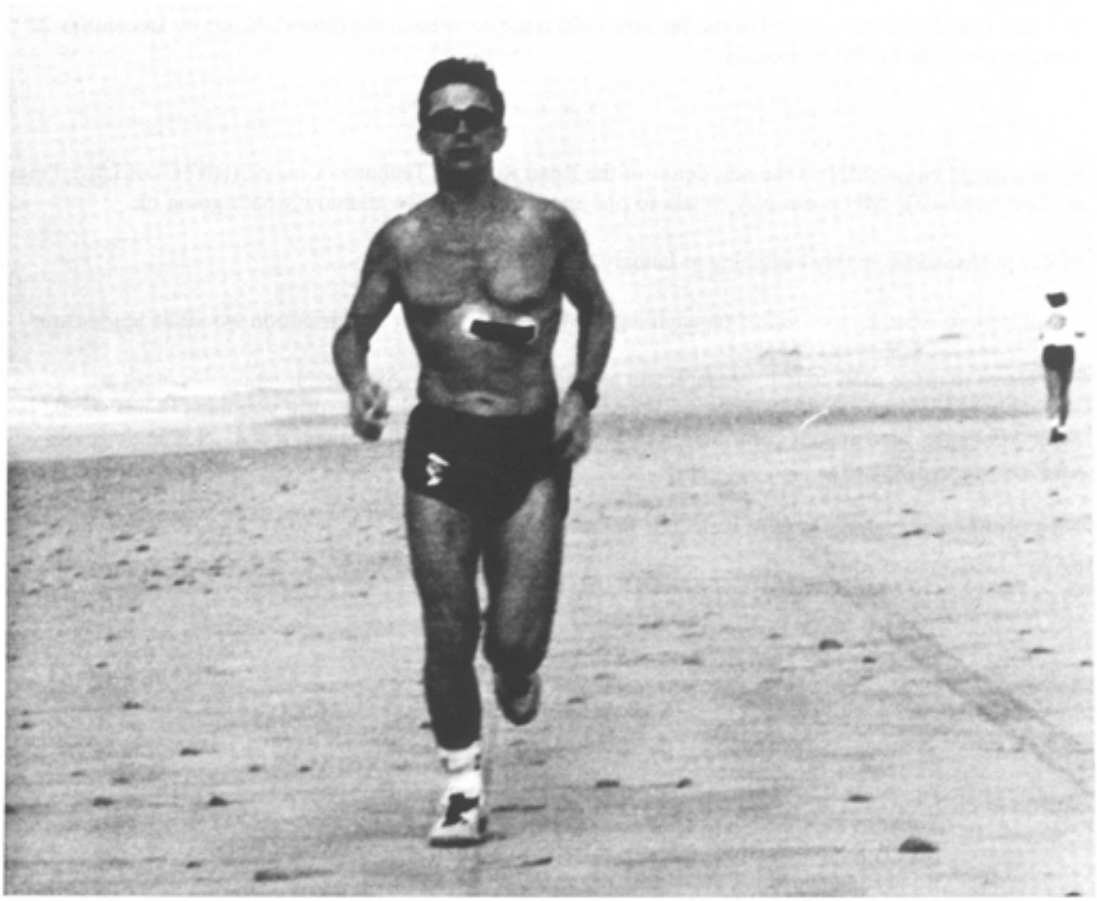
Measurement News

November 1994 Issue #68



Norrie Williamson, winner of many ultra-distance races, emigrated to South Africa from Scotland 14 years ago. Since then he has become involved in the technical aspects of running, and is a highly experienced course measurer, while remaining a formidable competitor on the roads. Here we see him during his Run Against Paddleskiers, from Port Elizabeth to East London, a distance of 250 km on the beach. The run was done to raise a sports bursary for a student. See Norrie's article about course measurement in South Africa inside.

MEASUREMENT NEWS

#68 - November 1994

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A NEW LOOK

The cover of MN, and interior typefaces, have changed a little.

With retirement looming, I will no longer have access to the good printers and computing equipment at the office. Moreover, the computer at home is one we have had for seven years, when we first started maintaining the course list. It's obsolete in today's terms, although it still works - more slowly as the course list grows. So, we've acquired a new machine and printer.

The new computer is an IBM clone, 486DX, 50 cps, 8MB RAM, CD ROM, 420 MB hard disk, with Windows. It's loaded with WordPerfect 6.0a and Lotus 1-2-3 version 5. The printer is a bubble-jet Hewlett-Packard Deskjet 520. The new machines will permit a continuation of past standards, with likely improvements as I learn Windows better. At first it was quite mind-numbing trying to plunge into Windows, but by dint of beating my head against the wall, I have now got to the point where I can do all I did before, and am learning some new tricks that may be handy for the future.

We are not yet wired into a modem, thus have no present access to the Information Highway. This may come, but our plate is full learning how to use what we've got. When we think we're ready, we may take the plunge.

The appearance of the course list has changed. The list, which used to be kept as an undelineated text file in WordPerfect, is now kept as a 1-2-3 database. This will permit more rapid searches when required, and allow much faster manipulation of the various lists that we are asked to produce. Those who want disks sent to them will have more choices as to how they would like the data arranged. The old standby, an undelineated ASCII file, has not changed.

The categories of Mar and HMar are now listed as 42.2 km and 21.1 km. The only distances remaining as text entries are Cal and Trck. Also, the illogical arrangement of the list is no longer present. 2.5 km racewalk loops now appear in their proper place, not immediately after 25 km. 100 km now appears **after** 10 km, not immediately before. It's not an earth-shaking change, but it is an improvement.

It is tempting to tart up the appearance of documents with all sorts of extraneous clip art and fancy fonts, and we will probably succumb to some extent. However, readers are encouraged to let the Editor know if form seems to be overwhelming substance.

NOTICE OF EXPIRATION

Courses certified in 1982 and 1983 expired last year. 1984 courses will expire on January 1, 1995. The certificates remain valid, if the course has not changed, but the courses will no longer be included in published lists unless the course is renewed.

BOSTON/OLYMPIC TRIALS QUALIFIERS

Joan has had several requests for a list of certified marathon courses from people wishing to qualify for Boston or the Olympic Trials. In this issue you'll see a list of all the precently active US marathon courses, which runners may use to qualify for Boston or the Olympic Trials.

The list has been pruned to keep it as short as possible, yet contain the needed information. If no notice is received from the certifier, a new certification for a given race does not automatically supersede the old. The old courses are still there, ready to be used - but probably never will be until they expire after ten years.

The marathon list you will see contains only the **last** certification of a given marathon. This way duplicate listings of the same course are eliminated, although several past courses may still be in effect. This shortens the list, and is useful for people who care only that a given course is certified, and don't care how many times it may have been redone.

NEW APPOINTMENTS

Bob Baumel agreed to take our minutes at the upcoming RRTC meetings in St. Louis. I'm happy that he will do so, since last year he produced first-class, comprehensive documentation of what went on. He has been appointed, therefore, our official Secretary. See the masthead.

THE USATF CONVENTION

You will find a schedule of the meetings to be held at the USATF Convention in St. Louis inside. The big ones, of course, are RRTC's We meet as follows:

Wednedsay, November 30 8:30 to 11:00 PM
Thursday, December 1 8:00 to 11:00 PM

We have not yet figured out a measurement contest for the Convention, since no RRTC person lives in St. Louis. We **will** have a contest, but it may depend on who can help with an idea. Please write to Pete if you have an idea for a contest which we can have. We want to arrive with everything prepared for, and all copying done, and not waste valuable convention time working out something on site. **Are there any bright ideas?**

MAP OF THE MONTH

Readers will see **two** versions of "Map of the Month" herein. The first was done by Ray Nelson, and it shows the Harvard Health Downtown 5k, in Providence, RI. The course passed validation a week after Elana Meter ran a WR 15:10 on it. I promised Ray I'd use it, and then got a French course map from Jean-Francois Delasalle. The map of the Vitre-Argentre 10 km was made by Christian Delerue, and it's another example of fine mapmaking.

MEASUREMENT - THE RULES ACCORDING TO SOUTH AFRICA!

By Norrie Williamson

In the last two years South Africa has emerged from a 20 year sporting isolation. This is not the forum nor is it the time, to debate the political wrongs of that period. We celebrate the New South Africa and the relatively easy passage to the first step... we hope the remaining steps on the staircase will be as easy or easier. For all the wrongs of the past, there were a few benefits, and one relates to Roadrunning.

In order to truly appreciate the state of Roadrunning in South Africa it is important to look at the background to this aspect of the sport.

The lack of International competition led to a loss of public interest, and hence media and sponsors, in Track and Field and X country. The focus then turned to participation and here, there was the ready-made vehicle in the challenge of the gruelling Comrades Marathon, over a course that varies in distance around the 55 mile mark. Comrades runners have to qualify in a marathon in under 4 hours 30 minutes. This meant that a whole "industry" was built up around training and qualifying for the Comrades. Thus the event visibly grew for 3 reasons: a) the inward focus of isolation, which in turn brought sponsorships and hence, b) Television and a high media involvement and, c) the charismatic personality of Bruce Fordyce, who went on to win 9 times.

Comrades grew from 400 in the mid 1960's to 1500 in the 1970's to a massive 13,000 by the end of the eighties. Interestingly there has been a slight drop-off in numbers since the return to International competition. The Comrades Challenge is, however, so well established that the numbers will never drop too far. It has been responsible for many people coming into Athletics which has well over 100,000 registered runners of which, some claim, 60,000 are roadrunners.

Whilst isolation has thus been detrimental to the development of track and X country stars, it has been much kinder to Road Running, and with the African affinity to endurance events, it is no surprise that the potential exists for International domination on the Road.

In parallel with the participation growth, was the competence and sophistication of the officiating. Even the adverse weather conditions of South Africa worked in favour of progress. It is by no small coincidence that Professor Tim Noakes' book "Lore of Running", (now in its 10th reprint) is acclaimed throughout the world. He had a large obsessive running community to select his guinea pigs from. Officialdom fed Science, Science fed back to the rulemakers and the result, some will argue, led to one of the best race organising structures in the World. In particular, medical, refreshment, and dehydration, provisions are top rated.

Unlike many countries, all roadraces in South Africa are held under the auspices of the national governing body. Whereas this used to be separate for Road, track and X Country, unity has seen them all under the umbrella of Athletics South Africa, (ASA). Races are organised by clubs, who may employ promoters but the final responsibility lies either with the club or the Provincial, (state), Athletics body, (e.g. Natal Athletics). This produces a very structured, tightly controlled sport. As opposed to one and a half pages of IAAF Rule 165, Roadrunning is covered Domestically by a 16 page 25 section Rule book. In addition, all runners are required to be registered with: a) a club, b) their Province and c) the National body. (Certain changes are being negotiated to assist the Development programme).

With this background, it will come as no surprise that Course measurement has been an integral part of race organisation. As with other countries this began with car driven distances,which turned to the Surveyors wheel and then the adoption of the Clane Jones. These were purchased from New York Road Runners and more recently the 6 digit version obtained from from Paul Oerth.

The hierarchy of Course measurement involves a) a large base of course measurers and: b) a small group of Validators. All measurers were required to attend a practical lecture and sit a question paper, the Validators would have several years experience before writing another paper. The initial course measurement courses were run by Provincial bodies, with National moderation, and the validation courses run by the validation board.

As one of six Validators, I was always unhappy about the outcome of the course resting on a written exam. Frequently I found people who were adept at getting the required 80% in the examination, were totally lost in practice and vice versa. For that reason we insisted, in Natal, that even with a pass, measurers were only accredited once they had done two full measurements as an understudy. Incentive was provided to have a course measurer in each of the 100 plus clubs in Natal through two means. Firstly, there is a rule which requires ALL road races to be measured by Clane Jones. Clubs failing to do so, lay themselves open to a fine not exceeding R500, (probably about $300 dollars in terms of "buying power"). Secondly, a charge of R50 is made by the Provincial Body to any club who makes use of another Course measurer. Thus, we have managed to generate over 70 course measurers in the Province. The negative side of this is that most will only do about 2 races a year and that tends to mean that they are less proficient than regular measurers.

It is, however, felt that this is still a better method of ensuring races are "accurate", than overburdening one or two measurers with all the work. In addition, it has to be borne in mind that our terrain does not provide many coastal, flat, fast courses and thus the record risks over the odd metre "inexperienced inaccuracy" are minimised by hills, heat, humidity, and altitude. Courses that have potential for fast times, attract the attention of the top measurers. Natal and National Championships, and permit meetings are all "pre-validated".

Where we differ from USA in paperwork at present is the extent of our "library", and the issue of certification. Clubs are required to submit the calculation forms, but the inspection of these is more cursory than one would like. More care is taken with the prestige events, but when it all boils down, the Validators word is gospel. Paperwork is only really used for record applications. The planned update will involve the compulsory submission of a map, (previously a description only was essential), a database of accredited courses and the issue of a certificate. The physical measurement has always been very much in line with the IAAF standard, (yes, you can believe the startling times of isolation, such as Willie Mtolo's 2:08 marathon, Matthews Temane's 60:11 for 21.1 kms and Elana Meyer's World Record times).

There are, however, a couple of differences which at worst would have no effect, but are likely to have erred against the athlete. Firstly, the national rules insisted that the calibration distance was at least 800m on a flat road and that this MUST be set and certified out by a Chartered Surveyor. Whilst this made for accuracy in calibration distance, it often forced us away from the site of the race. The new move will be to allow the USA practice of 300m on course calibration, and the setting out of such distances by the measurer. However, in prestige events the IAAF standard of 500m will have to be adopted.

The other difference relates to the interpretation of "shortest line". Whereas we do not prescribe to the

practice of banging the rims around the corners!, we ride the course on the basis of the closest one can practically run to the verge or kerb. Thus we are frequently less than the 300 mm offset, making the measured course more conservative. This will obviously have to be brought into line, and will open the debate for an "under measurement" allowance for domestic record purposes, (as per USA). This "short line" riding tends to mean that the top measurers are also, or have been, top competitive runners, their eye being more attuned to the legal "short cut".

This high standard of measurement has had its hiccups. Ironically most resistance came from the ultra distances up to Comrades. In the mid eighties, as an ultra runner, I campaigned to get the International distances recognised in line with the progress made by the IAU. South Africa's other World renowned ultra, the Two Oceans 56kms, was one of the first to agree, and to benefit from this move. The race after the measurement saw Thomson Magawana set the World 30 Mile and 50km records, despite two mammoth 4km climbs en route. The following year Frith van der Merwe set the ladies records at the same distances.

Comrades, however, provided more resistance. Tradition has seen a group of 10 or so individuals get together to measure the twisty, hilly course between Pietermaritzburg and Durban with a surveyors wheel and a crate, (or four!) of brown beer bottles. Obviously the pace, and route, at which a wheel can be pushed on a traffic laden road is not conducive to accuracy....neither is the state of the measurers as the crate empties. Invite to this was seen as a "rewarding" experience, rather than a task in accuracy, and I have no problem with the "tradition" of such an event. However, on first measurement of the course, I found the error to be just under 2kms! The argument raised against an accurate measurement, was that the actual distance changed each year as they are forced to make minor changes, the direction changes yearly, and basically who cares? The counter is, that they were not above the national rules and, claims of an 91km race which was actually 89kms was mis-representation, which affected the so-called "record performances" associated with the race.

The first year that the correct method of overall measurement was adopted also saw the first black South African winner. Indeed this change probably led him to lose out on the recognition he deserved. The media reported his time as being poor in comparison to Bruces previous down run over the "longer distance". Had Bruces run been accurately measured the two winners would have been within 45 seconds of each other! Thus the power of the accurate course. Comrades now promote the fact that their course is accurately measured by Clane Jones! The 50km, 40 mile and 50 mile marks are also measured and timed, though none will produce world records due to the terrain, (5500ft of climb on the up run and 2500ft climb on the "down"!) Even the A to B 100 mile Washie, which includes two mountain passes, has been measured.

The ethic and rules on measurement have resulted in my receipt of request to measure everything from 8km Development races in the midst of rural townships, to a 50km Mountain race which climbs from 4527 ft to 10,170 ft in 25kms and return down a chain ladder! (Even the Mountain bike had to be pushed over some of this route!!) With well over 100 courses measured, (I don't keep a record), this was one of the memorable ones! Others that feature include the Key to Shining Key 100km / 50 miler / 100 miler in USA last year, part of the London Marathon with Peter Riegel and John Disley in 1992 and the Soweto Marathon.

This latter is one of the most enjoyable, and yet probably most "internationally unbelievable". It was a Saturday morning during the height of pre election violence in 1994, this lone "white ranger" on his trusty

steed made his way into Soweto township with only a back-up car with two SAAACON, (South African Amateur Athletics Congress), friends, Ishmail Khosi and Joe Morris doing the recording. Their attempts to get a Police escort, (as residents, they were slightly apprehensive of the possible reception and behaviour of the Minibus taxis who are renowned for their "kamikaze" driving), came to nothing at 05:00 when we calibrated.

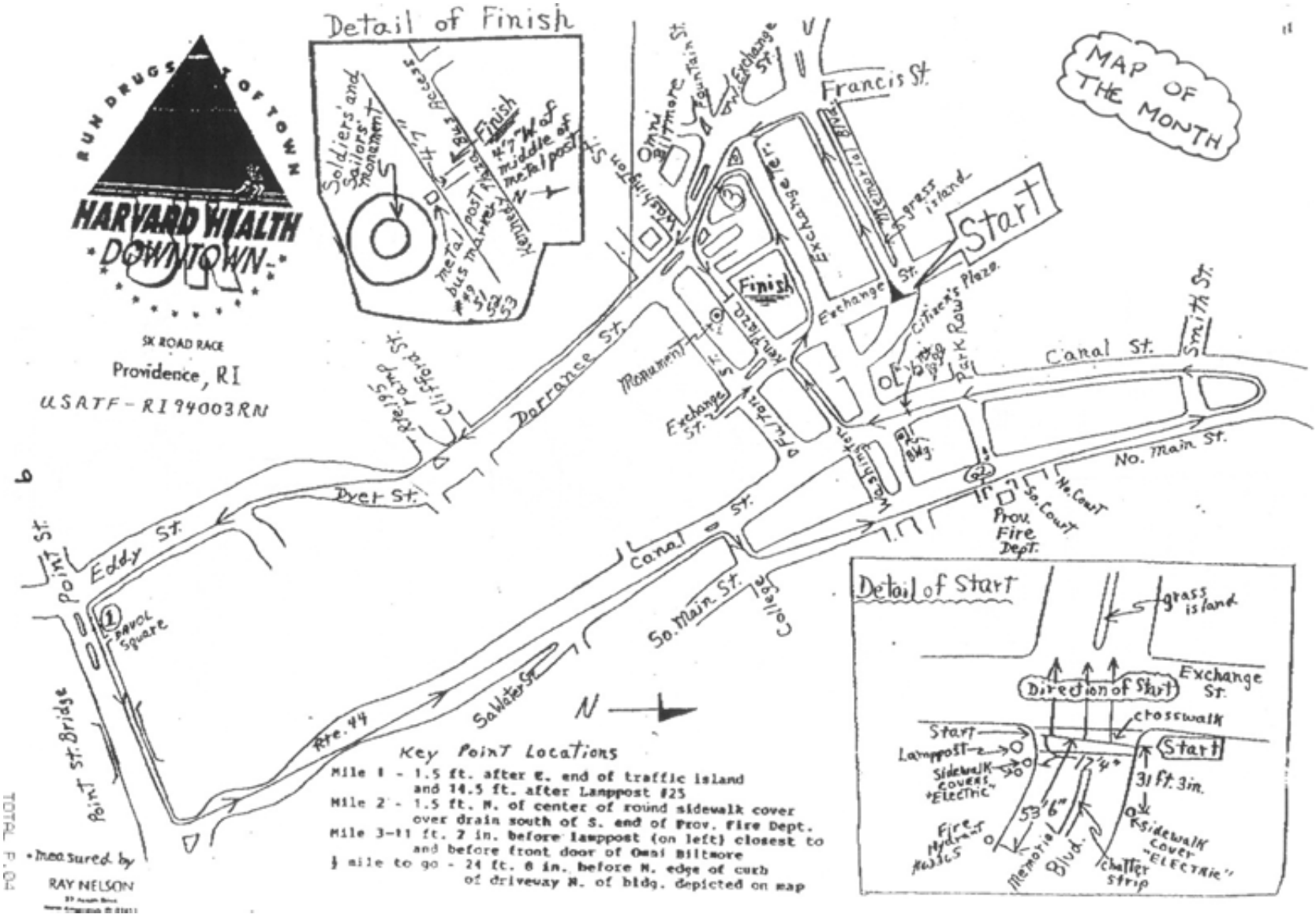
As we moved into Soweto the early morning workers, runners and shoppers at first stared, overawed by the "audacity?", (brazenness?) of a seemingly unescorted "pale face" cycling into the township and then quickly offered a greeting of "Welcome to Soweto!" More amazing were the taxis, who when confronted by a stationary cycle in the centre of the road, (making a KM mark), eased down to a funeral pace, with driver and passengers shouting the same welcome. Some pedestrians even put up "high fives" as I passed close to the kerb! A real highlight in Course measurement. The course was a tough one, I even broke the chain on the Mountain bike on one hill! The race, held in November was won by Matthews Temane in about 2:25 and Mark Plaatjies was amongst the personalities to run in an associated 5km funrun.

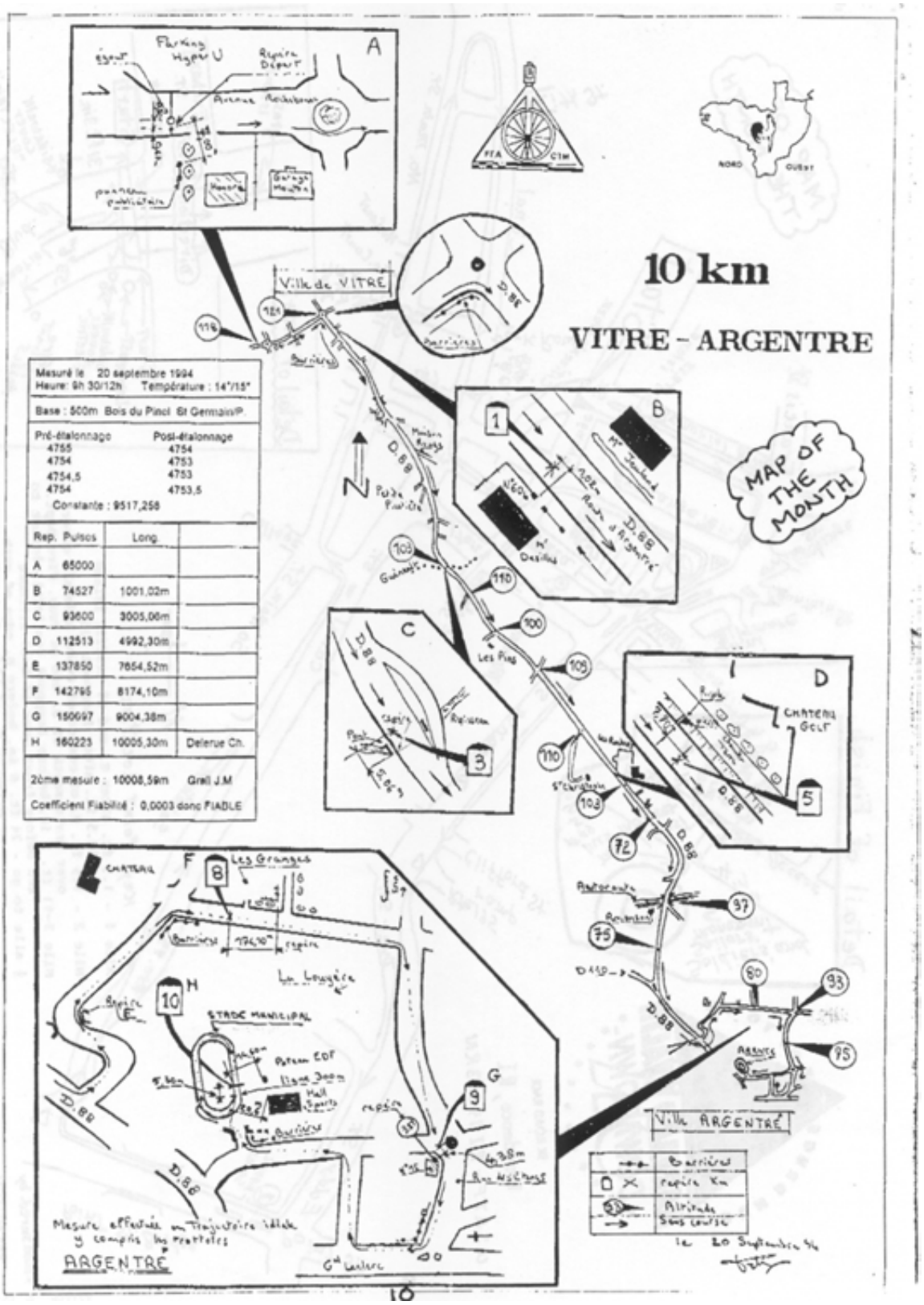
In conclusion a word on where we are going. As noted, unity has put all aspects of athletics squarely under the control of Athletics South Africa. ASA have adopted a similar structure to the IAAF, with commissions for Road, track, and X country. There are then a number of service sub committees, including one for Technical Matters to which I have been appointed. The inaugural meeting was held in July where the powers, duties and mandates were determined. This committee covers all 3 disciplines of the sport through two representatives from each. The initial brief is to bring Rules, Officials and Course Measurement into line with IAAF recommendations, standards and rulings.

The first task is to amend the rules, then amend the syllabus of the courses, re-qualify the existing officials to recognised International standards, (this may require an IAAF seminar), and thirdly, adopt the additional expertise and knowledge available from around the world. We certainly do not have the time, (or inclination), to re invent the wheel!

About Norrie Williamson: When I asked Norrie for the article, I also asked for some biographical information. I received 5 pages of impressive material, which Norrie said to boil down as I chose. Here goes: He's won a score of races from 100 to 1000 km, and has competed in several of the world's premier ultras, including 11 Comrades (10 silvers), Western States 100 mile, and John O'Groats to Land's End. He's written Everyman's Guide to Distance Running (look for it at your bookstore - it's good). He's represented Scotland, England and South Africa in international competition. His measurement activities appear in his article.

Norrie is works at M. L. Sultan Technikon, an educational institution similar to a university but with a more practical aspect to the course. He's also a freelance broadcaster and writer. Of his work at the Technikon he writes "It currently has 7000 students, of which 60% are Indian, 38% African and 2% white. There are cultural splits within this breakdown in terms of Hindu, Muslim, Christian, Atheist, Zulu, Khosa, Sutho etc, all of which makes it not only a political hotbed, but an absolute gem for me as Head of Culture. Who said 'You can please all of the people some of the time, but you have no chance in hell of pleasing all the people all of the time!!'"


RUN DRUGS TOWN
HARVARD WEALTH
DOWNTOWN
5K ROAD RACE
Providence, RI
USATF-RI94003RN
Detail of Finish
Soldiers' and Sailors' Monument
Finish
4'7" W of middle of metal post
metal post
bus marker
Kennedy Plaza
Fountain St.
Exchange St.
Francis St.
MAP OF THE MONTH
Omni Biltmore
Exchange Pl.
grass island
Start
Finish
Exchange St.
Citizens Plaza
Park Row
Canal St.
Smith St.
Cliffords Ramps
Dorrance St.
Monument
Exchange St.
Fulton
Washington
No. Main St.
So. Court
No. Court
Prov. Fire Dept.
Dyer St.
Eddy St.
Point St.
Canal St.
So. Main St.
College
Naval Square
Point St. Bridge
Rte. 44
Salter St.
N
Key Point Locations
Mile 1 - 1.5 ft. after E. end of traffic island and 14.5 ft. after Lamppost #25
Mile 2 - 1.5 ft. N. of center of round sidewalk cover over drain south of S. end of Prov. Fire Dept.
Mile 3-11 ft. 7 in. before lamppost (on left) closest to and before front door of Omni Biltmore
¼ mile to go - 24 ft. 6 in. before N. edge of curb of driveway N. of bldg. depicted on map
Detail of Start
grass island
Direction of Start
Exchange St.
crosswalk
Start
Lamppost #2
Start
Sidewalk covers "Electric"
31 ft. 3 in.
53' 6"
Fire Hydrant
Memorial Blvd.
Chatter strip
Sidewalk cover "ELECTRIC"
Measured by
RAY NELSON


10 km
VITRE - ARGENTRE
MAP OF THE MONTH
Mesuré le 20 septembre 1994
Heure: 9h 30/12h Température : 14°/15°
Base : 500m Bois du Pinel St Germain/P.
Pré-étalonnage
4755
4754
4754,5
4754
Post-étalonnage
4754
4753
4753
4753,5
Constante : 9517,258
Rep. Pulsos Long.
A 65000
B 74527 1001,02m
C 93600 3005,06m
D 112513 4992,30m
E 137850 7654,52m
F 142795 8174,10m
G 150697 9004,38m
H 160223 10005,30m Delerue Ch.
2ème mesure : 10008,59m Grall J.M
Coefficient Fiabilité : 0,0003 donc FIABLE
Ville de VITRE
Les Granges
Les Longères
STADE MUNICIPAL
Ville ARGENTRE
Barrières
Kms
Virades
Sens course
Mesure effectuée en trajectoire idéale
y compris les courbes
ARGENTRE

USA Track & Field
16th ANNUAL NATIONAL CONVENTION

The Adams Mark Hotel
St. Louis, MO
November 29-December 3

C = Conference
C-T = Conference/Theatre*
S = Schoolroom
S-T = Schoolroom/Theatre*
H-R = Hollow Rectangular Square

Schedule as of September 1, 1994

Time	Monday, November 28	Number	Set-up
12 Noon-5 p.m.	Registration Desk		
	Convention Office		
	Computer/Typing Room		
	Press Room		
	U.S. Athletics Calendar		
	USATF National Office		
p.m.			
1:00-2:00	Integrated Marketing Task Group	20	C-T
2:30-5:30	USATF Executive Committee	35	C-T
	Coaching Education	25	C-T
7:30-9:30	USATF Executive Committee	35	C-T

Time	Tuesday, November 29	Number	Set-up
8 a.m.-6 p.m.	Registration Desk		
	Convention Desk		
	Computer/Typing Room		
	Press Room		
	U.S. Athletics Calendar		
	USATF National Office		
a.m.			
8:45 a.m.-12 Noon	Coaching Education	150	T
9-10	First-Timers Orientation	150	T
9-11	Member Services	150	T
	Associations Executive Committee	35	C-T
	Officials Executive Committee	20	C
	SSC Executive Committee		
	Men's Track & Field	25	C-T
9-6	Women's Track & Field	25	C-T
	Men's & Women's Race Walking	25	C-T
	Youth Athletics	15	C
	Masters Long Distance Running	25	C

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* Room set-up Conference-style for number of people indicated; chairs theatre-style around perimeter of room.

** Room set-up Schoolroom-style for numbers of people indicated; chairs theatre-style around perimeter of room.

2-2-2

Time	Tuesday, November 29	Number	Set-up
p.m.			
1-5	USATF Board of Directors	150	Special
6-8	Masters Track & Field Executive Committee	20	C
	Athletes Advisory Event Leaders	150	T
6-9	Men's & Women's Race Walking	150	T
	Athletics for the Disabled	30	S-T
	Men's Long Distance Running Executive Committee		
	Rules	25	C-T
6-10	Youth Athletics	250	T
6-10:30	Officials	250	T
6-11	Masters Long Distance Running	150	T
	Men's Track & Field	150	T
	Women's Track & Field	150	T
8:30-11	Masters Track & Field	150	T
9-11	Athletes Advisory	150	T
9:30-11	Joint Men's & Women's Cross Cross Country Subcommittee	20 80	C T
	Youth Athletics Regional Coordinators	20	T
	Men's Long Distance Running Associations Workshop	150	T

Time	Wednesday, November 30	Number	Set-up
7:30 a.m.-6 p.m.	Registration Desk		
	Convention Office		
	Computer/Typing Room		
	Press Room		
	U.S. Athletics Calendar		
	USATF National Office		
a.m.			
9-11	USATF General Meeting	800	Special
11-12:30 p.m.	USATF Meet Directors Association	250	T
	U.S. Olympic Team Staff	150	T
p.m.			
1-2	First-Timers Orientation	150	T
1-2:30	International Competition	150	T
	U.S. Women's Track Coaches Association Advisory Committee	20	C-T
1-3	Youth Athletics Coaches Association	150	T
	Men's Awards Subcommittee	20	C-T
	Men's LDR Championships Subcommittee	25	C
	Public Relations Task Group	20	C-T
1-5	Records	30	S-T
1-5:30	Budget & Finance	35	C-T
	Officials	250	T

Time	Wednesday, November 30	Number	Set-up
p.m.			
1-5:30 (cont.)	Member Service	150	T
	Standards Men's & Women's Subcommittee	20	C-T
	Race Walking Site Selection Subcommittee	25	C
	Rules	25	C-T
3-6	U.S. Women's Track Coaches Association	150	T
3:30-5:30	Communications	30	H-R
	Women's Long Distance Running Executive Committee	20	C-T
	Associations Committee Seminars	250	T
	Men's Development	250	T
	Race Walking National Team Subcommittee	20	C-T
3:30-7	Ultra Distance Subcommittee	20	C-T
6-8	Convention Subcommittee	20	C-T
6:30-8	USATF Authorized Representatives	35	C-T
6:30-9	USATF Meet Directors Association	250	T
6:30-11	Communications	30	H-R
7-11	Youth Athletics	250	T
	Law & Legislation	25	C-T
8:30-11	Men's Development Workshop/A	150	T
	Men's Development Workshop/B	150	T
	Men's Development Workshop/C	150	T
	Men's Development Workshop/D	150	T
	U.S. Women's Track Coaches Association	150	T
	Women's Heptathlon Subcommittee	20	C-T
	Masters Track & Field	250	T
	Athletes Advisory	250	T
RRTC →	Road Running Technical Council	150	T
	Officials Equipment & Facilities Subcommittee	25	C

Time	Thursday, December 1	Number	Set-up
8 a.m.-6 p.m.	Registration Desk		
	Convention Office		
	Computer/Typing Room		
	Press Room		
	U.S. Athletics Calendar Office		
	USATF National Office		
a.m.			
8:30-11:30	Women's Development	150	T
	Joint Site Selection Subcommittee	250	T
	Women's Long Distance Running	250	T
	Women's Cross Country Subcommittee	150	T
	Youth Athletics	250	T
	Masters Long Distance Running	150	T

Time	Thursday, December 1	Number	Set-up
a.m.			
8:30-11:30 (cont.)	Men's Long Distance Running	150	T
	Athletes Advisory	250	T
	Athlete Support Subcommittee	20	C-T
	Law & Legislation	25	C-T
9-9:45	Overview Project Group	20	C-T
12 Noon-2 p.m.	**AWARDS LUNCHEON**	Special	
p.m.			
2:30-4:30	Officials	250	T
2:30-5:30	Joint Site Selection Subcommittee	250	T
2:30-6:00	Substance Abuse Education & Testing	30	H-R
	Men's & Women's Race Walking	150	T
	Men's Development	150	T
	Women's Development	150	T
	Youth Athletics	250	T
	Sports Science Developmental Seminar	250	T
	Hall of Fame Library Advisory Board	20	C-T
	Records	30	S-T
	Rules	25	C-T
	U.S. Olympic Team Staff	150	T
3-6	Joint Masters Track & Field and Long Distance Running	250	T
7-10	Joint Men's & Women's Development	250	T
7-11	Joint Site Selection Subcommittee	250	T
8-9:30	Officials Executive Committee	25	C
8-11	Road Running Technical Council	30	H-R
RRTC →	Men's & Women's Race Walking	150	T
	Associations	150	T
	U.S. Olympic Festival	150	T
	Sports Medicine & Science	250	T
	Cultural Exchange	30	H-R
	Rules	25	C-T

Time	Friday, December 2	Number	Set-up
8 a.m.-6 p.m.	Registration Desk		
	Convention Office		
	Computer/Typing Room		
	Press Room		
	U.S. Athletics Calendar Office		
	USATF National Office		
a.m.			
9-12 Noon	Men's & Women's Race Walking	150	T
	Men's Long Distance Running	150	T
	Women's Long Distance Running	150	T
	Youth Athletics	250	T
	Women's Track & Field	150	T

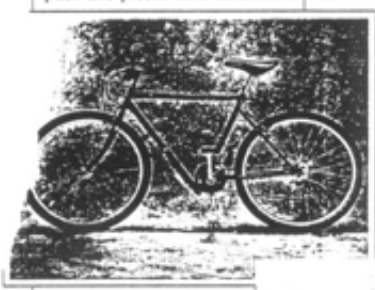
Time	Friday, December 2	Number	Set-up
a.m.			
9-12 Noon (cont.)	Law & Legislation	25	C-T
	Men's Track & Field	150	T
p.m.			
1-3	Integrated Marketing Task Group	20	C-T
	Joint Men's & Women's Long Distance Running	300	T
	Women's Track & Field	150	T
	Men's Track & Field	150	T
	Sponsor Support Advisory Task Group	25	C-T
	U.S. Olympic Team Staff	150	T
1-5	Athletes Advisory	250	T
	Cultural Exchange	25	C-T
1-5:30	Rules	25	C-T
2-5	Associations Committee Zone Meetings	250	T
3:30-5	Joint Men's & Women's Track & Field	300	T
3:30-6	Masters Track & Field	150	T
	Masters Long Distance Running	150	T
6-7	**RECEPTION**		
7-???	**JESSE OWENS AWARD BANQUET**		

Time	Saturday, December 3	Number	Set-up
8 a.m.- 3 p.m.	Registration Desk		
	Convention Office		
	Computer/Typing Room		
	Press Room		
	U.S. Athletics Calendar Office		
	USATF National Office		
7 a.m.-Finish	Delegates Race		
a.m.			
9-11:30	Youth Athletics	250	T
	Track & Field Junior Commission	150	T
	Athletics for the Disabled	30	S-T
	Joint Law & Legislation and Rules	250	T
	Women's Long Distance Running	250	T
	Masters Long Distance Running	150	T
	Masters Track & Field	150	T
	Athlete Support Subcommittee	25	C-T
p.m.			
1-Conclusion*	**USATF General Meeting**	1000	Special
4-6	Custodial Board & Doping Hearing Board	150	T
6:30-7:30	Reception		
7:30-9:30	HALL OF FAME BANQUET	500	Special

Leisure

GOOD BIKES NOW COME IN SMALL PACKAGES

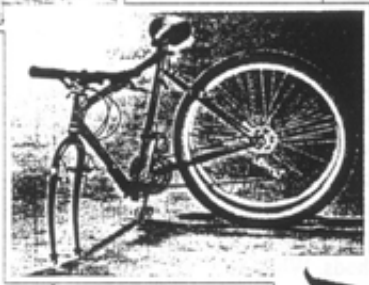
Traveling on a bicycle is great fun. Traveling with a bicycle is a great big headache. Lugging it on a car means roof racks, bird droppings, and spattered bugs. If your plans include flying, you haul the two-wheeler to the airport, struggle to disassemble it in the terminal, pack the pieces in a cardboard box, and pay at least an extra $45 each way for the pleasure. Hardly a way to begin a cycling adventure.



A better idea might be to bring along one of the new generation of portable bikes. Using lightweight materials and high-tech components, they're designed to fold into compact units that easily fit in a car's trunk. Some have hard-shell travel cases that most airlines will accept as no-charge baggage.

A folding bike is a good choice even for the nontraveler. When living space is tight—especially in an apartment—being able to stow a bicycle under a bed or in a closet keeps it from becoming part of the decor.

RIGID FRAME. Folding bikes have actually been around for a long time but have not been considered serious riding machines because of their small wheels and wobbly frames and because of the limited number of dealerships for sales and service. Many cyclists complained that the portable models simply didn't look or ride like "real" bikes.

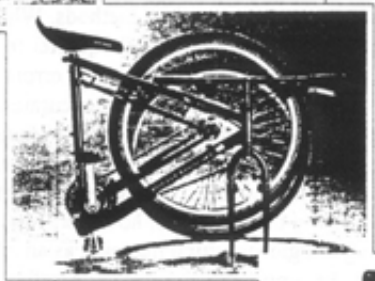


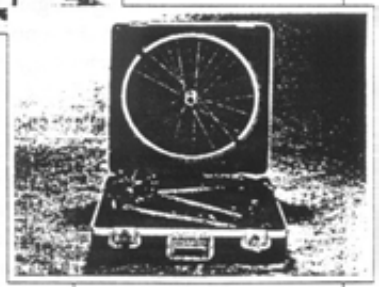
MONTAGUE'S 949 BIFRAME MOUNTAIN BIKE FOLDS UP IN ONLY FOUR STEPS. IT PROVED UP TO THE RIGORS OF TRAIL RIDING

Montague Corp. in Cambridge, Mass. (617 491-7200) is one bike builder that's out to change that perception. It sells a full line of folding city, mountain, and tandem bicycles, priced from $459 to $1,995. Each uses a "chromoly" steel alloy frame, designed with two concentric seat tubes that provide a pivot point for the bike's front half, including the handlebars and front-wheel-fork assembly, to be unlocked and folded against the rear half of the bike. The design doesn't affect the mechanics of the brakes, gears, or drive chain. When you're ready to ride, swing the front fork into position, lock the quick-release levers, pop on the front wheel, and off you go.

Montague's Biframe Model 949 mountain bike ($699) comes with lightweight components, including a slick-shifting Shimano Alivio 21-speed gear set. It delivers a smooth ride, tight handling, and good balance. The frame is surprisingly rigid considering that it folds. The bike is both heavier, at 30 pounds, and pricier than competitive fixed-frame models. On an afternoon of biking on asphalt, dirt, and some serious trails in New Jersey's South Mountain Reservation, the 949 proved to be a quick and capable machine.

Montague bikes use conventional, high-quality components and standard 26-inch wheels, so parts and service should not be a problem even if you're on a vacation far from home. Montague also custom builds a folding mountain bike for BMW, which is sold through that carmaker's dealer network.





PHOTOGRAPHS BY TED MORGAN

For the cyclist who wants full suspension in a superlightweight, custom-built road or mountain bike, consider Alex Moulton bicycles. These top-end models roll on 20-inch wheels, are priced from $1,299, and are distributed by Angletech in Woodland Park, Colo. (800 793-3038).

Another made-to-measure folder that uses the midsize 20-inch wheel is the Bike Friday. The distributor, Green Gear Cycling in Eugene, Ore., (800 777-0258) builds three different bike types—touring, mountain, and road racing. Each bicycle is offered with a clever travel suitcase that becomes a rolling trailer for your personal gear after the bike is assembled and ready to ride. The line starts at $995, with the trailers a $300 option.

REAR SUSPENSION. Another choice is the Brompton, a more traditional British folding bike. It uses smaller 16-inch wheels and three- or five-speed gearing. The cycle features rear suspension, chrome fenders, and luggage racks. The lightweight bike is best suited for street riding and sells for $740. Contact Linear Manufacturing, the U. S. distributor in Guttenberg, Iowa, (319 252-1637).

As more people choose two wheels for their daily commutes, recreation, and exercise, they should know that a bike can now offer a good ride in a portable design. The incredible folding bike is also guaranteed to turn heads when you take it out of a case, put it together, and ride it away. *Tom Reed*

FROM
DOUG LOEFFLER

Derby Running Club, Inc.
T.R.R.A.C.K.
101 N. Brookforest
Derby, KS 67037
(316) 788-2027

September 16, 1994

Pete Riegel
3354 Kirkham Rd.
Columbus, Ohio 43221

Dear Pete:

I am writing with regards to the letter from Bob Woods and your response in the latest *Measurement News* regarding the accuracy of USGS topographic maps. As a geologist who has worked extensively with topo maps over the years, I might be able to add a little information on the subject to the discussion.

First of all, in the early days all of the topographic maps were surveyed by plane-table crews and were hand-contoured, generally by experienced topographers, who tended to be somewhat expressive in their methods. While very accurate considering the tools that they had to work with, errors of a quarter to one-half of a contour interval were considered to be acceptable. Occasionally, errors of greater magnitude were known to occur. Sketching of contours was most accurate in open country along roads. In wooded and less accessible areas, many small gullies tended to be overlooked. On some of the oldest maps, sometimes, the head of one valley might connect with the lower course of another resulting in some confusion when attempting to locate oneself in the field. In defense of the early topographers, however, I have spoken to early "field" geologists who used surface geologic structural mapping as an oil exploration tool, and they attest to very few errors on the topo maps to which they referred.

As technology enabled the more widespread use of precise areal photos to facilitate topographic mapping, the accuracy of the maps produced improved correspondingly. The latest technology utilizes automatic plotters which work directly from the areal photos, and I must say, produce a very accurate product. Questionable areas are constantly field checked to head off any problems that might occur on the finished maps. Additionally, with the increased use of areal photos in topographic mapping, map coverage was able to be produced much more economically than in the past. Also, the establishment of more and more precise bench marks reference points has added to the overall accuracy of the topo maps.

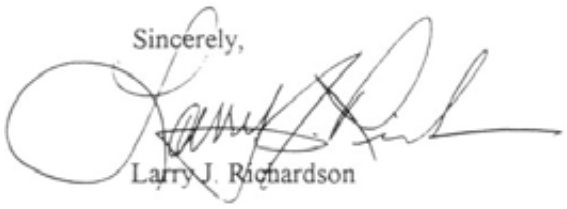
One of the worries that Bob expressed in his letter was suspected elevation changes occurring as a result of construction or nature. As any frequent user of topographic maps will attest, there is a continuing process of photrevision employed by the USGS in areas where there is a lot of human activity. As far as changes due to nature that would measurably affect an elevation, in most cases I would have to say that the effect would be negligible in the 8 to 10 year time span to which he referred, unless the area has been subject to extreme earthquake activity, volcanism or other natural disaster.

The greatest possibility for error in using topographic maps will occur in their improper usage by inexperienced measurers. Misunderstanding the contour interval or improper interpolation between contours or inaccurate location of a point on the map will probably yield more errors in elevation that actually exists on the maps themselves. Those who are not sure should visit the department of geology or civil engineering at a nearby university and seek some references on the proper uses of topographic maps. I also believe that the USGS prints a small booklet on the basics that can be obtained along with the maps at the address shown in the back of your *MN*.

As a final note, I agree with Pete that you should do your best. However, I would caution someone in using an altimeter to determine an elevation. An altimeter, or aneroid barometer, can yield accurate results in the hands of an experienced user, but they are very subject to changing weather conditions and can produce errors in elevation that far exceed those found on modern USGS topo sheets. I would much rather use a hand level than an aneroid barometer (another tool that requires some practice). On the courses that I measure, I am confident that the topo maps are more than accurate enough for the work that we are doing.

Keep up the good work.

Sincerely,



Larry J. Richardson

USA TRACK & FIELD

Peter S. Riegel
Chairman, Road Running Technical Council
3354 Kirkham Road
Columbus, OH 43221-1368

614-451-5617 (home)
614-424-4009 (work)
614-451-5610 (FAX, home)

September 20, 1994

Larry J. Richardson - 101 N. Brookforest - Derby, KS 67037

Dear Larry,

Thanks for the overview of how topographic maps evolved, and of your experience with them. It's always a welcome thing to hear from someone who has experience using the tools.

Some new measurers hardly know what a topographical map is. They plow their way through our procedures, and then are asked the questions about elevations. Some local ones call me and ask if I have the maps, because they either don't know where to get them, or do not wish to wait 6 weeks for delivery. It can be frustrating for them. The process of obtaining and using topographic maps is sometimes a bit more complicated than the neophyte can handle.

As a certifier, I am only too aware that there is no supporting information sent to me to show that the elevations reported are correct. I take them on faith. I have had people invent elevations, and was only aware of it because I knew the general elevation of the area in question.

Measurement is something you can do for yourself, once you have a tape, a counter and a bike. Finding the elevations is a bit tougher. I'd like to find a way to get the information in a way that doesn't force someone to spend five or six dollars to answer one question.

The absolute elevations are unimportant to us in determining the drop of a course. It's the relative elevation between start and finish that counts. In most cases, if the terrain is relatively flat and the separation is not great, it's probably accurate to say the elevations are the same.

I've thought of using a hand level, but have not yet been stuck with the necessity for it. I usually have the right topo map available. As a backup I have a small Avocet speedometer that has an altimeter function built in. Its least count is 10 feet. While atmospheric pressure changes will affect it, I have found that if I go back and forth between start and finish a couple of times in a short time, I can generally get numbers that do not vary. Their absolute accuracy is unknown, but relative elevation should be pretty good. I've checked it out using the elevator in my 11 story office building.

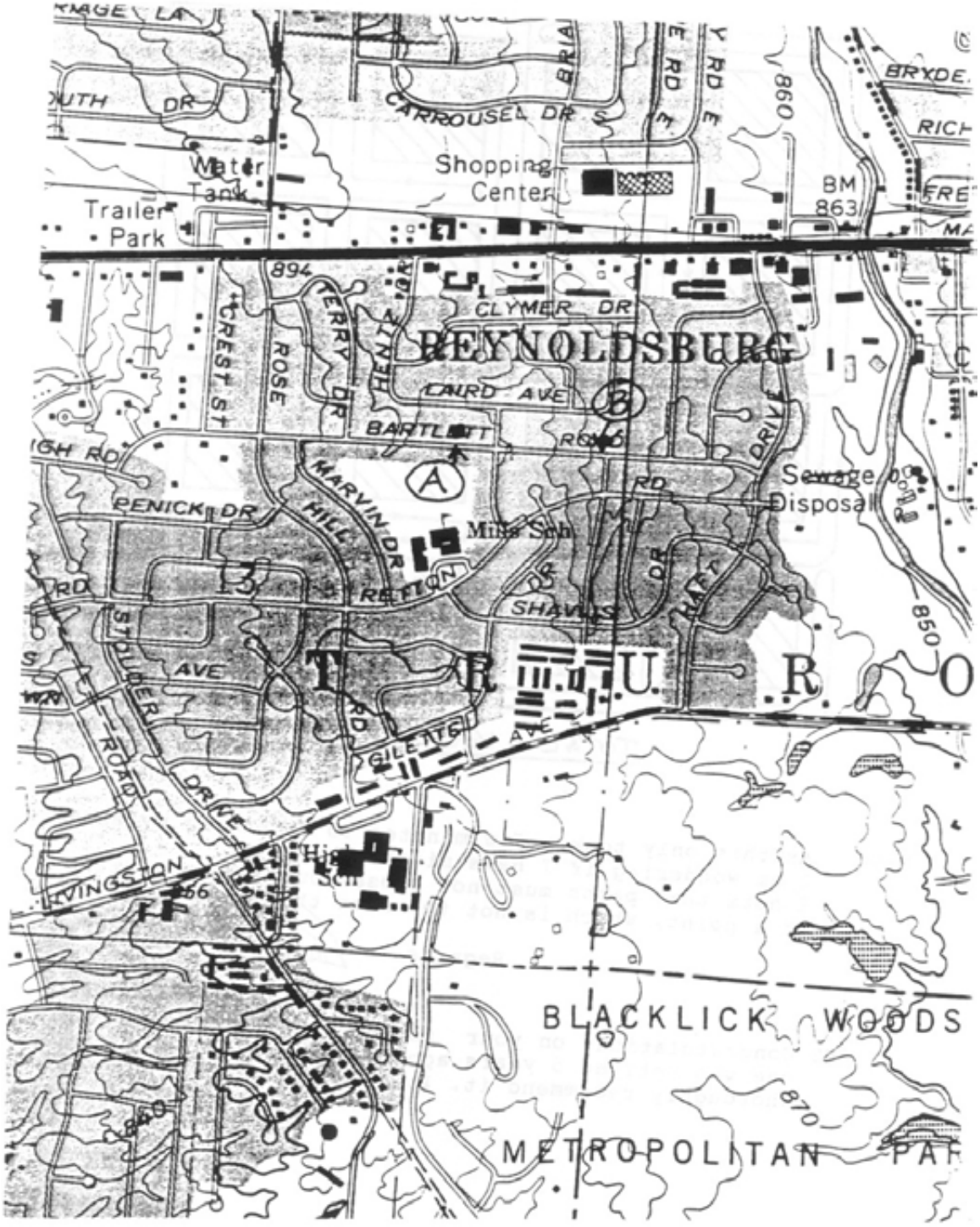
Finding an elevation is not always easy, even with a map. I think next month's puzzle will involve something I recently had to do. I almost went blind with those weird contours. The problem was to determine the elevations of both ends of a calibration course. Here it is. What elevations do you get for A and B on Bartlett Road?

Best regards,

Pete

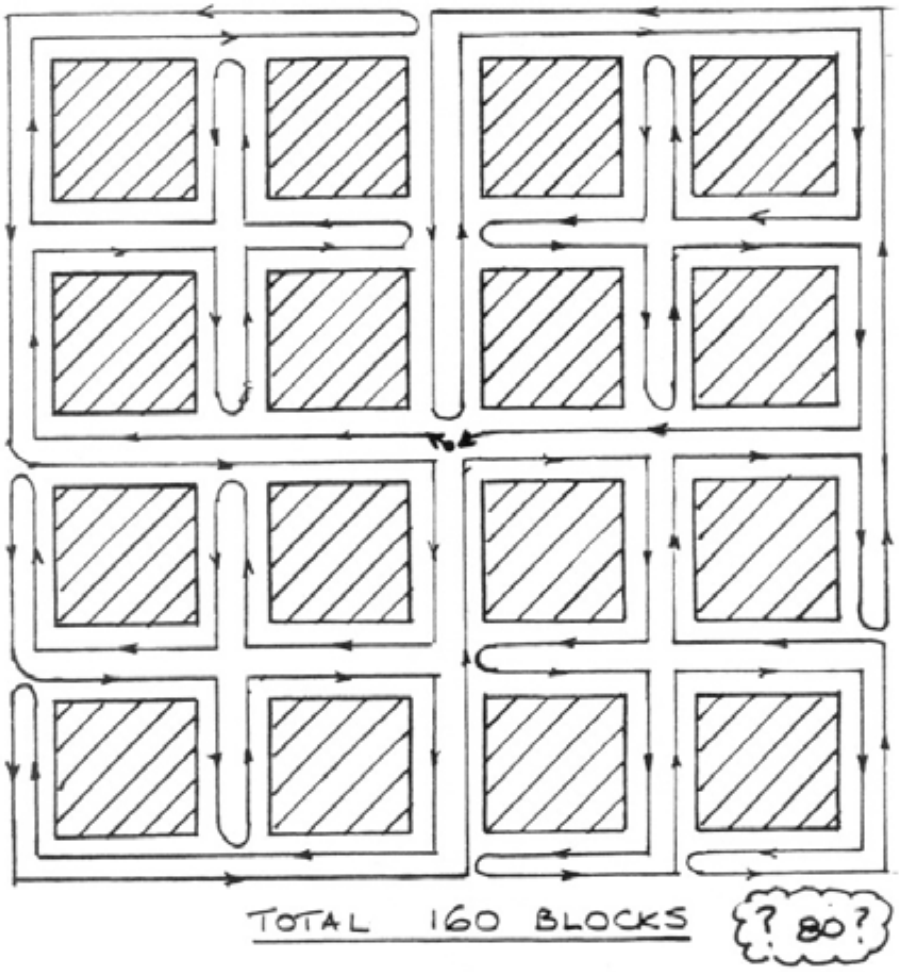
PUZZLE OF THE MONTH

Here is a real calibration course. "A" is one end and "B" is the other. What are the elevations of A and B? I went crazy on this. The reproduction below is the best I could do of the original USGS map. Do your best.



LAST MONTH'S PUZZLE

Below you'll see Roger Gibbons' solution to the puzzle, the first one received. Also submitting similar answers were Bill Glauz and Andy Galloway. This one was too easy!



Pete - As this only took a few minutes to determine my answer, I am wondering if I have missed the point! I note that paths must not cross, but assume meeting at a point, which is not the same thing, is acceptable.

Regards,

Roger Gibbons

PS Congratulations on your forthcoming retirement. As one who retired 5 years ago at the age of 52, I can thoroughly recommend it. It does wonders for your golf!

Pacing the Tulsa Run Course

Taking Advantage of its Downhills and Uphills

by Bob Baumel

Several years ago, members of USATF's Road Running Technical Council spent considerable time studying the scientific literature on energetics of uphill and downhill running. We performed this research in connection with a somewhat controversial revision of USATF Rule 185.5 which governs the record eligibility of performances that may have been aided by a downhill grade or tailwind.

The controversy centered largely on the Boston Marathon, whose course has a net drop of 136 meters along its 42.195 km length. We concluded that in spite of "Heartbreak Hill," Boston's average 3.2 meter-per-kilometer descent makes it an aided course* because a runner *who paces it smart enough* can run it significantly faster than a flat marathon.

Whether or not you think Boston should be eligible for road records, the lessons learned from our research can help you pace yourself better on *any* course that is not perfectly flat. In this article, I will apply these principles to the Tulsa Run course.

Unlike Boston, nobody can say that the Tulsa course is aided. In fact, the Tulsa Run Finish is about 5 meters higher than its Start, for an average net *climb* of 0.3 m/km. This makes the Tulsa course slightly slower than a perfectly flat 15 km course, although if you pace it optimally, the difference should be only a few seconds.

As you can see in the enclosed profile diagram, the Tulsa Run course drops about 29 meters in the first 2.5 km, is almost perfectly level through the middle 10 km (on Riverside Drive), and then climbs about 34 meters in the final 2.5 km to the Finish.

In one respect, the Tulsa course is relatively easy to pace. The most important aspect of optimal pacing is probably to avoid running too hard on the uphills, as this can severely hurt performance later in the race. On the Tulsa course, however, the uphills come so late that this is not a serious concern. By the time you reach these hills, there's no need to think about your pace; just give it whatever you have left!

Even so, you probably won't run this final uphill segment as fast as the earlier downhill and level portions. For example, if you covered the first 10 km of the Tulsa course in 50 min, it would not be realistic to expect a finishing time of 75 min. In fact, in this case my calculations predict a finishing time of 75:58. And this assumes no actual tiring; the calculation assumes that you continue to maintain the same level of effort during the final 5 km as you averaged during the first 10 km.

My enclosed pacing charts show that to achieve a 75 min Tulsa time using optimal pacing, you should cover the first 10 km in about 49:22. I will now explain the optimal pacing strategy, and show how it predicts quantitative results of this sort.

The Optimal Pacing Strategy

The optimal strategy is, quite simply, to parcel out your energy at a constant rate throughout the race. On a *flat* course, this means running the whole course at constant speed; i.e., choose the fastest pace that you can maintain for the entire race, and then run that pace for the whole distance.

When the course is *not* flat, you should maintain the same even rate of energy consumption as on a flat course of the same distance. This means that on level stretches, your speed should match your flat-course pace for this race distance. But you must run significantly slower on uphill stretches and faster on downhill stretches.

---

* Actually, Rule 185.5 disallows records on any course with net drop greater than 1 m/km.

Why is even energy consumption the optimal strategy? The answer depends crucially on the assumption that you are attempting a *maximal* effort, and therefore, your energy consumption rate is very close to your "anaerobic threshold." Given this assumption, let's see what happens when encountering uphill and downhill portions of a course:

When starting to run uphill, most people will naturally try to maintain the *same speed* as on the level. In reality some slow-down always occurs, but often **not enough** to maintain constant energy consumption; therefore, energy consumption actually **increases**. Now if the energy output was already very close to anaerobic threshold, it is now well *above* anaerobic threshold—in which case the muscles start to rapidly produce lactate and deplete glycogen, ultimately hurting performance.

The correct strategy on uphills is therefore to slow down enough so you're not working any harder than on the level (i.e., still near your anaerobic threshold). This may require running slower than feels 'natural.' To achieve this, try monitoring your breathing rate and level of perceived effort. You may also find it helpful to intentionally shorten your stride.

On downhill stretches, runners naturally speed up, but usually not enough to maintain constant energy consumption; therefore, energy consumption actually **decreases**, and may drop well below anaerobic threshold. This does **not** significantly reduce the rate of lactate production or glycogen depletion, but does *lose time* as compared with maintaining energy output near anaerobic threshold.

The correct strategy on downhills is therefore to speed up enough so that you're still working as hard as on flat portions of the course. Once again, monitor your breathing rate and level of perceived effort. You may find it helpful to lean forward slightly. Try not to 'brake' yourself. Let gravity pull you along and let your stride lengthen.

We have seen that the optimal strategy requires slowing down on uphills and speeding up on downhills—perhaps more than feels 'natural' in both cases. It also requires listening to your body and continually *adjusting* your pace to maintain the optimum work level. For example, on the Tulsa course you should take advantage of the early downhills. But then, when the course flattens out on Riverside Drive, it is essential to drop back to your correct flat-course pace.

Let's Get Quantitative

So far I have described the optimal strategy in a qualitative sense. I will now show how to calculate desired split times if you know the elevation differences along a course. As stated above, the optimal strategy consists of expending your energy at a constant rate. To accomplish this, the amount of time spent on any portion of the course must be proportional to the energy requirement of that interval of the course.

Laboratory experiments on the energetics of uphill and downhill running suggest that, to a good approximation, every meter of climb increases the energy cost by roughly the same amount as adding four meters to the course distance. And similarly, every meter of drop decreases the energy cost as much as shortening the course by four meters.

This implies that we can express the energy requirement of any portion of a course by its 'effective length,' defined as the flat distance requiring as much energy to run as this portion of the race course. To calculate effective length, start with the *actual* length of this piece of race course; then add 4 meters for each meter of climb, and subtract 4 meters for each meter of drop.

For example, the final 5 km of the Tulsa Run course climbs 33.6 meters. The effective length of this 5000 m interval is therefore: $5000 + (4 \times 33.6) = 5134.4$ m. As another example, the second kilometer of the Tulsa course drops 17.8 m; therefore, the effective length of this 1000 m interval is: $1000 - (4 \times 17.8) = 928.8$ m.

These examples can be found in my enclosed pacing tables, which include elevation changes and effective lengths for various intervals of the Tulsa course. Specifically, I have provided a breakdown by 1 km intervals, by 5 km intervals (each third of the course), and by 7.5 km intervals (first and second halves of the course).

In each case, I have computed splits (showing both interval and cumulative times) for various target race times. These calculations are based on the assumption that the time spent on any interval of the course should be proportional to the effective length of that interval.

For example, to cover the Tulsa Run in 75 min, you should run the 2nd kilometer in 4:38, most of the middle kilometers in 5:00, and the 14th kilometer in 5:21. Breaking this down by 5 km intervals, your times should be 24:24 for the first 5 km, 24:58 for the middle 5 km, and 25:38 for the final 5 km. Or if we consider only first and second halves of the race, your times should be 36:53 for the first 7.5 km and 38:07 for the last 7.5 km.

More Discussion

To make practical use of these calculations, here's a useful tip when starting the race: Unless you are one of the elite runners who lines up in the front row, don't forget to check your *starting delay*; i.e., the elapsed time between the starting gun and the moment when you cross the starting line. (Note: the Tulsa Run usually provides a display clock at the starting line for this purpose.) If you *don't* account for this starting delay, you may get very misleading impressions when hearing your splits in the first few kilometers.

Now for some disclaimers: First, the calculations described here ignore the effects of *wind*. Clearly, a wind blowing from the north (tailwind during first half of race) would amplify the speed differences between first and second halves of the race, while a south wind would have the opposite effect.

If you have followed my calculations carefully, perhaps you think they are *too* simple, because they imply that equal uphills and downhills exactly cancel each other. (I said that each meter of climb increases the effective length by 4 meters, while each meter of drop decreases it 4 meters.) In reality, downhills never give back everything you lose on the uphills. Nevertheless, the downhills give back a *surprisingly large percentage* of the extra energy consumed on the uphills.

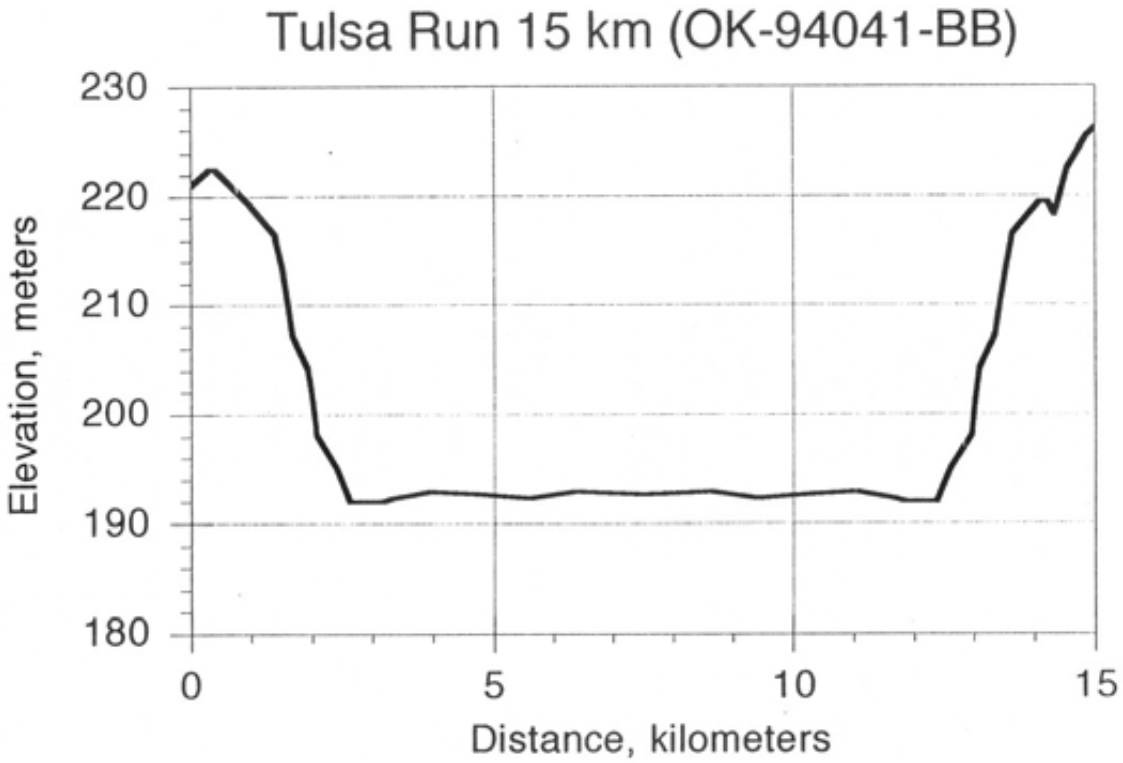
The degree of cancellation depends on how steep the hills are. When slopes are very gentle, cancellation of uphills and downhills is nearly perfect. Non-cancellation is noticeable only for steeper slopes. For equal uphills and downhills with a 1% grade, our calculations suggest that 97% of the extra energy used on the uphill is saved on the downhill. On 2% grades, the downhills give back 94%. Even on 5% grades (roughly the steepest slope on the Tulsa course), the descent still returns about 85% of the cost of the ascent.

By the way, although equal uphills and downhills nearly cancel each other for most of the slopes usually encountered on race courses, *wind* is a very different animal. If you spend equal time with and against the wind, you'll probably lose far more energy heading into the wind than you save when it's at your back. Mathematically speaking, the difference is that wind has a very *non-linear* effect, whereas the slope effect is nearly linear.

The techniques discussed in this article can be applied to any hilly course, not just the Tulsa Run. One way to improve your ability to use the optimal strategy is to familiarize yourself with the course before the race. Training on the actual race course (or even just driving it) can often be helpful. If you are thinking of running an out-of-town race, here are two things you should know to help you learn more about the course:

First, for any course inside or outside Oklahoma, you can get some information by phoning me (405-765-0050 home, or 405-767-5792 work). Because I am Oklahoma certification chairman, I always have an up-to-date computerized copy of the national certified course list, so I can tell you whether the course is certified. If so, I often have some additional information such as the net elevation difference between start and finish.

Secondly, if the course is certified, you can obtain a detailed map of it by sending $2 per course to RRTC Course Registrar, Joan Riegel, 3354 Kirkham Road, Columbus, OH 43221. Although we can rarely supply a detailed topographic profile such as I prepared for the Tulsa Run, the certification map will show you the course's exact start and finish locations, all the streets along the route, and often the split locations.


Tulsa Run 15 km (OK-94041-BB)
Elevation, meters
230
220
210
200
190
180
0
5
10
15
Distance, kilometers

Pacing by 1 km Intervals

km	Elevation Diff (m)	Effective Len (m)	Race Time: 00:45:00		Race Time: 01:00:00		Race Time: 01:15:00		Race Time: 01:30:00		Race Time: 01:45:00	
			Interval	Cumulative	Interval	Cumulative	Interval	Cumulative	Interval	Cumulative	Interval	Cumulative
1	-1.9	992.5	00:02:58	00:02:58	00:03:58	00:03:58	00:04:57	00:04:57	00:05:57	00:05:57	00:06:56	00:06:56
2	-17.8	928.8	00:02:47	00:05:45	00:03:43	00:07:40	00:04:38	00:09:36	00:05:34	00:11:31	00:06:30	00:13:26
3	-9.3	962.9	00:02:53	00:08:38	00:03:51	00:11:31	00:04:48	00:14:24	00:05:46	00:17:17	00:06:44	00:20:10
4	0.9	1003.6	00:03:00	00:11:39	00:04:01	00:15:32	00:05:01	00:19:25	00:06:01	00:23:18	00:07:01	00:27:11
5	-0.4	998.5	00:02:59	00:14:38	00:03:59	00:19:31	00:04:59	00:24:24	00:05:59	00:29:17	00:06:59	00:34:09
6	0.1	1000.4	00:03:00	00:17:38	00:04:00	00:23:31	00:05:00	00:29:24	00:06:00	00:35:16	00:07:00	00:41:09
7	0.1	1000.5	00:03:00	00:20:38	00:04:00	00:27:31	00:05:00	00:34:23	00:06:00	00:41:16	00:07:00	00:48:09
8	0.0	1000.0	00:03:00	00:23:38	00:04:00	00:31:30	00:05:00	00:39:23	00:06:00	00:47:15	00:06:59	00:55:08
9	-0.1	999.5	00:03:00	00:26:37	00:04:00	00:35:30	00:04:59	00:44:22	00:05:59	00:53:15	00:06:59	01:02:07
10	-0.1	999.6	00:03:00	00:29:37	00:04:00	00:39:29	00:04:59	00:49:22	00:05:59	00:59:14	00:06:59	01:09:07
11	0.4	1001.5	00:03:00	00:32:37	00:04:00	00:43:29	00:05:00	00:54:22	00:06:00	01:05:14	00:07:00	01:16:07
12	-0.9	996.4	00:02:59	00:35:36	00:03:59	00:47:28	00:04:59	00:59:20	00:05:58	01:11:12	00:06:58	01:23:04
13	9.3	1037.1	00:03:06	00:38:43	00:04:09	00:51:37	00:05:11	01:04:31	00:06:13	01:17:25	00:07:15	01:30:19
14	17.8	1071.2	00:03:13	00:41:55	00:04:17	00:55:54	00:05:21	01:09:52	00:06:25	01:23:50	00:07:29	01:37:49
15	7.1	1028.3	00:03:05	00:45:00	00:04:06	01:00:00	00:05:08	01:15:00	00:06:10	01:30:00	00:07:11	01:45:00

Pacing by 5 km Intervals

km	Elevation Diff (m)	Effective Len (m)	Race Time: 00:45:00		Race Time: 01:00:00		Race Time: 01:15:00		Race Time: 01:30:00		Race Time: 01:45:00	
			Interval	Cumulative	Interval	Cumulative	Interval	Cumulative	Interval	Cumulative	Interval	Cumulative
5	-28.4	4886.3	00:14:38	00:14:38	00:19:31	00:19:31	00:24:24	00:24:24	00:29:17	00:29:17	00:34:09	00:34:09
10	0.0	5000.0	00:14:59	00:29:37	00:19:58	00:39:29	00:24:58	00:49:22	00:29:58	00:59:14	00:34:57	01:09:07
15	33.6	5134.4	00:15:23	00:45:00	00:20:31	01:00:00	00:25:38	01:15:00	00:30:46	01:30:00	00:35:53	01:45:00

Pacing by 7.5 km Intervals

km	Elevation Diff (m)	Effective Len (m)	Race Time: 00:45:00		Race Time: 01:00:00		Race Time: 01:15:00		Race Time: 01:30:00		Race Time: 01:45:00	
			Interval	Cumulative	Interval	Cumulative	Interval	Cumulative	Interval	Cumulative	Interval	Cumulative
7.5	-28.3	7386.6	00:22:08	00:22:08	00:29:30	00:29:30	00:36:53	00:36:53	00:44:16	00:44:16	00:51:38	00:51:38
15	33.5	7634.1	00:22:52	00:45:00	00:30:30	01:00:00	00:38:07	01:15:00	00:45:44	01:30:00	00:53:22	01:45:00

Tulsa Run Splits With Metrics, Not Miles

By Libby Stalter
World Staff Writer

9-4-94

The Tulsa Run has gone metric.

Runners will have their time splits called at every kilometer of the 15-kilometer race, instead of every mile as was done in the past.

The Tulsa Run, scheduled for Oct. 29 in downtown Tulsa, was marked in miles in the past and callers would stand at the mile markers and let runners know what the times were as they passed that mark. But that made for an uneven course, since 15 kilometers equaled to a little over 9.3 miles.

"Now the whole course will be marked in kilometers and not miles," said Joe McDaniel, of Oklahoma Runner magazine. "The vast majority of races in the area have gone to metric and it has been well received. In many of those races we've been calling metric splits for years.

The advantages of the race going to metric splits, said McDaniel, is you have an evenly spaced course. "With the Tulsa Run, it's a 15k run and you have 15 splits. On miles, you have nine splits and a little bit left over."

That, he said, makes pacing for the Tulsa Run much easier. However, he admitted, for someone who is not familiar with metric, they could have problems the first time out. "It's just a matter of math," he said. "It becomes second nature once you try it."

To give an example of how to figure your pace for the metric splits, McDaniel said figure what your projected time will be, then divide by 15.

"A lot of people will run in the 75-minute range. That's five minutes per kilometer. Now, what you've got to allow for is your first five kilometers is going to be faster than your last five because you're going downhill the first five."

It's not as confusing as it sounds, he said. To help with figuring out your pace, McDaniel has an article entitled "Pacing the Tulsa Run Course: How to Take Advantage of Its Downhills and Uphills," written by Bob Baumel.

Baumel was the certification chairman for the U.S. Track and Field in Oklahoma. McDaniel will make the piece available to anyone requesting it. To receive the information, contact Oklahoma Runner magazine at 581-8306.

In the article, Baumel first looks at the elevation profile of the Tulsa Run course. He then gives the optimal strategy for running the downhills and uphills, and training advice.

McDaniel said the course has also been adjusted so the turnaround is exactly halfway. That makes calling the splits easier because one person can call them. For example, the two kilometer mark going out is the 14 kilometer mark coming back, the 3k mark and 13k mark are at the same spot, and so on.

McDaniel said going to metric is a step forward. He said it's easy and a lot more fun.

"I guarantee you will find it a lot more fun. I would suggest to figure out what your projected time is, within reason. A lot of people will put it on a piece of tape on their wrist and write down what the projected pace is. You can keep track of it that way and it makes the race a lot more enjoyable."

The 17th annual Tulsa Run is sponsored by the Tulsa World and Williams Companies Inc. Additional sponsors are Bank of Oklahoma, Mazzio's Pizza, Hillcrest Medical Center, QuikTrip, Doenges Brothers Ford, Adam's Mark Hotels, and American Airlines.

For more information on the Tulsa Run, call the Tulsa Run office at 587-8786.

FROM BOB BAUMEL

TADEUSZ DZIEKOŃSKI
ul. Chrobrego 4 m. 8
(skrytka pocztowa 14)
15-057 Białystok
POLAND

Dear Pete,

Yes I simply continued the measurement in Miskolc for kacking 490 m to get full distance.

Thank you very much for the Report of Proceedings of International Seminar in Phoenix.

Comments on the Seminar:

1/ as a conclusion you would arrange a measurement on a busy traffic roads /with a police escort/,

2/ also I recommend for future a measurements as follows:
- on hilly roads,
- on roads with a bad surface and bad defined curbs,
- during changing weather /dry and wet/ - if it will be possible,
- two or three measurements by each measurer on the same course.

I think the Constant should be the same all over the world - as settled by the IAAF/AIMS.

I do not agree with the key tolerance in the USATF validation system /page 58/. The distance should be between 10.000 m /not 9.995 m/ and 10.010 m - based on an example of nominal 10K course.

Best regards

Białystok/Poland, Sep 8, 1994

TADEUSZ DZIEKOŃSKI
ul. Chrobrego 4 m. 8
(skrytka pocztowa 14)
15-057 Białystok
POLAND

Dear Pete,

Thank you very much for the "Measurement News" issue 67 and your letter of Sept 16.

How long are our courses ? /page 11/:

Have the important races measured by experts - I think that this is the best solution. This version corresponds to the AIMS criteria for course measurers grading system.

Best regards

Białystok/Poland, Sept 28, 1994

USA TRACK & FIELD

Peter S. Riegel
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Tadeusz Dziekonski - ul. Chrobrego 4 m. 8 - 15-057 Bialystok - POLAND

Dear Tadeusz, October 8, 1994

I agree with you. It is a good thing if the "important" courses are measured by experts. The organizers spend a lot of money bringing in athletes, and they pay a lot of prize money to those who do well. There is much publicity surrounding an important race, and when someone runs a record time, nothing should interfere with its recognition.

As we can see from the "How Long are our Courses" article, a few courses, even when measured by experts, turn out to be not correct. This can be embarrassing to the race director, and to the measurer. It can also make the runner angry, since sometimes the athlete will be paid money for setting a record. If the record falls, because the course is short, nobody wins. One way to solve the problem is to accept the measurement as valid, if done by an expert. This avoids all unpleasant consequences. If no one looks for a short course, none will be found.

Measurement in the US has always been the servant of the record-keeper. The record-keeper is concerned that a record should be valid. Here we check every course on which an "important" record is set, and we also check many other courses, on which the record may be considered as less important. We keep records for many distances, and also for athletes of many ages. We do not have the resources to check every single course on which a record is set - there are too many of them. But we do check the big ones, and many of the lesser ones. As a result, our records are credible. As far as I know, most of the international races are run under AIMS. As far as I know AIMS has no standards for "records" at all. The only international keepers of records are the running media, and their standards are not high. If the time is reported, it is considered correct.

Checking the courses serves a secondary purpose, which is also important. It keeps measurers alert. I have had a few of my courses checked, and I can tell you I was nervous! I thought I had done a good job, and the validations proved this correct - but I was not happy until the checking was done, and the answer known. This has made me a better measurer.

In many cases, a single measurer goes to a foreign city and measures the course. Usually he is the only one to measure, since it is unusual for the organization to provide a second measurer. Often the measurer finds that the course has an error. Sometimes the error may be a kilometre or more. The measurer makes a correction, and the course is fixed. This seems to be OK for acceptance of a record, if one is run, but I think it is not enough.

Deep in my heart I would like to see all world records checked carefully, either by a measurement done later, or by another measurement performed with the expert rider, as a check. In the US we see courses fail even when two measurements were performed. When a single measurement is all that exists, it is not enough. More is needed. It is not for us to dictate what the rest of the world should do, but the facts are there for all to use.

Pete

USA TRACK & FIELD

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September 17, 1994

Tadeusz Dziekonski - ul. Chrobrego 4 m. 8 - 15-057 Bialystok - POLAND

Dear Tadeusz,

Thank you for the race stickers. Although I cannot translate the Polish very well, they look exotic on my desk.

The seminar was organized for people who already had experience, and it was not the purpose to spend a lot of time with instruction. At the very last minute the Mexicans appeared, with little experience. This was unfortunate for them, as the only instruction they got was from Doug Loeffler, who speaks Spanish.

The rest of the people all knew how to do the job, and it was the main purpose to get them together and see how well we compared in our riding technique, and to gain some interesting numbers to show how measurements will vary.

It was also important for everyone to spend some social time together, as we were mostly known to each other through correspondence.

When considering what should be done in a seminar, one must first consider that the people all work, and they may have only a single weekend for the seminar. This usually means a full day on Saturday, and only half a day on Sunday, as time must be saved for traveling. As a result of this, I have never seen a seminar that did all the things that people would like. If you do one thing, you cannot do another.

I see you disagree on the negative tolerance when a course is validated. Our rule for records require the course to be shown short, and we take this to mean that some certainty of shortness must be shown. If it is your object to punish a measurer for a sloppy layout, no negative tolerance is needed. But when an athlete has just run 10km in 26:50, you had better be sure before you call the run not valid.

If you wish to prove the course is longer than 10,000 m, you need **at least** 10005 metres. If you want to prove that it is short, you need **less than** 9995. If you get a measurement between 9995 and 10005. all you can say is that the course is reasonably accurate. It is a mistake to assume that a measurement is exactly correct. Official rules must make allowance for this. Ours is the USA rule only. We do not wish to dictate to the world. As far as I know, no other federation has a written rule to deal with road records. When you try to write such a rule, you will find that it may not be easy.

Pete

3717 Wildwood Drive
Endwell, NY 13760
October 18, 1994

Track & Field News
2570 El Camino Real
Suite 606
Mountain View CA 94040

Re: "A Pair of Sub-4:00s?", T&F News, November 1994, p. 44

I hope you won't mind another go-around on the question of conversion of times re Morceli's WR 7:25.11 for the 3000. You really can't assume that the person will run the same speed for two difference distances. For each added distance, there is a slow-down of the average speed. Pete Riegel, Chairman of the USAT&F Road Running Technical Council, published a paper many years ago showing that times and distances from 100 meters to over 100 miles fit a straight line on log-log paper with a slope of 1.0689. What this means is that we can relate a performance at one distance to that at another distance by taking the ratio of the distances to the 1.0689 power. That is:

$t1/t2 = (d1/d2)^{1.0689}$

where the ^ symbol indicates an exponent. Using the figures from your article, I find that if Morceli had been running a two-mile, his time would have been computed as:

$t2 = 445.11(3218.688/3000)^{1.0689} = 7:59.88$

So, your conclusion is right that his performance was better than two back-to-back four minute miles. However, my computation says that he made it barely -- not the 7:57.60 that your computation yielded.

A similar computation yields the result that a 4:00.00 mile is equivalent to a 3:42.61 1500 m -- not the 3:43.68 that you report. You also state that the LBB gives 3:42.24.

It seems to me that the LBB values are quite close to the truth. It will be interesting to see what the new version will say.

Sincerely,

Alan Jones

Alan L. Jones

cc: Pete Riegel

USATF ILLINOIS • Road Racing • Track & Field • Cross Country • Race Walking

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September 9, 1994

Peter S. Riegel
3354 Kirkham Rd.
Columbus, Ohio 43221

Dear Pete,

Re your plea for ideas to promote road course certification (Measurement News, Sept. 1994, p.3. "Spreading the Word,"): all USATF membership applicants receive the enclosed promotions strip, "Illinois Road RAce Records." All running clubs and USATF sanctioned events receive the enclosed one-page flyers fromthe USATF Illinois office. Accurate finish times are the most often cited reason why Illinois runners appear to support USATF course certification.

However, I'm sure that Chuck Hinde's prodigious recording of road race records (which require course certification) has also had its effect on the continued interest in course certification in the State. Chuck produces an annual "Illinois Road Race Records" book and frequently submits spicy pieces of this material to area running magazines and club newsletters.

Yours in running.

Ray Vandersteen

Ray Vandersteen
Executive Director