanks for mailing me a copy of your "RRTC Finish Line Sub-Committee" information letter.

I agree with you that the committee doesn't need to get in the business of "policing finish line companies".

However, I do believe the committee could serve a real benefit to the sport by being a clearing house for information about finish line companies. One by maintaining a list of them and publishing in Road Race Management, Footnotes, and TAC publications that such a list can be obtained from the committee. Second, by advertising that anyone desiring to write a complaint or recommendation letter about one of the companies could send it to the committee. That anyone desiring information about a specific company, a copy of the letter would be copied and mailed to them for a small fee. This would tend to weed out the bad ones in time. Also, sheet of functions and cost would be supplied so that a person desiring to hire one would know their capability and the cost. This would serve as a comparison between companies and those that don't provide adequate service or charge too much would be obvious. Directors would naturally avoid them and in time they would disappear.

Road Race Management already provides some of this information in their articles on finish line companies. However, they provide no user feedback as suggested by Harold. How about some comments on his ideas and, if you agree, how you would propose to implement them.

And, finally, Jack Moran's input:

Thanks for your note of bar-code reading. I think your idea of a series of technical advice for race directors is a good one. Road Race Management does this to some extent, but seems more interested in the who's-who aspect of road racing.

One point you might mention is whether one should use bar codes at all. I think so, not that they save any great amount of time, but because they are more accurate. Whenever we have a reader go bad and have to input data by hand, we always make several more mistakes, just due to reading/hearing-based transcription errors. In any case, we always have volunteers check the spindle against a printout of the finish order before releasing the results. Your suggestion of having a volunteer watch the screen is interesting; it would provide more immediate feedback. But I don't know if it would prevent the most frequent kind of error we make, skipping over the bar code or putting it in out of order.

I have not seen the magazine article to which you refer -- thanks for that reference, by the way -- but there are some bar code readers substantially cheaper than the ones you mention. ABI manufactures a reader that plugs into the game port of the Apple II and reads an in-house code called "Labelcode V" for \$200. And Videx has recently come out with a reader that sells for \$200, although it requires a \$400 charger and \$300 worth of software. This device has memory, and is usable with Apples (including Macintoshes) and MS-DOS machines.

Finally, although I think the vinyl labels are necessary for a marathon, I've been getting by for years with paper-backed labels for shorter races. There are always a few you can't read, but never so many that I've felt the extra expense was justified. Unless you know where you can get them for less than 5 cents a label.

So your article was a good one. Already you've gotten at least some response.

Let me respond to a couple of Jack's points. Yes, he is right that by proof-reading what goes into a computer helps but does not prevent labels out of order. In addition to proof-reading, we also proof against an independently prepared list of finishers. Redundant information is the key. Also, we print up results as quickly as possible and post them. This is the best way to catch errors before the award ceremony. Runners are your best proof-readers. The advantage of the computer is that errors found in this way can be corrected so easily.

I think that Jack's point about accuracy is a good one and needs emphasizing. We find that there is typically one error in 100 due to transcription. Bar codes eliminate these types of errors.

Jack says one can get bar code readers for \$200 and then mentions what happens when they go bad. I've never seen one of the \$550 ones I and others have had experience with go bad. So, what price reliability? Jack questions the use of vinyl labels. I do too. In my note, I didn't refer to the use of vinyl labels (which must be printed at the factory) but to latex ones. These look like normal paper mailing labels but can withstand moisture and rough handling. I soaked one in a dish of water for half an hour and it still read fine. These latex based labels are available from Rainbow Racing System and Electric City and cost one to two cents a piece depending on the quantity ordered. I don't know how Jack gets along with the paper ones. I find they are fine for a short race on a cool day but in a 20K race last summer, a lot of labels turned to mush due to the liquids spilled on them during the race. The latex based ones work don't have this problem.

I have been communicating with Mike Little at Electric City about bar code labels. Electric City is now selling labels with UPC, 3 of 9, or 2 of 5 codes. While not in their current catalog, Mike has done a mailing about this new offering. Rainbow has been offering printed labels and blank labels for several years.

Sincerely,

Alan Jones



Association of International Marathons

AIMS

16 March 1987.

Mr. Peter Riegel
Chairman
TAC Road Running Technical Committee
3354 Kirkham Road
Columbus
OHIO 43221
U.S.A.

Dear Peter,

Thank you for your letter and apology. My annoyance came not so much from what you had written as the fact that from incorrect information Bob Baume had taken up the matter in Measurement News and had gone on in such an authoritative tone as though he had all the facts.

As far as the measurement of Honolulu is concerned. We started on the correct start line as set out by Bartolini with a painted line on the road edge and finished on the actual painted finish line. It was also of considerable help that I had already run Honolulu Marathon seven times.

I sketch below the situation as far as Bartolini's calibration rides were concerned. It was quite impossible for him to ride a true straight course. You ask who is Wallach. Len Wallach is the Race Director of the Bay to Breakers in San Francisco and Race Director of many other events. He was also one of the key figures in the Los Angeles Olympic Marathon. He was my backup rider for the measurement of the Honolulu course.

As far as the IAA/AIMS list of Course Measurers is concerned, every one of those on that list has been checked and approved by Allan Steinfeld. As far as Beijing is concerned, after the measurement and BEFORE the Beijing marathon was run John sent me details of the measurement and added that in his opinion the course was probably the fastest in the world with perfectly flat surfaces and very few corners and the only rise, one overbridge. With the perfect running conditions on the day, I was certainly not surprised at the times run.

As you so rightly put it in your letter, measurement is more of an art than a science as far as marathon courses are concerned and really I think far too much is put into the whole matter. Provided the course is not less than the 42.195 km required and is not ridiculously over length, who gives a damn just what the actual measurement is? As we go further along this road, the question of elevation, wind etc. etc. will go on and on and again, who really gives a damn. As far as the public is concerned it is either a marathon or not a marathon and if the race is run over the marathon distance whether up hill or

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downhill, wind assisted or wind against, no one really cares. After all the marathon is a road race and if people want perfection then it had best be run on an enclosed 400 metre track.

I believe that it is the job of course measurers to see that the distance to be run is not less than that required and not so over length as to make the times vary greatly from one course to another.

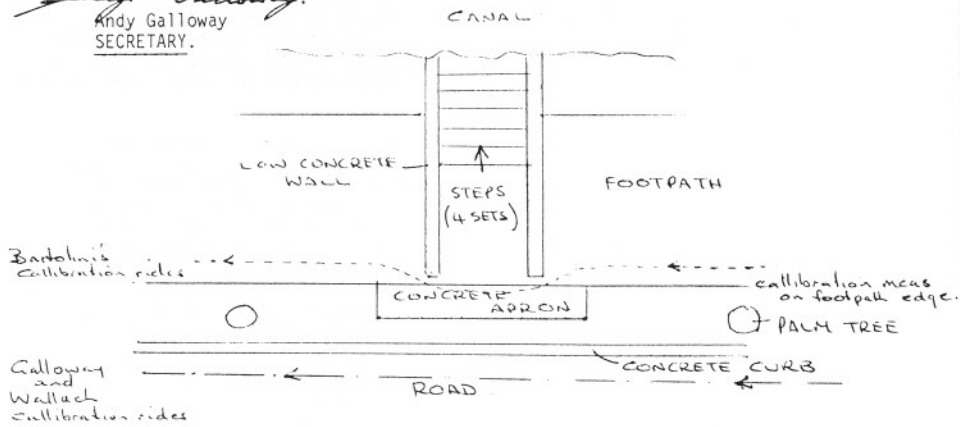
As far as the courses measured by IAAF/AIMS measurers are concerned, all measurement are sent to either Allan Steinfeld or John Disley for checking and a map should be supplied in each case.

You are quite wrong when you say that AIMS would rather have some spurious records than embarrassed race directors and I for one take great exception to that comment. AIMS WANTS EVERY COURSE PROPERLY MEASURED AND CERTIFIED BEFORE THE EVENT AND IN THE CASE OF A WORLD BEST TIME OR RECORD, WANTS THE COURSE AGAIN CHECKED. AIMS ALSO REQUIRES THAT THE PERSON WHO CARRIED OUT THE ORIGINAL COURSE MEASUREMENT AND CERTIFICATION BE PRESENT DURING THE RUNNING OF THE EVENT, PARTICULARLY IF THE FIELD OF RUNNERS IS SUCH THAT A WORLD RECORD IS A DISTINCT POSSIBILITY.

AIMS does not pay for IAAF/AIMS Course Measurers to go and measure courses. This cost is borne by the event. If you want copies of measurement reports and I see no reason why you shouldn't have them, then I suggest you contact Allan Steinfeld who I'm sure will be only too willing to oblige.

Yours sincerely

Andy Galloway
Andy Galloway
SECRETARY.



P.S. I shall almost certainly be in Honolulu next December and have offered to once again check the Honolulu course and give them every mile or km or both.

THE ATHLETICS CONGRESS
OF THE USA

Road Running Technical Committee
Peter S. Riegel, Chairman

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March 26, 1987

Andy Galloway - PO Box 10-106 - Hamilton, New Zealand

Dear Andy,

Thanks for your letter of 16 March. Now that all is forgiven I must strive not to repeat the offense.

Your annoyance with Bob Baumel's letter was quite understandable. I myself am continually annoyed with him. Unfortunately I find that he is very often more right about things than I am. His write is worse than his bite, however, and I find him an enjoyable person with whom to have a conversation and/or a beer (unless, of course, we get on the subject of the metric system). I've learned more from him over the years than from any other single person I can think of.

I'm delighted that you'll be in Hawaii this winter (actually I guess you'll be there next summer) and I'm looking forward to meeting you.

I've been asked by John Disley to be the AIMS measurer/certifier for this year's London Marathon, and I'm very much looking forward to meeting with John, Chris and the other guys who have been so active in the game. I am awed by the athletic achievements of both of them even though those days are long past. Both John and I are convinced that we will achieve much in the way of international understanding. As the guest of the British I do not intend to bring up the subject of the 1983 course, but simply to do the job at hand.

I regret that you take exception to my cheap shot concerning spurious records vs embarrassed race directors. I guess it got your attention, because your reply has made me wonder. You said, "AIMS WANTS EVERY COURSE PROPERLY MEASURED AND CERTIFIED BEFORE THE EVENT AND IN THE CASE OF A WORLD BEST TIME OR RECORD, WANTS THE COURSE AGAIN CHECKED". This is the first time I've heard that AIMS had any idea that WR courses should be post-checked. I think it's a wonderful idea! Aside from Rotterdam has it ever been done?? Is there any single individual within AIMS whose responsibility it is to see that these high principles are carried out?

You also said "AIMS ALSO REQUIRES THAT THE PERSON WHO CARRIED OUT THE ORIGINAL COURSE MEASUREMENT AND CERTIFICATION BE PRESENT DURING THE RUNNING OF THE EVENT.....". This sometimes falls by the wayside also, since it's not always possible to get a person for a whole week if that's what the situation requires. When that happens we must do what we can to assure credibility.

I personally would like to see guidelines for record courses set pretty loose and easy, so that you don't have to be a Ph.D. to measure a race course. Exact numbers are hard to pin down, although I'm sure we'll do so eventually.

One proposal that has been made over the years is to check out the WR courses, and if the course flunks by a small amount, simply adjust the time that was run. This would not happen often enough to be a big problem.

One potential problem for all the AIMS measurers is what happens if a record is set at London this year and Julin later finds my course to be short. The winner of the race is all bent out of shape because he has lost his WR bonus, so he sues me and Chris and John for \$100,000 each. Ouch! I see it as possible.

Perhaps the race directors should base bonus money on the athlete running a WR time on the course as run. That way if they ran a hot one they would be sure of their money.

Thanks for the info on the calibration course. I can see where the swerve would add a bit to Bartolini's calibration constant. But 100 meters worth? That's a whale of a lot - beyond anything that the bend in the cal course would cause. There has to be some other explanation. If Bartolini had beaten your ride by, say, 10 or 20 meters I'd say it was just good riding. But 100 meters means there's some fundamentally different thing that happened. It will be fun to talk about this in Hawaii.

May I use your letter of 16 March in next MN (May 1 deadline)? Sprightly correspondence like this does a lot to keep MN interesting. If I don't hear to the contrary I'll use it. In future, if you ever want to say something really confidential, just note that it's not for publication and I will honor that without question.

Thanks again for your letter. I truly enjoyed and benefited from it.

Best regards,

Pete



Directors Ken Young
Statistician, Record Keeper
(602) 326-6416

Jennifer Hesketh Young
Administrative Officer
(602) 326-6416

P.O. Box 42888 • Tucson, Arizona 85733

March 30, 1987

Dear Pete,

Just read your letter regarding Honolulu.

If my memory serves me correctly, Rimini noted that the validators of the course could not and did not measure the entire course as it was run later in the day by the running competitors. They only were able to measure where the wheel chair "runners" were able to go and Rimini felt that this caused the great difference in the course measurements when compared to Giovanni's.

Did Rimini ever write you about this?

Sincerely,

Jen

Jennifer Hesketh Young

EP. NOTE:
No

THE ATHLETICS FANS
OF THE WORLD

Peter S. Riegel, FAN

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March 30, 1987

Andy Galloway - PO Box 10-106 - Hamilton, New Zealand

Dear Andy,

Just got my copy of AIMS Newsletter, and, of course, immediately saw the part of my (unpublished) letter to you that you took exception to.

It is easy to see where I went wrong. It's my letterhead. 95 percent of my correspondence is about TAC technical things, but only about 40 percent of that is official stuff. The rest is personal opinion and is not intended to be any statement of TAC policy. I suppose that I should be more careful with what I write, but putting my foot in my mouth is something I have been doing all my life. I honestly do work at it, but I suspect I'll never truly succeed.

You will note that - AT NO TIME - have I ever made a direct request to anybody in AIMS for any measurement data for TAC. Nor do I believe I have a right to. TAC has zero official standing within AIMS, to the best of my knowledge.

HOWEVER - I am an AIMS measurer, and I am a fan of road running. Also, I am at liberty to write letters that others are free to agree with or disregard. I have written about the lack of technical control because I would like to see AIMS get its act together. If a major marathon has a WR set at it, certainly I don't think TAC has any say in the matter. But the other members of AIMS surely do.

I may be wrong but I thought the Rotterdam people were forced by pressure from other AIMS race directors to do a validation measurement. I remain stupefied that no AIMS members have done the same about London. Perhaps the women's WR is not seen as being worth a fight over. If I were Fred Lebow or Bob Bright I'd be raising hell.

Andy, if you don't like what I write please don't feel that I'll be offended if you don't publish it. Or, if something in the letter is wrong or makes you mad, why just edit it out and say you edited the letter. I have to say that I do enjoy our exchanges, even though I think you are wrong about as much as I am. It does keep life interesting.

I deeply care about road racing. It's fun. AIMS has the potential to really be a potent force in the sport - it's already off to a great flying start - and I just want to see honesty and openness prevail. And part of my attitude is an innate skepticism that's part of my makeup and applies to every part of my life. Nothing is taken for granted.

In our country there's a saying "trust me". When someone uses it, watch out.





Association of International Marathons

AIMS

8 April 1987.

Mr. Peter Riegel
3354 Kirkham Road
Columbus
OHIO 43221
U.S.A.

Dear Peter,

Many thanks for your letters of March 26 and 30.

I think through our correspondence we have found that essentially we are 'on the same side'. We both want properly measured courses where top runners can run and know that what they have achieved is right. Mind you, I think really this is just as important for the 'ordinary' runners as well. I know that I'd hate to kid myself that I had done a PR and then find out that the course wasn't the correct length.

Yes, it is AIMS policy that where a World Record is achieved that the course MUST be measured again after the event to verify the earlier measurement. We would hope that such post measurement was purely academic and that the initial measurements were correct - but at least post measurement will satisfy everyone (we hope).

I get particularly frustrated over the lack of communication amongst AIMS members and in particular to me as Secretary. Most information I glean from sources other than AIMS members themselves.

I'm sorry about the misunderstanding re your opinion re data on AIMS courses being supplied to the TAC. I presumed (wrongly) that you were speaking on behalf of the TAC. You're right, I'm often more wrong than right, but, as I said earlier at least we are both working towards the same ideal. I'll look forward to seeing you in Honolulu.

Best regards,


Andy Galloway, SECRETARY.

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28 MARCH 1987

TO: AIMS/IAAF
FROM: R.A. LETSON
SUBJECT: MEASURING METHODS

Selection of "the approved method" for measurement could use the following decision table:

	EDM	STEEL TAPE	SOLID WHEEL	AIR WHEEL
TRACK OVAL	X	X		
BASE LINE	X	X		
RACE WALK	X	X	X	X
ROAD RUN	X	X	X	X

1.

Errors for measuring methods may be assumed to be:

method	E
EDM	$\pm 1/30,000$
STEEL TAPE	$\pm 1/4000$
SOLID WHEEL	$\pm 1/2000$
AIR WHEEL	$\pm 1/1000$

2.

Ed. note:
There's room for discussion here!

When a race distance is created
its measured length should be
as follows (so that the course
will not be short):

$$M \geq R(1 + E)$$

where M = measured length

R = race distance

E = error in the measurement
(see page 2)

3.

When a race distance is verified
its measured length should be
as follows (to certify that the
length is not short):

$$M \geq R(1 - E)$$

where M = measured length

R = race distance

E = error in measurement
(see page 2)

4.

Time for a performance on a measured length is not more accurate than the error (E) of the measuring method. For example, for a 10Km course: (assume 30 minutes/10Km)

method	E (time)
EDM	$\pm .06$ SECONDS
STEEL TAPE	$\pm .5$ SECONDS
SOLID WHEEL	$\pm .9$ SECONDS
AIR WHEEL	± 1.8 SECONDS

5.

The reason I have written this note to you is that I want AIMS/IAAF to make a wise decision when drafting new rules concerning measuring methods. Restricting the choice to only one method is, in my view, unwise. If simplicity is desired, it can be achieved by the algorithms for creating and verifying lengths, which accommodate any method.

I wish you the best of success in achieving your goals.

6.

Sincerely,

Robert A. Telson
AIMS/IAAF measurer
4369 Hamilton St. #4
San Diego, CA 92104
USA

WOLFPACK EVENTS ARE SUBJECT TO DRUG TESTING

"Athletes who participate in this competition will be subject to formal drug testing in accordance with TAC rules and IAAF Rule 144. Athletes found positive for banned substances, or who refuse to be tested, will be disqualified from this event, and will lose eligibility for future competitions. Some prescription and over-the-counter medications contain banned substances. Information regarding drugs and drug testing may be obtained by calling the USOC Hotline at 1-800-233-0393." [TAC Memo, 1/27/87]

Drug testing may be conducted at future Wolfpack events by representatives of TAC/USA in compliance with IAAF Rule 144 on testing for banned drugs. This is a national program and is a price we must pay to have membership in parent organizations. We will be informed two weeks prior to any decision to perform drug testing, but the selected athletes will not be informed until after their competition. If you are not drug-free from the IOC/IAAF list of banned drugs, you should not compete. If you refuse to be tested, your future participation will be restricted and your reputation will be damaged. The legal implications are staggering to say the least, but it seems likely that some form of this program will survive indefinitely.

This memo introduces you to drug testing as a major reality of organized sports for the immediate future. Even though the top performers are the center of focus, drug testing will reach the youngest, oldest, and least capable athletes on a random, low probability basis. Somewhat like smoking, prohibited drugs are considered bad for your health. In most cases usage of banned drugs is unfair to your fellow competitors. TAC/USA and similar sports organizations want to greatly limit the improper use of drugs. It is too early to predict trends in drug testing, due principally to financial limitations, but we can expect to receive lots of intimidating news and learn of resistance by a few people with lots of energy. Athletes taking prohibited drugs under a physician's care are advised to call the USOC Hotline about alternative medications. The old excuse that you were never told about a particular drug won't be accepted, because the banned drugs are not common foods and, TAC/USA has the USOC Hotline to give you drug advice.

As a member of Ohio TAC and TAC/USA, Wolfpack events that are TAC Sanctioned (and most of them are) are subject to the rules of the National Governing Body, which for the sport of athletics is The Athletic Congress (better known as TAC/USA). For your information, the sport of athletics covers track and field, racewalking, long distance running, cross-country running, and multievents made up from these activities. TAC/USA is a Congressionally recognized spinoff from the AAU, which now has a more limited scope of sports responsibilities.

The creation of TAC/USA resulted principally from the National Sports Act of 1978, which recognized the need for National Governing Bodies to be more specialized in their scope of experience, interest, and control. In turn, TAC/USA has responsibilities to international organizations governing and supervising athletics competition, particularly the IAAF and the International Olympics Committee via the USOC. TAC/USA experiences some competition on domestic programs, but the better movements usually receive special status from TAC in return for becoming a member in good standing. The National RRCA Office is such an organization, and the relationship appears to be improving.

— BY JOHN WHITE — DIRECTOR,
WOLFPACK 50 MILE

Measuring the Laurel Highlands Trail

by Mel Cowgill and Ted Massa

The Laurel Highlands Trail (LHT) Run was initiated in 1980 and since then we've had several queries from finishers (and some nonfinishers) regarding the advertised 70-mile length of the trail, the inference being that the actual length is somewhat more. Bearing in mind the effort required to run the trail, there is some justification for asking such questions.

The measuring device used the front wheel from one of the authors' bicycles and a front fork from a bicycle supply warehouse. A standard aluminum alloy bicycle stem was attached to the top of the fork to provide a handle. Lightweight cycle components were used because of a desire to keep the weight to an absolute minimum — the trail is difficult enough without lugging along a heavy wheel. The large-diameter wheel also minimized the errors due to the uneven terrain. Recording the distance covered was done with the aid of an ordinary mechanical cycle mileage meter that read to a hundredth of a mile. The meter was attached in the normal manner to the hub and its driver wheel activated by a metal clip attached to one of the spokes. Two such meters were used, with each one calibrated and verified using two methods: by trundling the wheel through several laps of a regulation quarter-mile track and by carefully measuring the wheel circumference and the wheel revolutions per recorded mile. The two methods were in excellent agreement.

**FROM ULTRARUNNING
MAGAZINE — APRIL 1987
NOTE — ORIGINAL ARTICLE
IS LONGER — I'VE EDITED
HEAVILY.**

These measurements were made over a period of several months in the spring and summer of 1986. They usually took the form of an out-and-back, a format that provided duplication of measurement and thus some statistical assessment of the results. For the record, the runs were carried out in the full spectrum of spring/summer weather conditions in western Pennsylvania, from hot, dry days to cold, drenching rain. There was no snow encountered but the runs were not without hazard. On one occasion, a particularly violent thunderstorm prompted the runner to carefully deposit the metal-framed device at trailside, then he retreated to a clearing and crouched close to the ground for over half an hour!

So what did we find out? The results are summarized below, with the trail divided into its five natural sections, formed by intersections of the trail with major highways.

Section	Adver- tised Mileage	Measured Mileage	Deviation (%)
1	19.3	19.468	+0.87
2	13.0	13.421	+3.24
3	14.1	14.669	+4.04
4	10.9	11.167	+2.45
5	13.2	13.289	+0.67
Total	70.5	72.014	+2.15

Footnote: The 1987 LHT will be run on June 13. If you doubt our measurements, why not enter and we'll provide you with the wheel so that you can check it yourself in one straight shot. If your name is Arthur Moore, we'll even let you keep it when you turn around at Seward, so that you can duplicate your measurements on the way back to Ohio.

The **RUNNER** *ultimate*

Mike McGlynn
Race Director
(517) 787-0800, Ext. 248
Home: (517) 750-4332

JACKSON COMMUNITY COLLEGE
2111 EMMONS ROAD
JACKSON, MICHIGAN 49201

Dear Pete,

4-24-87

In the January issue of Measurement News on page 23 a performance chart is displayed. I'm confused - it looks like you get more points for running a slower 5 mile than the marathon. Shouldn't the lines be going in the opposite direction?

Perhaps I'm reading your chart incorrectly. I'd be interested in your answer.

Sincerely,



JACKSON CONVENTION
AND TOURISM BUREAU

CAMP

ORTHOPAEDIC
THERAPY
INCORPORATED

northwest
CHIROPRACTIC
life center



The
HURST
FOUNDATION



WYMAN
GORDON



COMERICA

JIM WINTER BUICK
GMC/Nissan
Inc.

Dear Mike,

I'll try to explain the RUNNING PERFORMANCE RATING GUIDE:

Say you run a 5-mile in 25 minutes. Your pace is 5 minutes per mile. According to the GUIDE, this is a performance level of about 870. That is, you ran about 87 percent as fast as a world-class runner would have run at the 5 mile distance.

Now you run a 2:19:50 marathon. This is 5:20 pace. The performance level is about 915 - you ran at 91.5 percent of the speed of a world-class marathoner.

Comparison of the two performance levels shows that you ran a better marathon than you did a 5-mile.

This has interesting implications for scoring an event such as THE ULTIMATE RUNNER, doesn't it?

Unfortunately the math involved falls to pieces at distances less than a mile and greater than the marathon, but it would be pretty simple to generate specific tables for an event such as yours - at least for the open class.

I hope this has helped clear the fog.

Best regards,

