Measurement News

Otto Klappert is Chairman of IAAF Cross-Country and Road Running Committee, which is concerned with international road course measurement. Otto came to Nice, France, in 1993 to attend a measurement seminar. Here we see him concluding his ride of the course, advised by Ted Paulin, head of AIMS Technical Committee.

Join Us in Santa Barbara July 7-9, 1995

We now have a date for the USATF Road Running Technical Council/Road Running Information Center Seminar to be held in Santa Barbara. The Seminar Local Organizing Committee (SLOC) consisting of Basil and Linda Honikman, Ryan Lamppa and John Brennand will be finalizing housing and program details in March and April so now is your last chance to have any input in that phase of the planning. Please write, fax or phone if

___1) You definitely want to attend regardless of the cost and content.

___2) You might like to attend but only if we cover a certain topic or work on a particular skill such as _____.

___3) You might like to attend but only if we can keep the costs below a certain level.

___4) You might like to attend but only if we guarantee prizes for a measurement contest.

___5) You might like to attend but only if we guarantee door prizes for just showing up.

___6) You would like to attend but will not be able to unless your family/spouse/friend has something interesting to do.

Do you know of any interesting products to test?

As a feature of the Friday session, we hope to do some product testing. For example, we would like to evaluate one or more of the chip systems which automatically score an event as each runner crosses a line or slaps a pole. If you hear about new products that might be useful in road races, let us know. We will share our findings with the readers of *Measurement News* and *On the Roads*.

We look forward to hearing from you soon.

USATF RRIC/RRTC SLOC
5522 Camino Cerralvo, Santa Barbara, CA 93111 USA
tel: (805) 683-5868
fax: (805) 967-5958

Joan & I will be there. Hope to see you!
Pete

Norrie Williamson (South Africa) also plans to attend.

J.F DELASALLE
BP 25
80800 Corbie
France

fax : 22.48.20.10   01.26.95

Dear Peter,

Thanks for your card from Uruguay : you're very lucky to be able to travel like this while measuring courses in South America and I think you can even enjoy it more when you stop working soon.

At the beginning of 1995 here is some good news.

1. We have created an association called **A.I.M.C.** (association Internationale des Mesureurs de Course or International Association of Course's measurers) with a few friends in order to try and publish a brochure like "MN" that should be released 4 times a year, in the same spirit as MN.

It will be sent to all the members belonging to the association. We have decided not to have any chairman but only a managing committee with a delegate in each country.
Would you agree to be the delegate for the American measurers : I would appreciate if you did.
Please also give me the names of 2 or 3 other American measurers who can be part of the bureau and who will receive this brochure free.
All the other measurers who want to receive it will have to subscribe 30 $ / year

In order to belong to the managing committee a few conditions will be required : send a piece of work, an article or a study about measurement, be introduced by 2 members belonging to the bureau and accepted by the committee.

I've found a few sponsors to pay for our first deeds.
I think that in 1996 we'll be able to organize our first international seminar in France : I'm really counting on you to come. The federation will be able to pay for the expenditures of 20 federal French judges. I think that the AIMC will be able to invite around 10 foreign judges but only experienced measurers (as differing from the IAAF seminars).

2. My next tasks are :
- next week measure the new course for the Paris marathon with M.Mongin and M.Segura.
- on february 19th attend an apprentiship workshop for new measurers in the North of France in Lille with 20 beginners.
- early March a seminar in Lisbon Portugal with delegates from 6 African countries : I'm afraid this will be rather useless as far as practise is concerned.

3. The French experts are beginning to do a real good job

- Pierre Mournetas went and measured the Abidjan marathon for the African Championship last december (Ivory Coast) . The conditions were tough but I have a French friend , Yves Seigneuric, living there who used to be a regional measurer in France : he had prepared everything and the course was perfectly correct (a difference of 19 meters between the 2 measurers)

- Jean Paul Ingueneau measured 2 IAAF races in Italy without any problems (marathon and half marathon)
However , as he was measuring a 25 km in Portugal for the AIMS he was unpleasant by rebuked by the organizer who refused to modify his course which was too short by 60 meters. The file he made therfore certifies that the distance is 24,940 km and nothing else.... How stupid really !

4. You will find enclosed the chart with the more active French measurers in 1994.

I was the one who made the most measurements, but much less than in 93.

For the first time we've ratified the best road performances in France at the Federation technical committee.

5. I hope that if you come in Europe next spring (London or Berlin) you will be able to come to France for a few days unless the IAAF invites us again in MonteCarlo for a new AIMS/IAAF meeting.

In that case we could organize a small AIMC meeting and I could introduce you to a few new people full of passion.

Let me know what possible .

Best reguards to Joan and best wishes for a happy new year to you both.

LES 20 mesureurs les plus actifs en FRANCE pour 1994

				mesures dont		courses à label
1.	J.F DELASALLE	FED	24		14	
2.	D.PERROTIN	REG	18		16	
3.	J.P INGUENEAU	FED	17		14	
	L.MARECHAL	FED	17		9	
5.	J.M GRALL	FED	14		8	
	C.DELERUE	FED	14		7	
7.	J.LIVET	REG	12		11	
	J.MASSEY	REG	12		3	
9.	J.Y HOUINATO	REG	11		5	
10.	H.MONGIN	FED	10		7	
	P.MOURNETAS	FED	10		6	
	J.LEGAT	REG	10		6	
13.	A.SEGURA	FED	9		6	
	A.VOIRIOT	FED	9		4	
	J.M PIWON	REG	9		0	
	D.CADET	FED	9		0	
17.	M.MOREL	FED	8		2	
	G.VIGOT	REG	8		2	
	M.CALLAIS	FED	8		2	
20.	J.P DUCASSE	FED	7		3	
	C.PICOTIN	REG	7		5	
	T.LACOMBLEZ	REG	7		5	
	M.BOUREZ	REG	7		3	
	L MARLIER	FED	7		3	

Jean François.

5

INTERNATIONAL ASSOCIATION OF COURSE MEASURERS

Jean-Francois Delasalle is in the process of forming an International Association of Course Measurers. It is in its very early stages. Note: **You do not need to be a certifier to belong**. Membership at this time seems to be based on experience and capability, not on any office held. I have received the first issue of AIMC News, and it's interesting, containing several articles of interest. Jean-Francois provided an introduction, which I have translated from French, as follows:

The AIMC is an association, independent of all federations. Its purpose is to facilitate the exchange of ideas between course measurers of all countries.

We propose to send to each member, **4 times per year**, a small booklet which will contain discussions of the problems of road course measurement, and all topics of interest relating to it.

Each article will be published in the language of its origin, and will reflect the views of the author only.

All course measurers may obtain a subscription by enrolling in AIMC. Write to:
     J. F. Delasalle, AIMC, BP 25, 80800 Corbie, FRANCE.
     Tel: 22 96 86 17   fax 22 48 20 10

The membership fee is US$30 per year.

A multinational committee will be formed to assure the writing of the newsletter and the working of the association.

The members of the association will be listed in the second issue of **AIMC Newsletter**.

A representative of each country will be assigned to promote the best interests of the AIMC, and of finding more members and good collaborators.

Don't hesitate to contact me frequently.

J. F. Delasalle

A note concerning translation: I have made a best effort to accurately translate. The author of a translated document is responsible for what is said in his original, but errors may occur in translation for which I, not the author, am responsible.

A note on sending payment: In most countries, checks drawn on foreign banks result in excessive bank charges. I have found that an effective way to pay is to stuff the cash in an envelope, folded within a letter. It always gets there, and no bank charges are made.

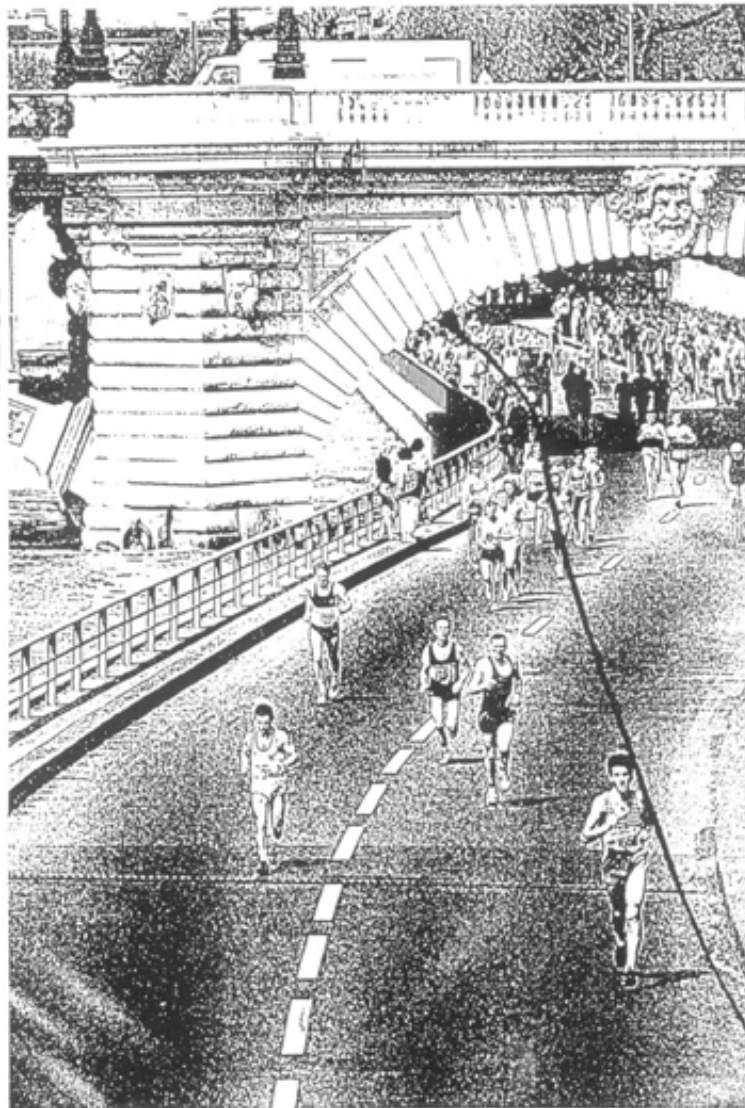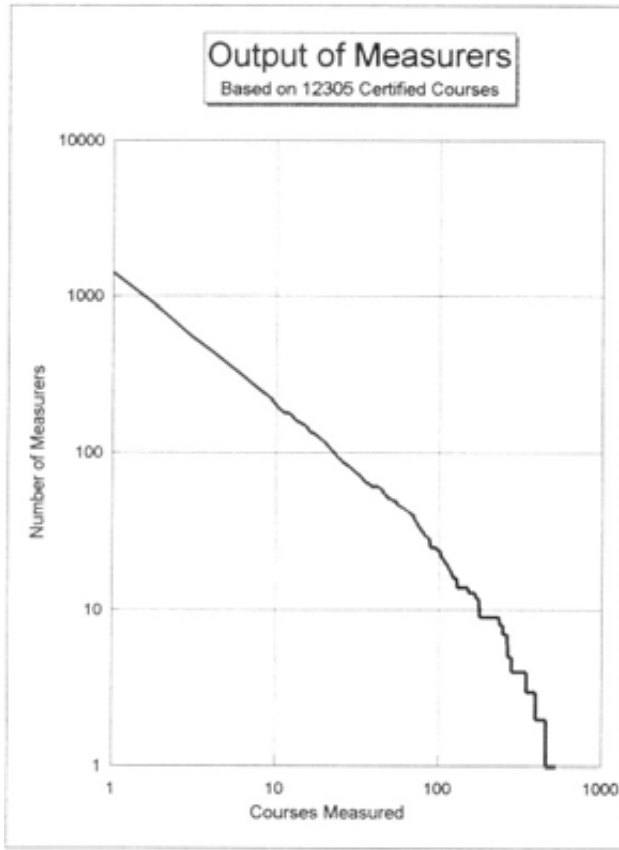THIS IS THE COVER OF AIMC NEWS. SEE SOME ARTICLES. READ ON

Marathon de Paris

7

?

Output of Measurers
Based on 12305 Certified Courses

Courses Measured	Number of Measurers
1	606
2	249
3	113
4	72
5	50
6	38
7	32
8	21
9	22
10	16
11-20	75
21-30	36
31-40	13
41-50	8
51-60	8
61-70	7
71-80	6
81-90	4
91-100	4
101-200	12
201-300	5
301-400	2
401-500	1
501-600	1

The Top 50

| Name	Courses Measured
Linnerud	514
Lafarlette	453
Nicoll	370
Scardera	331
White	256
Thurston	243
Brannen	234
Courtney	232
McBrayer	225
Smith	174
Recker	168
Knoedel	166
Riegel	157
Hubbard	150
Hinde	122
Lucas	117
Wisser	114
Beach	112
Knight	110
Hickey	110
Wight	104
Pierce	99
Nelson	99
Standish	96
Berglund	95
Sissala	87
Ensz	86
Connolly	85
Dewey	83
Letson	80
Witkowski	79
Newman	76
LeBlanc	76
Grass	75
GuidoBros	71
Shields	69
Marable	68
Cichocki	68
Christensn	68
Teschek	64
Hansen	64
Lewis	61
Edwards	60
Barrett	60
Loeffler	59
McDowell	57
Johnson	56
Wickiser	53
Katz	52
Cornwell	52

Notes:

1419 measurers have measured courses for certification since 1982. Each one has measured at least one course.

198 people have measured more than 10 courses.

25 people have measured more than 100 courses.

Some surnames include more than one measurer.

Duplicate course number listings have been eliminated.
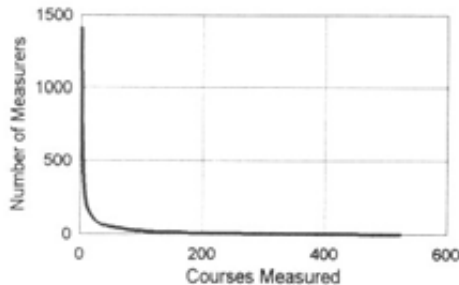
Note: Logarithmic scale was used above. Graph to left shows data to true scale

LATE CERTIFICATES

Several certifiers have sent in batches of certificates dated several months after they were signed and, presumably, sent back to the measurer. We have just received several dated last April. This does not cause a problem for the measurer, if he got his certificate in a timely manner, but it does cause problems for others. We routinely get requests for information regarding certain courses, including requests for maps and certificates. If we don't have the course on file, the only information we can give out is that so far as we know it is not certified.

Because we all lead real lives in addition to the work we do as certifiers, there are bound to be times when things get a bit behind. Nevertheless, when things slip by months it's getting out of hand.

Please do your best to send your certificates in as soon as you process them. Don't let them pile up. It hurts our quality.

A TECHNICAL NOTE FROM ARGENTINA

Rolando Czerwiak is Professor of Thermodynamics on the staff of the Faculty of Engineering at Buenos Aires University. He is also an enthusiastic proponent of road racing, and an excellent measurer. From time to time he publishes **Novedades del CAMAP**, a newsletter which discusses matters relating to road racing and course measurement in Argentina.

In this article he investigates the effect of temperature change on calibration change. Assuming a rim radius of 31.5 cm, a tire radius of 1.2 cm, and an assumption of constant pressure and variable volume, he concludes that a 10° C (18° F) change in temperature will cause a change in calibration of about 1 m/km, which entirely consumes the short course prevention factor.

Pete Riegel supplements this with a derivation for the same thing, based on an assumption of constant tire volume. You will also see a graph from September 1987 **Measurement News,** which shows some actual data for calibration vs temperature. Results:

Czerwiak's constant-pressure model:	10° C = 1.174 m/km
Riegel's constant-volume model:	10° C = 0.152 m/km
Data from actual measurements:	10° C = 1 m/km

CAMAP

1980 - 1994

LA VARIACION DE TEMPERATURA
EN EL METODO DE LA BICICLETA CALIBRADA

¿Qué pasa con una medición al variar la temperatura del pavimento entre la pre y post-calibración?Estudiaremos con el auxilio de la termodinámica la forma de dilatarse una masa constante de aire,sometida a una presión constante.O sea en éste estudio se supone que no hay pérdida de masa,por lo que no varía su presión por éste motivo.Todo ocurre como que el único parámetro que se está modificando y afectando la medición es la temperatura.
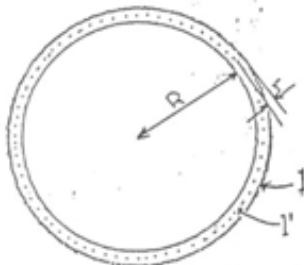
Definición de los elementos de cálculo,de acuerdo al esquema de la izquierda:

R=radio de la llanta(generalmente una aleación de aluminio),adoptamos 31,5cm,no varía con los saltos de temteratura de nuestro estudio.

r=radio del tubo que contiene la masa constante de aire,que dilata con la temperatura.A 20°C adoptamos r_1= 1,2 cm.

l=longitud de avance de una vuelta de la rueda= $2\pi(R+2r)$

l'=longitud por el centro de la sección circular para el cálculo del volúmen= $2\pi(R+r)$

Adoptamos ahora una temperatura inicial de 20°C para la que tendremos los siguientes valores:

l_1= $2\pi(31,5 + 2,4)$= 212,9999819 cm
l'_1=$2\pi(31,5 + 1,2)$= 205,4601596 cm

El volúmen de la masa de aire encerrada en el tubo a 20°C valdrá:

$V_1=\pi r_1^2 l'_1=\pi 1,2^2 \times 205,4601596$= 929,4798643 cm^3

Consideramos un segundo estado de la misma masa de aire a 30°C,se tendrá un volumen V_2 dado por la ecuación de estado de los gases perfectos,que a presión aprox. constante es la ley de Gay-Lusac:

$$\frac{p_1.V_1}{T_1} = \frac{p_2.V_2}{T_2}$$ o sea: $V_2 = \frac{T_2}{T_1}.V_1 = \frac{303}{293} \times 929,4798643=$

V_2= 961,2027266 cm^3.

Ahora con éste nuevo volúmen ocupado por el aire a 30°C calculamos los nuevos valores de r y l, así:

$$V_2 = S_2 . l_2 = \pi . r_2^2 . l_2$$

y como sabemos que:

$$l_2 = 2.\pi.(R+r_2), \text{reemplazando este valor en } V_2:$$

$$V_2 = \pi.r_2^2.2.\pi.(R+r_2) = 2.\pi^2(R.r_2^2 + r_2^3)$$

o sea:

$$\frac{V_2}{2\pi^2} = 31,5 . r_2^2 + r_2^3$$

$$48,695099 = 31,5 . r_2^3 + r_2^3$$

ecuación cúbica que nos da como solución real:

$$r_2 = 1,21993 \text{ cm}$$

O sea dilató de 1,2 cm a 1,21993 cm al pasar la temperatura de 20°C a 30°C. Los nuevos valores de l a 30°C serán:

$$l_2 = 2\pi(31,5 + 2.1,21993) = 213,2504297 \text{ cm}$$
$$l_2' = 2\pi(31,5 + 1,21993) = 205,5853834 \text{ cm}$$

Como existe algún aplastamiento en el tubo de la bicicleta o sea hay vencimiento de la circunferencia del neumático por el peso del conductor y la bicicleta, consideramos que la diferencia de valores l_1 y l_2 que representa los avances sin aplastamiento, es aproximadamente igual a los avances con aplastamiento, osea:

$$l_2 - l_1 = 213,2504297 - 212,9999819 = 0,2504478 \text{ cm} \quad (1/4 \text{ de cm por vuelta})$$

para 1000 metros sería:

$$1000 : 2,132504297 = 468,932232 \text{ vueltas}.$$

diferencia en las lecturas (20°C y 30°C) en los 1000 metros: 468,932232 x 0,2504478 =
= 117,44304 cm o sea: 1,1744 metros.

Podemos concluir que en general cualquier salto de temperatura de 10°C o más nos deja con un error en la constante de calibración superior al 1 por mil, este valor es el pedido por el Reglamento Internacional y debe cumplirlo el método de la bicicleta calibrada. Es de gran importancia pues promediar la pre y post calibración, realizar calibraciones intermedias en las mediciones largas, como la de no calibrar antes o después de las puestas de sol. Hemos observado que la más peligrosa situación se presenta cuando se calibra unas 3 horas antes de la puesta del sol (hora cercana a la máxima temperatura diaria) y se finaliza de noche. Allí el efecto de contracción por temperatura se suma al de alguna pérdida inevitable de masa de aire. Realizar 2 mediciones y promediarlas o rechazarlas si discrepan en un dado porcentaje, es una buena medida para aislar y evitar un error proveniente de la variación de temperatura.

Otra conclusión es que cuando el neumático tiene mayor superficie lateral (o sea mayor r), el volúmen (V) y la dilatación son mayores y por lo tanto tendremos un mayor $l_2 - l_1$, que nos hace crecer esta fuente de error.

La presente nota técnica fue preparada por el Ing. Rolando Czerwiak que en la actualidad es Jefe de Trabajos Prácticos, por concurso, en la materia Termodinámica de la Facultad de Ingeniería de la Universidad de Buenos Aires.

CONSTANT-VOLUME MODEL OF BICYCLE WHEEL

by Pete Riegel

In this model, the tire is considered to have a constant volume. It is not elastic. When temperature increases, the pressure increases in accordance with the perfect gas law. The tire deflects under the combined load of the bike and rider until a small contact patch, or footprint develops between the tire and road. The internal pressure, acting on this footprint, supports the load.
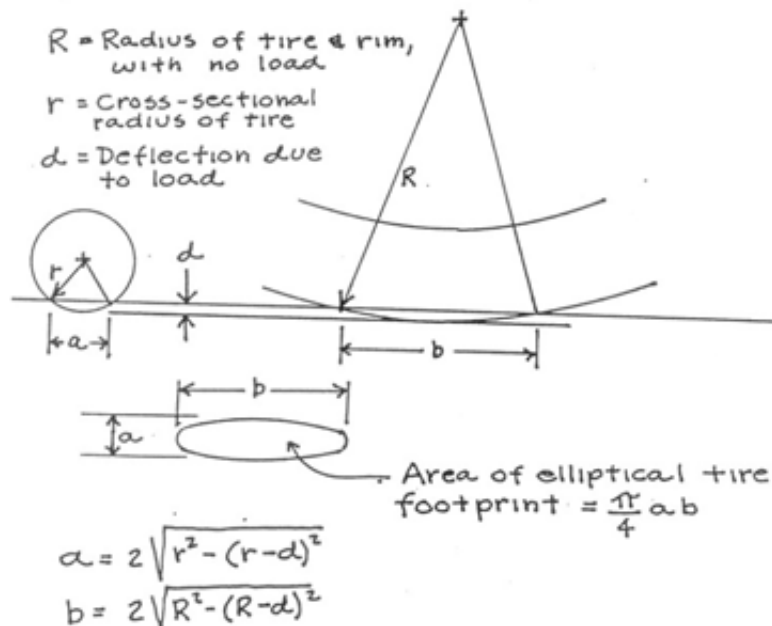
Using the same dimensions as Czerwiak, and assuming a combined load of rider and bike on the front wheel of 90 lb, and an assumed tire pressure of 100 psi (which is about right for a skinny tire like this), we have the following data to work with:

Weight on wheel =	400.32 N	90 lb
Radius of rim =	31.5 cm	12.40157 in
Cross-sectional radius of tire =	1.2 cm	0.472441 in
Tire Pressure at 20C =	689500 Pa	100 psi

From this we can calculate the following:

Tire Pressure at 30 C =	713032.4 Pa	103.413 psi
Radius of wheel and tire without load	33.9 cm	13.34646 in
Contact Area needed at 20 C	5.80644 sq cm	0.9 sq in
Contact Area needed at 30 C	5.614808 sq cm	0.870297 sq in

Geometry - The sketch below shows some of the geometrical relations used in this analysis. The contact area is assumed to be elliptical. This is close, but not identical to the actual outline, which is a section of a torus.


R = Radius of tire & rim, with no load

r = Cross-sectional radius of tire

d = Deflection due to load

Area of elliptical tire footprint $= \dfrac{\pi}{4} ab$

$$a = 2\sqrt{r^2 - (r-d)^2}$$

$$b = 2\sqrt{R^2 - (R-d)^2}$$

Trial and error was used to calculate the value of a and b for the contact areas determined above. This leads to the following values:

Deflection at 20 C	0.149802 cm	0.058977 in
Deflection at 30 C	0.144686 cm	0.056963 in
Rolling Radius at 20 C	33.7502 cm	13.28748 in
Rolling Radius at 30 C	33.75531 cm	13.28949 in
Length of 1 Revolution, 20 C =	212.0588 cm	83.4877 in
Length of 1 Revolution, 30C =	212.0909 cm	83.50035 in
Revolutions in 1000m, 20 C =	471.5674 revs	
Revolutions in 1000m, 30 C =	471.496 revs	
Difference	0.071465 revs	
Difference in 1 km =	0.151548 meters	0.15 m/km

Note that Czerwiak obtained 1.17 m/km for the same assumed temperature increase of 10 C.

Which analysis is correct? In Measurement News, September 1987 (issue #25) ,a graph showing calibration change vs temperature change was shown. That graph showed a rough trend amounting to about 10 counts per km (1 m/km) for a temperature change of 10 C.

It's obvious that Czerwiak's analysis is closer to reality. Technically-inclined readers are invited to check the work.

— MN—SEPT. 1987 —
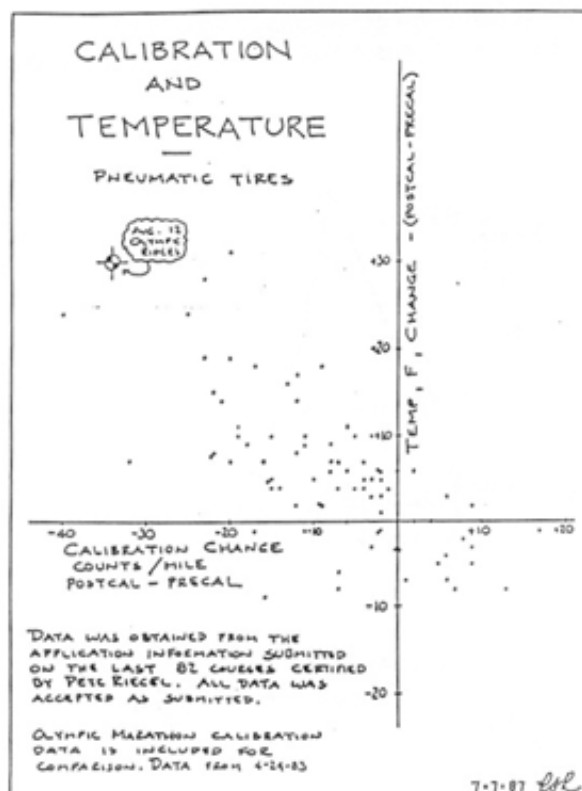
Able Management Group

Rt. 2, Box 149 H
Buchanan, TN 38222
February 20, 1995

Peter S. Reigel
3354 Kirkham Rd.
Columbus, Ohio 43221-1368

Dear Pete,

I recently measured the Music City Marathon and Half Marathon courses (TN95002RH and TN95001RH) in Nashville, TN. While doing the field work I encountered a land surveyor doing some property line work along the course route. We visited briefly and talked about what I was doing and he told me something which turned out to be very helpful. I thought I'd share that with MN readers. It may be common knowledge to most, but it was welcome news to me.

I had previously queried you and MN readers about the elevation accuracy of USGS topo maps (MN #67) and got some good input from you and Larry Richardson (MN #68). My surveyor encounter has added to my knowledge of resources for more precise elevations along a course. He suggested that I go by the Office of Waste Water Management in the Department of Public Works in Nashville. It turned out to be a great discovery. These people had a surveyed elevation on every manhole/sewer cover and every storm drain grate in the city and 5' contours on their maps of city streets. These factors made it really easy to nail down elevations for the course.

I hope that other city/county D'sPW are as helpful and gracious as the engineers in Nashville, Access to the maps is free and I had assistance from a person in the map room if I had any questions. I'm sure this is a resource I'll use again in my measuring.

There are two other resources I'd also like to share. For those who want to go the altimeter route -- Avocet has a watch/chonometer/altimeter that does it all and has a weather function for barometric pressure and barometric trends. It's the Avocet Vertech Alpin Watch and retails for about $120.00. The second thing is a book, The Map Catalog, Vintage Tilden Press, 1992, about $20.00 which has "every kind of map and chart on earth and even some above it." The Map Catalog makes pretty amazing reading even if one doesn't use it for a measuring resource.

That's it for now except to comment that the information exchange we get through MN can only help us all improve at what we do.
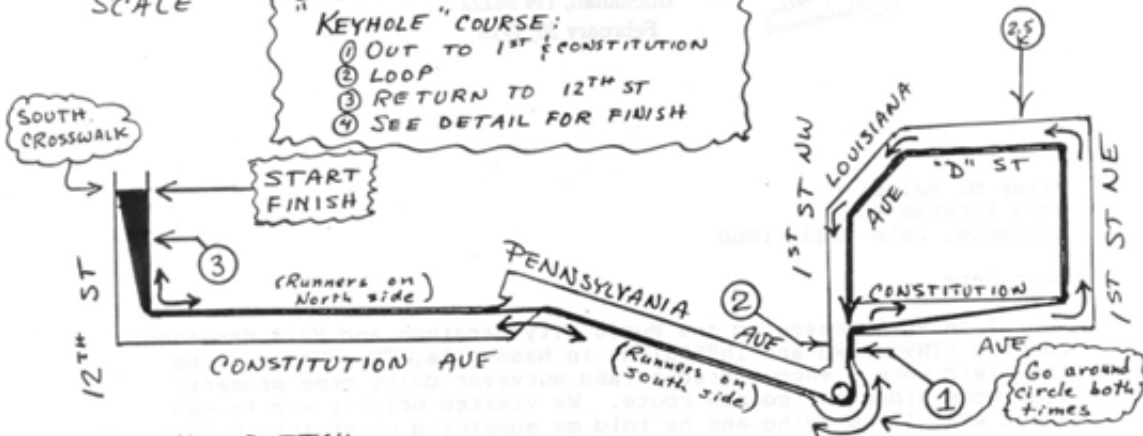
Good measuring,

Bob Woods
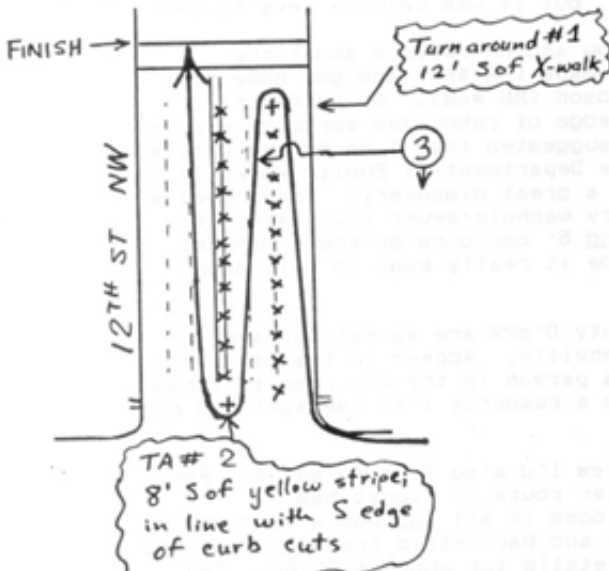
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HUMAN RACE 5K
Washington, DC

USATF - certified course
DC-94008-RT

MAP NOT TO SCALE

"KEYHOLE" COURSE:
1. OUT TO 1ST & CONSTITUTION
2. LOOP
3. RETURN TO 12TH ST
4. SEE DETAIL FOR FINISH

SOUTH. CROSSWALK

START FINISH

(Runners on North side)

12TH ST

CONSTITUTION AVE

PENNSYLVANIA AVE

(Runners on South side)

2.5

1ST ST NW

LOUISIANA AVE

"D" ST

CONSTITUTION

1ST ST AVE

2

1

Go around circle both times

FINISH DETAIL

FINISH →

Turn around #1
12' S of X-walk

12TH ST NW

3

TA # 2
8' S of yellow stripe;
in line with S edge
of curb cuts

→ Place cones or standards
(flagging if possible) along
lines indicated (x x x x)

→ Place a cone on each
Turn-Around spot (marked '+');
runners must go around
cone

LOCATIONS

Start/Finish: North edge
of "South Crosswalk",
480' N of Constitution
Ave

Mile 1: 1st St NW, at
"No Parking" sign on R;
150' south of Constitution

2.5K: D St, 83' E of 1st St;
8' before 2nd tree on L
(a large oak)

Mile 2: 1st St NW; 135'
S of Constitution; 18' N
of Mile 1

Mile 3: 12th St; 15' after
TA # 1

WAYNE NICOLL SAYS THIS
QUALIFIES FOR
"FINISH LINE OF THE MONTH!"

Measured 5/29/94
by R Thurston
RET

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MEASUREMENT REPORTS FROM FRANCE AND POLAND

Other countries are making progress in measurement and certification. See reports from **Tadeusz Dziekonski** (Poland) and **Jean-Francois Delasalle** (France).

OTHER MEASUREMENT SEMINARS

1) An AIMS/IAAF measurement seminar will be held in Vancouver, BC, Canada on 5-6 May, 1995. Faculty will include **Ted Paulin** and **Andy Galloway**. For information, contact: Gordon Rogers - Vancouver International Marathon - PO Box 3213 - Vancouver, BC V6B 3X8 - CANADA. Phone: 604 872 2928   FAX 604 872 2903.

2) The Road Runners Club of America will have a measurement seminar on Saturday morning, May 6, lasting three hours. **Pete Riegel** will give an orientation to road course measurement. For information contact: Runner's World/RRCA Convention - 33 E. Minor Street - Emmaus, PA 18098. Phone 610 967 8159.
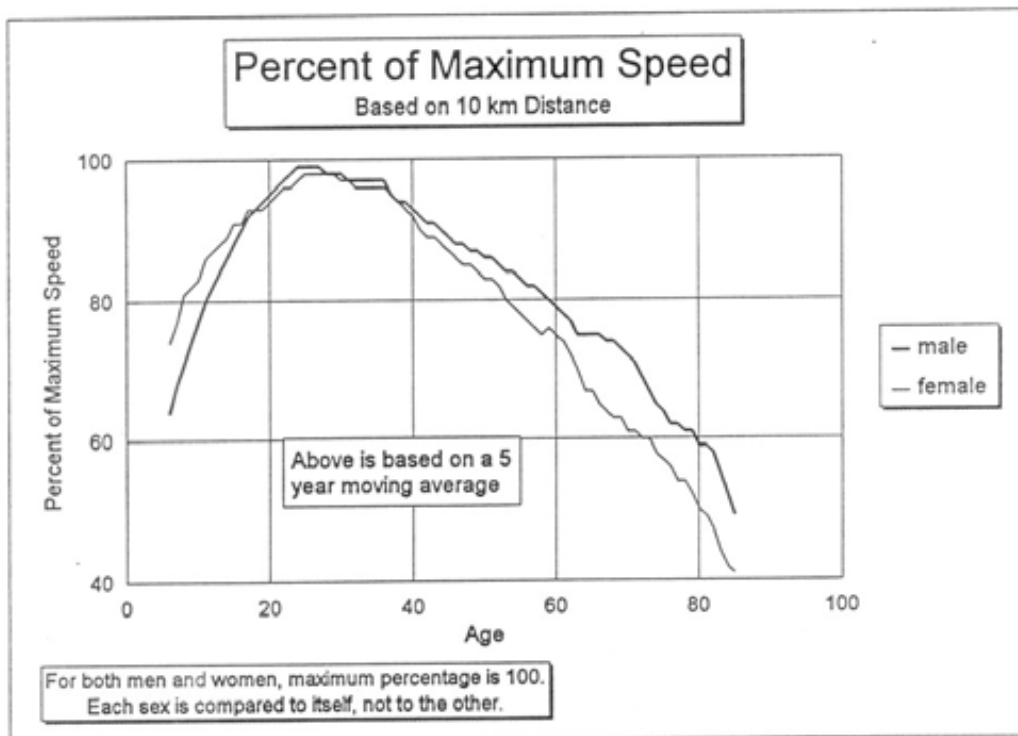
Brian Peacock is using road records in a study of job choosing based on age and seniority. Above is a graph of data he employs to show how performance is affected by age.

ACTIVITY REPORT

TADEUSZ DZIEKOŃSKI
IAAF/AIMS approved course measurer international - grade A

	AIMS courses	Poland's courses
1993 -	1/ Wrocław/Pol/ - marathon	1/ Katowice/15K/
	2/ Vienna/Aut/ - marathon	2/ Janów Podlaski/21.0975K/
	3/ Budapest/Hun/- marathon	3/ Trzebnica/10K/
	4/ Warszawa/Pol/- marathon	4/ Szczecin/20K/
	5/ Vilnius/Lit/ - marathon	5/ Łowicz/25K/
		6/ Wola/21.0975K/
1994 -	1/ Miskolc/Hun/ - marathon	1/ Trzebnica/10K/
		2/ Ostrołęka/21.0975K/
		3/ Toruń/marathon/[x]
		4/ Szczytno/marathon/
		5/ Puck/marathon/
		6/ Starogard Gdański/10K/
		7/ as above/21.0975K/
		8/ Strzelce Opolskie/15K/

x - validation

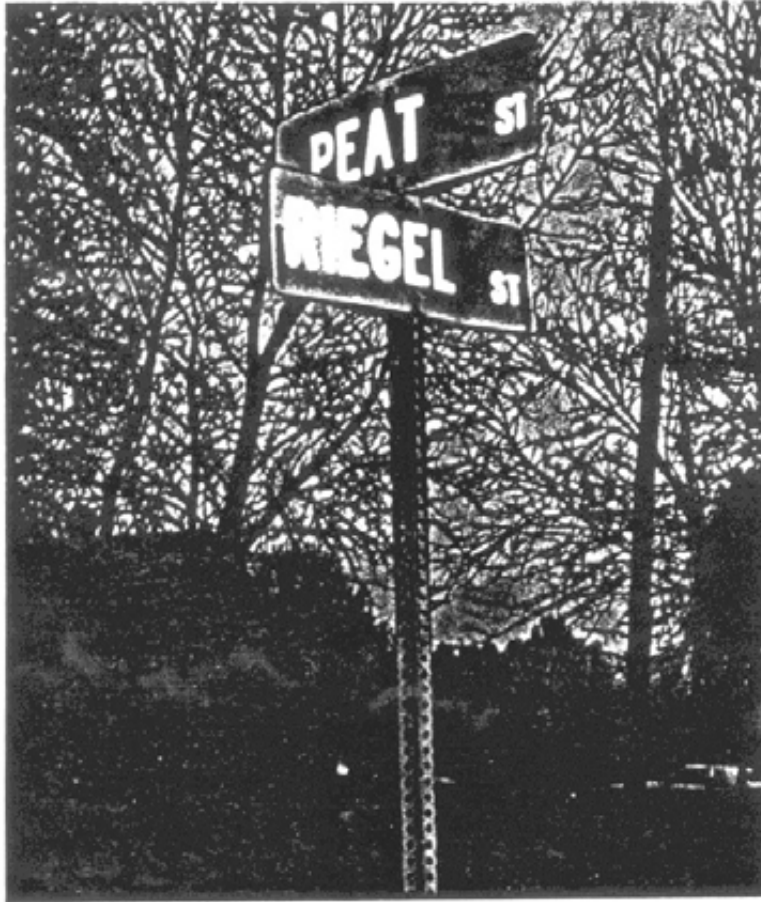..................................
/Tadeusz Dziekoński/

copy to:

1/ Ted Paulin
   Chairman AIMS Technical Committee

2/ John Disley
   Area Administrator

3/ Peter Riegel
   AIMS Course Registrar

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

Białystok/Poland, Dec 9, 1994   20

"What a waste it is to lose one's mind,
or not to have a mind is being very wasteful.
How true that is."
-Dan Quayle

Hi Peat(!) -
  Couldn't resist this pic -
happened to have camera in
car. I think it should
make the cover of MN!
Have a great holiday
                    Amy :)

637580 C/RPP Inc

SOONER OR LATER I KNEW IT
WOULD HAPPEN - THEN THEY MISSPELLED
MY NAME! THANKS, AMY (MORSS)

A view from France, translated from Issue No. 1 of **AIMC News**:

COURSE CUTTING AND THE ENEMIES OF THE MEASURER

by J. F. Delasalle

With a little experience, measuring is easy, but to validate a performance is much more delicate. Indeed, the work of the measurer could be cancelled by one element that could cause the runner to cut the official course.

The cutting could sometimes be something minor, such as cutting a single corner, without effect on the measured distance, because of the 1.001 safety factor used during measurement. On the other hand, if the cutting is repeated throughout the circuit, the effect becomes quickly considerable, which may result in failure to survive validation (could reach 1%).

The definition of the course is different, in different places, and is not specified in the regulations of IAAF.

In the Anglosaxon countries, the runners must remain permanently on the road pavement, under penalty of disqualification. The rule is simple but not always enforced by officials over the entire course.

In Europe several countries (France, Belgium, Italy) are seen to be lax, and runners have taken to the habit of cutting corners, onto the sidewalk, when the route is not protected by barricades.

The task of the measurer is therefore to convince the race director of the need to block access to the sidewalks at the turns. If this is not possible, the measurer is constrained to cut the corners during his measurement. This is not always easy nor obvious to interpret.

The job is also to provide all the details of the measured path on a good map, to show where the runners may cut "normally."

The role of the officials on race day will be to verify that the running of the circuit was controlled by the race director in accordance with the plan provided by the measurer.

All this is not simple, but it is currently the only solution which will guarantee the validity of the measurements and of some performances, until a formal definition is made of the limits of courses by a governing body. The rule should specify the part that is allowed to the runners, much as it is done on athletics tracks. This would permit the disqualification of runners who cut onto the sidewalk during a race, just as is done with a track runner who puts a foot inside the curb onto the grass.

The primary goal of measurement is to permit validation of the performances.

The measurer thus has many "enemies" to face, so that his work is really useful for something:

1) The Race Director, of whom the most frequent mistakes are:
- Not respecting the boundaries of the course
- Errors in the course by carelessness
- Modification of the start or finish to make room for grandstands, banners, or sponsor requests
- Not maintaining the runners behind the start line

2) The Runner, who has a natural tendency to seek out the shortest path offered by the course, even if he knows that certain portions are forbidden to him. The existence of one regulation would serve to discipline him.

3) The Ignorance of the Journalists who, superlative amateurs, announce "world record" without knowing whether the conditions of running or measuring were correct.

4) The Ignorance of Course Officials who are often uninformed concerning the principles of measurement and the conduct of road races.

5) The Passivity of Federations which have never had the same interest in road racing as in track events, where the control is very different, and strictly applied

* * * * * * *

MAXIMS OF THE NAIL

"If you can't find the nail, don't use the baseline. Measure it again."

"If you are not certain of the nail, check the baseline."

"It's not marked without a nail."

The foregoing two articles appeared in the first issue of **AIMC Newsletter**. Translated by Pete Riegel with apologies to Jean-Francois Delasalle.

Cruel and unusual punishment

Down the road
By Cedric Jaggers

Uphill finishes are considered by most runners to be a form of cruel and unusual punishment. They are especially bad for me since I am one of the world's worst uphill runners. It almost makes me glad I'm not competing in the upcoming Olympic Trials marathons, not to mention the Olympic marathon.

The men's trials will be held at the Charlotte Observer Marathon in Charlotte, NC, and the women's will be at the Carolina Marathon in Columbia, SC. For those of you who have never run either of these excellent marathons, let me tell you about them.

Every January in Charlotte, runners have complained about the 'Morehead Monster' hill which greeted runners in the last mile of the Charlotte Observer Marathon. Since being chosen for the Trials site, a new, more runner-friendly course has been laid out.

The monster hill was removed from the course, but due to the geography of the town and the out and back course, the finish is still uphill. In fact, competitors (with one steep exception) run downhill for the first 10 miles, dropping from 760-feet elevation down to 580 feet. Guess what happens then. Right. The runners climb back to the finish, which is at 740 feet. In the last 10K, runners will drop from 730 feet down to 670 then climb back to the 740-feet finish.

In recent years, it has been cold and raining for the marathon. Let's hope for good weather for the '95 Men's U.S. Marathon Championship and for the '96 Men's Olympic Trials Marathon. Those of us too old or out of shape can run the accompanying 10K and then watch the marathon.

Every February at the Carolina Marathon in Columbia, runners have talked about the hills in Fort Jackson and coming back. The race will have a new course again this year, but it will incorporate much of the old. And guess what --another uphill finish. Runners will have about a 200-foot climb during the last 10K.

The '95 race will be the U.S. Women's National Marathon Championship and, of course, the '96 race is the Olympic qualifier for women. Once again, there is an accompanying 10K for those of us who are still trying to decide if we can get in shape one more time and qualify for the 100th Boston Marathon.

In Atlanta a few months ago on business, I went to my old neighborhood to visit friends and put in a nine-mile run. While running down Ponce de Leon, Lullwater, and near the Emory campus, I re-learned how hilly it is in Atlanta. I've read that the '96 marathon may use some of those streets and will, naturally, have an uphill finish.

For some reason, I didn't put it together at the time, but while cooling down after running the Governor's Cup race in Columbia (which uses some of the marathon course and the last awful hill), it hit me. It is better to be cruel and unusual in the trials and eliminate those runners who are not as good uphill since the Olympics will have a similar cruel finish.

Okay, it didn't take a rocket scientist to figure this out, but I'm glad the U.S. Olympic folks put some thought into the Trials courses. I know I'm looking forward to seeing them and cheering on the best runners in the country. Hope you will be there too.
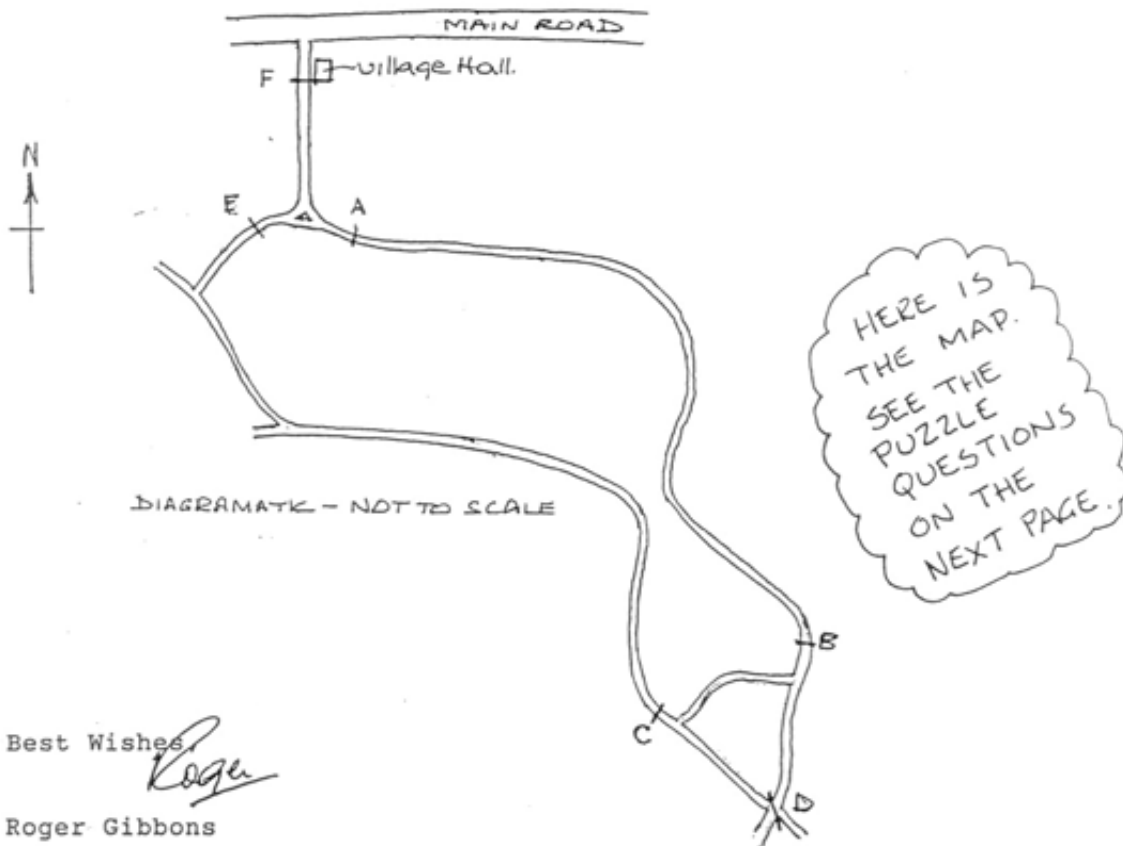
"Zeando",
Swannington,
Norfolk.
NR9 5NW

15 January 1995

Dear Pete,

Whilst measuring last week, I thought the problems thrown up
might make a suitable 'puzzle' for MN. I have enclosed the
details. Of course, it is a simple task for experienced
measurers, but might prove useful to 'beginners',
illustrating, hopefully, the use of some logical thinking,
economy of effort, and practice in caclculations using
'real' figures.

If you do decide to use it, for heavens sake work through it
yourself first in case I have not given enough information!

MAIN ROAD

village Hall.

F

N

E   A

DIAGRAMATK — NOT TO SCALE

HERE IS THE MAP. SEE THE PUZZLE QUESTIONS ON THE NEXT PAGE.

B

C

D

Best Wishes,

Roger

Roger Gibbons

PUZZLE OF THE MONTH

FROM
ROGER
GIBBONS

Last week I had the task of measuring a rural course. It had to be exactly 20k. (The Director still wanted the intervals in miles!)

He supplied me with a map, a simplified version of which is attached. The 'finish' was fixed at the Village Hall, and the start was to be as <u>near as possible</u> to the same spot. The start could <u>not</u> be north of the finish because of the main road. He had calculated that the 20k would work out if I followed the course F,A,B,C,E, and then another loop, A,B,C,E, and then back to the Finish,F.

He also suggested that if the course worked out short, I could include the extra loop at the far end of the course - go B,D,C instead of B,C, on the <u>second</u> time round, and on the first lap too if necessary.

Now, I did not want to cycle further than necessary, and I had only a limited amount of daylight left. How best to tackle it? This was my method:

I cycled the course, chalking suitable points A,B,C,D and E, measuring each section as I went along. Care was taken to locate these markss at tangential points. Obviously it was not necessary to cycle the loop twice to do this. The results were, in counts:

F-A	9650	A-B	31202	B-C	7208	B-D-C	12010
C-E	42240	E-A	2108	E-F	10448		

I sat down over a coffee and did my calculations. I then established the position of the start line, cycled the whole course from there, laying down mile marks as I went. Thankfully I made the finish line to within the yard! It is always a good feeling when calculations work out! (my working constant was 14951/mile)

I was also asked to measure a second course for a shorter race to run concurrently, using the same start and finish and following the first loop of the 20k race.

Altogether I reckon I cycled less than 20 miles, and did the whole job in about 2½ hours.

Questions:

1. How short was the course as visualised by the director?
2. What combination of the use of the extra little loop would give the required extra?
3. How much too long did this make the course if measured from finish back to finish?
4. How far, in yards, to the south of the finish line was the start?
5. How long was the shorter race?

January 5, 1995
Akron, Ohio

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

Dear Pete,

Enclosed is an application for road course certification and the supporting documents. I have also enclosed a check for $15.00 for the processing of these applications.

Thank you for handling the application for the Mum Runs, and thank you for answering some of my questions. I did make the copies of the maps a bit darker, and I did use your suggestion of cut & paste for the start, finish, and turnaround. I'll try to apply this technique to all the mile splits next time.

I asked about training courses in my last letter because I was wondering how one can start handling all the certification duties. I was in Houston a month ago and Tom McBrayer described to me how this happens, how one becomes a course measurer and then a course certifier. From his description I realized that I am a measurer, but not a certifier. He told me that to become a certifier I would have to go through an informal apprenticeship, which is what I'm probably doing with you now. Pete, can you give me an idea of what it will require in terms of time, experience, and competence for me to reach the status of course certifier? It may sound silly, but I look forward to having my initials on the certification code.

Sincerely,

Zean Z. Gassmann
Member Summit Athletic Club

USA TRACK & FIELD

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

614-451-5617 (phone)
614-451-5610 (fax)

January 12, 1995

Zean Gassmann
2826 Shade Rd
Akron, OH 44333

Dear Zean,

Here is your certificate for the Shamrock Run 15 km. I'm sorry to be a bit late with it. I was called to Brazil and Uruguay to do some measuring, and did not return until yesterday.

Tom McBrayer gave you accurate information on what it takes to become a certifier. I sympathize with your ambitions. To become a certifier you first need to become a proficient measurer. You are well on your way. Each of your submissions shows improvement over the last. Your paperwork is impeccable, and your maps are getting better each time. And you are building a body of work on which your reputation as a measurer will rest.

The only problem for you is that we already have an Ohio certifier. That's me, and I enjoy the job. Each state has only one certifier, except for California, which has two, grandfathered that way through ancient history. Generally the work of certifying an entire state does not overload one person, so we limit the number of certifiers to one per state.

I am thinking of creating a special category in Ohio of measurers who are so competent that my review is no more than a rubber stamp. There are already several for whom my approval is only a formality. When this happens I may tell these people "Here is a blank certificate - fill out your own and send me a copy." Of course, I will have to work out a numbering system for these people, perhaps by assigning them a block of numbers to use.

You may never get your initials on the certification code until you reach full certifier status, since you would not be reviewing anybody else's work under the above scheme - only signing off on your own courses. You would get the credit you deserve by having your name appear in **Measurement News** (MN) in the listing of the newly-certified course, as the measurer.

Please be aware that I think that a person who is both competent and ambitious is a rare and precious asset, and I will try to find a place for you. I'm only trying to figure out just what that place may be. This is as yet unformed in my mind, and I am going to put the idea, and your letter, in the next **Measurement News** to see what thoughts the other certifiers have on the subject.

Here is a copy of the most recent MN. Subscribe if moved to do so. It will keep you in touch with what is going on. You are welcome to join in the dialogue - it's not just for certifiers.

Best regards,

Measure Up

FROM TOM McBEATER

NO BLUES IN ST. LOUIS

No monster issues for this gathering of measurers, but still we talked and talked and …

- Of the 23 courses validated in 1994, 20 passed.
- About 1200 courses were certified during the year which seems to be our modern standard.
- The 10-year expiration policy is now fully operational. Only a very small fraction of certified courses in 1983 (500) and 1984 (884) have been renewed.
- Cal courses - it's best to get them certified - put special emphasis on end points.
- Use the course code number to identify a certified course. Race names change.
- Men's Olympic Marathon Trials on tap for Charlotte, NC. The pre-validation team will be led by Tom McBrayer. Wayne and Sally Nicoll will lead the all women's pre-validation in Columbus, South Carolina.
- Still in the talk stage, but we could see an international measurement seminar in Santa Barbara, CA following the lead of Columbus (1990) and Phoenix (1994).
- The 1995 USAT&F convention will be in Atlanta on November 29 through December 2. How about a validation ride of the marathon course? (If they've decided on one)

FULL MEASURE

Scan the pages of the record book and one name keeps popping up—Bill Rodgers. For over 20 years, from 5 kms to marathons, there he is again and again from Open to Masters to age groups. The very essence of longevity. So why get excited when "Boston Billy" turns in a 15:11 5 km (45-49 age group) at the Bahamas Princess in Freeport?

Here's why. Rodgers' excellent time almost wasn't. The 5000 meter course when checked by an expert (a validator) was just slightly over the advertised distance, 5000.78 meters! That's a 5 km plus 30 inches, a too-thin cushion. A course must be at least the nominal distance for performances to be accepted as records.
In the measurement process in use in the US, a 0.1% overage factor is included. For a 5 km that's 5 meters, a 10 km gets 10 meters, and so on (One mile = 1.6 km; so each mile gets 1.6 meters.) This 0.1% cushion is called a short course prevention factor (SCPF) and the reason it's used is obvious — it prevents short courses. The system worked, and Rodgers gets his name in print one more time. So don't worry; be happy!

But those of us heavy into course measurement are only happy when we worry. The theory of measurement tells us that the next validator will come up with a different number. More validations, more and different answers. Measurers will never agree on the exact length of a race course. For example, on a 10 km course, five measurers might get 10002, 10005, 10012, 10008, 10011 meters. Although the measurers disagree as to the exact length (which is forever unknown) they will agree that the course is not short of the nominal distance. The SCPF adds that little bit of distance to make it so.

In some European countries all courses are measured by an expert measurer. No need for a validator to check in the event of a record. The US system allows for anyone, from veteran to newcomer, to measure and then submit the paperwork to the state certifier for approval. In addition to covering variations in measurements, the SCPF also assists these inexperienced measurers. If they follow instructions, the course will survive validation.

It's rare for a certified course to fail validation, but it happens. When it does, it's usually because the measurer did not follow the proper line of measurement, i.e. the shortest possible distance. When a measurer observes a validator checking his course, he is sometimes surprised to see how tightly the validator rides around the corners, staying just 30 cm (12 inches) from the curb, just like the book says. Swinging too wide on corners, especially on a course with many turns, is a sure recipe for a short course. So avoid embarrassment, follow the instructions, and your course will be OK. The SCPF protects you.

Texas has fared well when validations have been performed. Some of the most recent include:

Course	Variation from nominal
First Colony 30 km	+28 meters
Houston-Tenneco Marathon (Women's Olympic Trials)	+50 meters
Houston Ultra 50-miler	+213 meters
Race for the Cure (Dallas) 5 km	+3.4 meters

SPLITS

✓ Just in case anyone asks, the Las Vegas Marathon is definitely (and still) downhill. It starts at 2750' (838 m), climbs to 3060' (933 m) at mile 11, then drops steadily to 2230' (680 m) at the finish. If there's no north wind (It's point-to-point from south to north.), this course can be a fast one. It gets more than its share of would-be Trials' qualifiers. There was some confusion on this one that received national publicity. To clear the matter up, don't blame the measurer for what started with the race director.

✓ It's 1995 and all those courses certified in 1985 (1204) will expire this year. That doesn't mean the courses will be no good, just that they will be dropped from published lists. If you have a course in your area that is still active, it's time to renew. A special form is needed. Please let me know if you need this form.

MARATHON MANIA

An almost ideal day for running a marathon, Sunday January 15 came in at 42°F, low humidity and lots of runnersfor the Houston-Tenneco including:

Chuck George, New Orleans at 4:10
Clent Mericle, Corpus Christi at 2:37
Don Potter (Arkansas certifier), Conway AR at 3:37
Bob Barnhill, Houston at 5:20 (Bob accompanied his
   daughter, Jennifer, in her debut.)

ANDY DOES DALLAS
(Race for the Cure)

The largest women's 5 km in the country is in Dallas, the Race for the Cure. As it should be, 'cause Dallas was where this most popular series got started back in the middle 80's. It's also been the site for a number of outstanding times by Jan Richards, a 65-69 year old runner from Arlington. After her 22:36 in 1992, it was time for a validation ride. Andy Beach got the call since he was the closest experienced measurer.

What Andy found was the 5 km course as originally measured (TX89053ETM) was plenty long (5003.4 m), but

Measure Up	
	Volume 8 No.1
Newsletter:	E. T. (Tom) McBrayer
	40 21 Montrose
	Houston, Texas 77006
	713-523-5679
	FAX: 713-523-5679
Typesetting	Mary Anne McBrayer

that's not the whole story. The key phrase is "as originally measured." For approximately two-thirds of the course, runners are restricted to the outside lane by cones. Yeah, right! Ever try keeping 8000 runners in one lane?

Bottom line: Jan's excellent time got turned down. There was simply no way to verify who ran the course as certified. The tremendous growth of this event leaves only one way to go — full street width.

WHAT'S NEW AT THE BIKE SHOPS

It's called Quix, an expandable pack that mounts on the seat post and is easily removed. No rack is required; the "Klick Fix" mounting system does it all. In fact, it locks like it's suspended in mid air with no means of support. The Quix comes in three sizes (each size expands by 1/3) and sells for $35-$45 depending on size.

The Quix up close and personal. Note also the zipper pull on the bag (it doubles as a thermometer) and the bottle cage holding the spray paint can.

February 10, 1995
Akron, Ohio

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

Dear Pete,

Thank you again for handling the certification of the Shamrock 15K Run. It was nice to finally talk to you. I appreciated your comments regarding measurers and certifiers, and I also appreciated the copy of MN, I do plan on subscribing.

I have enclosed another application for certification. I have a question regarding multiple loop courses and out-and-back courses. I feel it is reasonable to use the 2nd and subsequent measurements of the loop (or the return portion of an out-and-back) for both the first measurement (marking the mile splits) and the 2nd measurement (checking the mile splits). In most cases if not all cases an additional loop (or out section for the out-and-back races) is needed to finish up the 2nd measurement.

As an example of this I will use the race course that I measured for the certification application that is enclosed with this letter. It is a five mile course consisting of two loops of approximately two and a half miles. I measured the course by first measuring the complete loop (starting at the finish and then ending at the finish). I then did some higher math (addition and subtraction) to determine where the start and intermediate splits would be. I used my second ride of the loop to mark all the intermediate splits, using the first loop numbers to allow me to record the 3 mile, 4 mile and finish line. I then used a portion of the 2nd ride combined with a 3rd ride to check all the mile splits.

Using this method saves me an additional ride of the loop, but I was wondering if it is accepted procedure by measurers and certifiers. I've used a similar technique for out-and-back courses where I mark the first half of the race's mile splits on the way out and then check these same mile splits on the way back while at the same time, I am marking the last half of the race's mile splits.

Another question that I have that relates to out-and-back courses is about turnarounds. Is a turnaround any point in a race where one reverses direction? I ask this question because I see some subtle differences in some turnarounds which I believe are significant. There is the turnaround in the middle of a street that has no median or dividing barrier and the runners are allowed to return on the same path on which they approached the turnaround. However, there is also a turnaround where there is a barrier of some sort (concrete median, guard rail) where the runner does turnaround, but the turnaround point is clearly marked by

a permanent object such as the end of a concrete median or a guard rail, and then after the runner turns around, they are returning on the other side of the barrier.

Can such a turnaround be considered no more than an extreme left or right turn, such that it needs no further detailed explanation other than a map that shows the path that the runners take around the permanent landmark? And should such a turnaround even be considered as part of an out-and-back course? For the course which I have just measured such a turnaround exists, but I have chosen to describe the course as a loop course, because I feel it is a more accurate description.

I have a final comment regarding the initials used on certification codes. I feel (possibly because of my status of measurer) that the measurer deserves more credit (or blame) than the certifier. It is the measurer who goes out and physically measures the course, does the calculations, and fills out the paper work. The certifier is an editor, a very necessary job, but only necessary because of the work already done by the measurer. It is for this reason that I feel that the measurer not the certifier deserves the credit in the certification code.

The previous paragraph may not have been written, but MN seems to encourage our thoughts, so I'm giving mine. I'm also giving you a check for $30.00, $15.00 for MN and $15.00 for certifying the Labor of Love Run Five Mile Run.

Sincerely,

Zean Z. Gassmann

COURSE MEASUREMENT DATA SHEET

Name of Course or Race Name: Labor of Love 5 Mile Run
Name of Measurer #1: Zean Gassmann   Working Constant #1:   15724.9 counts/mile
     Date: 1/13/95 Start: Time: 11:55 AM Temperature: 59 deg F
                   Finish: Time: 1:30 PM Temperature: 61 deg F

Name of Measurer #2:   Working Constant #2:   15724.9 counts/mile
     Date: 1/13/95 Start: Time: 12:51 PM Temperature: 60 deg F
                   Finish: Time: 2:14 PM Temperature: 62 deg F

Measurement Data. Use the first measurement ride to lay out the start/finish points and all intermediate split points. Use the second ride to check the location of those same points. do not use two sets of marks!

	Counts for Measurer #1				Counts for Measurer #2		
Interval Description	Start Count	Finish Count	Interval	Interval Description	Start Count	Finish Count	Interval
START-1MI.	81,493	97,218	15,725	START-1MI.	22,403	38,146	15,743
1MI.-TA	97,218	101,561	4,343	1MI.-TA	38,146	42,490	4,344
TA-2MI	101,561	112,942	11,381	TA-2MI	42,490	53,870	11,380
2MI-Endloop1	112,942	120,464	7,522	2MI-Endloop1	53,870	61,397	7,527
Endloop1-3MI.	80,810	89,013	8,203	Endloop1-3MI.	21,720	29,948	8,228
3MI.-TA	89013	101561	12,548	3MI.-TA	29948	42490	12,542
TA-4MI.	101,561	104,739	3,178	TA-4MI.	42,490	45,666	3,176
4MI.-FINISH	104,739	120,464	15,725	4MI.-FINISH	45,666	61,397	15,731

Riegel's scribbling
EL - 80810
ST - 81493
3 - 89013
1 - 97218
TA - 101561
4 - 104739
2 - 112942
FN - 120464

Preliminary Course	start-to-finish	divided	working	=	measured		
Length	counts	by	constant		length		
Measurer #1	78,625	/	15,725	=	5.00002	Miles	
Measurer #2	78,671	/	15,725	=	5.00294	Miles	

FN 683
ST

Difference between	divided	length	=	Measurement
lengths #1 and #2	by	#1		comparison
				(less than 0.0008?)
0.0029	/	5.0000167	=	0.00059 YES [Yes or No]

IMPORTANT. Before your leave the course compare the two measurements. They should agree to within 0.08%. If the two preliminary measurements do not agree to within 0.08%, something is wrong. Fix it! Then go to the calibration course and recalibrate.

If either of the Constants for the Day (for measurements #1 and #2) are not the same as the Working Constant, recalculate the length of the course here.

ZEAN HAS THE FORMS IN HIS COMPUTER!

Final Course	start-to-finish	divided	constant	=	length of
Length	counts	by	for day		course
Measurer #1		/		=	Miles
Measurer #2		/		=	Miles

The length of the race course is the lesser of the two lengths calculated above.
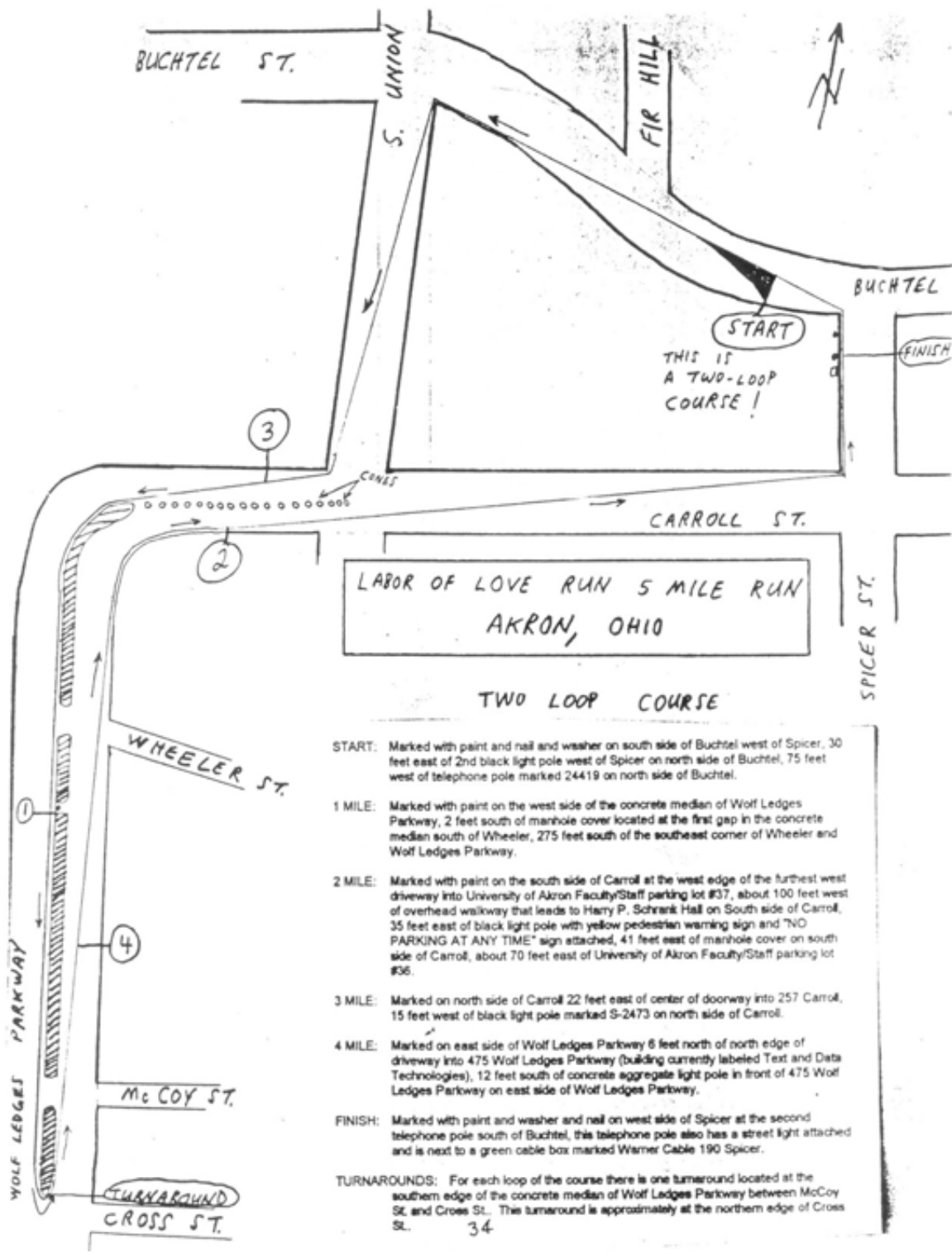
Measured course length =   5.00002 miles.   Desired course length =   5.00000 miles.
Use a steel tape to add or subtract distance as required to bring the minimum length to the same value as the desired course length.

How much did you add or subtract, and where (start, finish, turn-around point)?
ONE INCH SUBTRACTED FROM START
Note: You need not adjust intermediate split points unless certification is desired for those points as well. Did you adjust the intermediate points and, if so, how?
NO

BUCHTEL ST.

S. UNION

FIR HILL

N

BUCHTEL

START

THIS IS
A TWO-LOOP
COURSE!

FINISH

3

CONES

CARROLL ST.

2

LABOR OF LOVE RUN 5 MILE RUN
AKRON, OHIO

SPICER ST.

TWO LOOP COURSE

WHEELER ST.

1

WOLF LEDGES PARKWAY

4

McCOY ST.

TURNAROUND
CROSS ST.

START: Marked with paint and nail and washer on south side of Buchtel west of Spicer, 30 feet east of 2nd black light pole west of Spicer on north side of Buchtel, 75 feet west of telephone pole marked 24419 on north side of Buchtel.

1 MILE: Marked with paint on the west side of the concrete median of Wolf Ledges Parkway, 2 feet south of manhole cover located at the first gap in the concrete median south of Wheeler, 275 feet south of the southeast corner of Wheeler and Wolf Ledges Parkway.

2 MILE: Marked with paint on the south side of Carroll at the west edge of the furthest west driveway into University of Akron Faculty/Staff parking lot #37, about 100 feet west of overhead walkway that leads to Harry P. Schrank Hall on South side of Carroll, 35 feet east of black light pole with yellow pedestrian warning sign and "NO PARKING AT ANY TIME" sign attached, 41 feet east of manhole cover on south side of Carroll, about 70 feet east of University of Akron Faculty/Staff parking lot #36.

3 MILE: Marked on north side of Carroll 22 feet east of center of doorway into 257 Carroll, 15 feet west of black light pole marked S-2473 on north side of Carroll.

4 MILE: Marked on east side of Wolf Ledges Parkway 6 feet north of north edge of driveway into 475 Wolf Ledges Parkway (building currently labeled Text and Data Technologies), 12 feet south of concrete aggregate light pole in front of 475 Wolf Ledges Parkway on east side of Wolf Ledges Parkway.

FINISH: Marked with paint and washer and nail on west side of Spicer at the second telephone pole south of Buchtel, this telephone pole also has a street light attached and is next to a green cable box marked Warner Cable 190 Spicer.

TURNAROUNDS: For each loop of the course there is one turnaround located at the southern edge of the concrete median of Wolf Ledges Parkway between McCoy St. and Cross St.. This turnaround is approximately at the northern edge of Cross St.

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USA TRACK & FIELD

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

614-451-5617 (phone)
614-451-5610 (fax)

February 14, 1995

Zean Gassmann - 2826 Shade Rd - Akron, OH 44333-1956

Dear Zean,

Happy Valentine's Day. Here is your certificate for the Labor of Love 5 Mile Run. You didn't check anything on the application regarding type of surface, so I assumed that the course was paved throughout. That was the sole error I found in the entire application. Very nice job. You even got the splits on the map. The map is now a bit dark, as opposed to your last one which was on the light side. Next time split the difference.

Your methodology was completely sound. You sought certification for the 5 mile distance only, and are not required to include any splits at all. However, everybody seems to put down splits. Since no splits are to be certified, you need not measure them twice, unless you want to.

For the absolute minimum of riding, you could have ridden the complete loop twice, established a finish, and measured to the start, and back again to the finish. This would technically fulfill the requirement for certification, but would leave you with no splits. Your way was much better. I use it all the time myself, when doing a multiple loop course. Use a scouting ride to find the length, then use the second ride to lay out the splits and check the first measurement. Technically, you could have quit after the scouting ride and the layout ride, as long as you had two measurements of the distance between the start and the finish. Like you, though, I will usually take an extra ride to check things out.

If you stop and record counts at several landmarks on your scouting ride, and also take counts on the second ride, you will get a check on your riding of various parts of the course. This is healthy. A ride of only the entire course, from start to finish, technically fulfills the requirements for certification of the distance, but it's not as solid as a series of intervals, since compensating errors can produce good overall agreement, while individual intervals may have very poor agreement.

Your perception of the nature of turnarounds is correct. Strictly speaking, a turnaround is a single point (or a defined array of cones arranged in an arc) around which the runners go, to reverse their direction along the **same path**. A median strip is not a true turnaround, since the runners' return path is not the same as their path of approach. It is generally a good idea to take a count at the apex of such medians, even though you may not use it in your final calculations. I routinely take counts at various places where landmarks exist, and often never use the data. But sometimes it saves riding if you need the data later for an adjustment of some sort.

The first ride of a course can often be a patchwork of measurements. When measuring a new course, I hardly ever lay out splits on the first ride. The tentative course is almost never right, and often I must go out to the middle of the course, remove one stretch of road, and replace it with another. When I am done I have a series of pieces which, when connected, make up the length I need. On the second ride I will lay out the splits. I have a Cateye odometer on my bike, which reads to 0.01 miles, and I use this reading to check the counter. It's not as precise, but it eliminates gross mistakes. If I have time I will do a third ride to check the splits again.

As for who gets credit for what, the numbering system we have helps to sort out the work that has been done over a given period. Every so often we need to how how a certain certifier is doing, and the initials help with this. Credit is given in the pages of **Measurement News** and on course lists that are sent to people who request them. The name of the measurer appears in the listings, and is also on the certificate itself. In fact, the measurer's full last name and first initial appears in the listings, while the certifier gets only his initials listed.

It's important to give out as much credit as possible to certifiers, since recognition of work done is the only pay these people receive. The fees cover administrative expense, and allow the certifiers to put away a little so they can attend the yearly convention. Some of our certifiers have been working at their jobs for 13 years or more, and if I could give them even **more** credit I would do it. Yearly in MN you will find listings of how many courses each certifier has certified, and you'll also see a listing of the year's top measurers. Everybody who has measured ten or more courses during the past year is listed, along with the number of courses they measured.

I very much appreciate your thoughtful correspondence. I hope you enjoy MN, and look forward to your commentary on what you see.

Best regards,

Pete

MEASUREMENTS AND OBSERVATIONS OF SAN FERNANDO AND MANAUS 10 KM RACES

by Pete Riegel

On December 23 I received a fax from Roberto Gesta de Melo, head of the Brazilian federation, asking me to come to Brazil and Uruguay to measure a couple of courses. The first race was to be held on January 6. I got a quickie visa, and was on the plane January 1, not having a clue as to what would be involved, nor even the lengths of the courses to be measured. I hoped they would not be marathon courses, because that's a lot of bike-riding. I suspected they would be short races, since it's summer down there, and hot. I arrived in Sâo Paulo early on Jan 2, and was taken to the Brasilton hotel, where I laid up for a while until it was time to leave for Uruguay.

I found myself traveling with a troupe of about 25 South American and Kenyan runners. We all assembled in the lobby at 2:30 and were ferried to the airport for the flight to Montevideo, Uruguay. From there we took a 120 km bus ride to a pretty little beach hotel in Maldonado, about 4 km west of Punta del Este, a resort town located at the conjunction of the South Atlantic ocean and the estuary of the Rio de la Plata, arriving at midnight.

San Fernando 10 km

The course, the San Fernando Road Race, was a 10 km point-to-point from Maldonado to Punta del Este. It was the second race in a series of three, which had begun with the well-known Sâo Silvestre race, held at midnight, New Year's eve, in Sâo Paulo. San Fernando turned out to be fairly straightforward to measure, not having any places where cones were to be used, and the measurement took about four hours. The police escort was effective and cooperative.

The race, held at 10 PM January 6, was more chaotic than most. The starting street was narrow, and the 7000 participants did not have running room. The lead runners, however, had enough room to work. I rode in a lead TV truck with five camera people, two radio people, and a noisy Honda generator roaring away to power the TV lights. The runners were preceded by 25 to 30 different vehicles, and it was touch-and-go at several places trying to stay ahead of the runners.

At 3 km the lead pack jumped the median and shortcut a left turn as they emerged from the early twist-and-turn portion of the course and entered the main beachfront road to Punta del Este. Soon William Mutwol (Kenya) and Ronaldo da Costa (Brazil) were established as the leaders, and our truck moved into position a couple of meters ahead and to one side of the leader. Another media truck took a position about 3 meters directly ahead of the leader, so that he was running within a tight box of vehicles. Hordes of bicyclists joined the parade at this point. I was concerned for the safety of the leader, since he had no clear view of the road ahead, and had TV lights shining in his face. A pothole could have been a disaster, but it didn't happen.

As we approached the turn into Punta Del Este the lead vehicles sped up. so as to get to the finish in time to observe it. By this time da Costa had put on a kick that established his final victory, which was achieved in 27:53, very fast for temperatures near 80F.

After the race the runners and I spent two more days doing R&R on the beach. We loaded up for Manaus, Brazil, on Friday, January 6, busing to Montevideo, thence flying to São Paulo and Manaus, arriving at 11 PM. I was concerned about the measurement, since I had only a day to do it and I had not yet learned much about the nature of the course, nor of what options would be available if the length did not come out right.

Manaus Road Race

The race director assured me that the course was dead simple, being an out-back on the Rio Negro (river) side of the median on a wide highway. At the turnaround point, however, the runners had to cross the median and return for 1 km in the opposite lane, and again recross to the original route, to avoid having to cope with the oncoming slower runners. After several trial-and-errors locating a suitable gap in the median, it was decided to let the runners just run across it, since it was only 10cm high and a meter wide.

The race was scheduled to be held at 8 AM, but various things delayed the start until 8:30, at which point the organizers were worrying that the City traffic people might shut the race down. Runners crowded ahead of the start and had to be physically forced back behind it. I was riding the lead clock truck, and the start took us by surprise - all of a sudden the runners were off, and we had to accelerate sharply to stay ahead of them. The other side of the median divider was wall-to-wall with bicycles and vehicles, following parallel to the runners.

There were only three or four lead vehicles, but one was a diesel, which put out its fumes right at the runners.

The turnaround did not work out as planned. Because of the spectator traffic in the other lane, the runners could not use it, and they had to go back the way they had come, directly into the oncoming runners. The diversion from the planned route added about 8 meters to the course. This forced them off the best line a bit, but not much. Once again the race became a duel between Mutwol and da Costa. At 7 or 8 km Mutwol fell, his foot clippped by another runner. He got up and caught da Costa again. At 8.5 km da Costa accelerated, leaving Mutwol behind, and the Brazilian crowd went wild, preferring a Brazilian victor to a Kenyan one.

The finish (29+)was not a particularly fast one, but not bad for temperatures in the high 80's. It left da Costa as the victor in all three races of the series. The finish line worked OK. There were only 200 runners in the race, and no fancy chutes were needed.

In neither race was I able to observe the women.

Measurement Observations

Measurements like these are stressful for me because I keenly feel the time pressure, and I tend to make more mistakes than when I am alone. I have to fight a tendency to rush things because people are anxious and curious to see how things will come out. At Maldonado I had no problems, but at Manaus I became very confused at the several tentative turn-around points we laid out before we settled into a final course. In neither city was the traffic dangerous, but it was

quite crowded, albeit slow-moving. The police in both cities did a fine job of keeping the cars off me, which is not always the case.

Cultural Observations

I was fortunate in both measurements because I had a companion who spoke some English. My high-school Spanish, rusty with 40 years of disuse, was adequate for inquiring about simple things, but not up to the task of explaining what I was doing. Contrary to what you will hear, "everybody" does **not** speak English in foreign places. Uruguay is Spanish-speaking, but in Brazil it's Portuguese, and I could only hope that my bad Spanish would be indistinguishable from bad Portuguese.

Both races were confused and chaotic, far beyond anything I have seen in the US. However, they were appreciated by the crowds to a huge degree, and they presented wonderful public spectacles. The enthusiasm of the South American crowds makes them hard to control, and this can create conditions which make US standards of race administration nearly impossible. The runners themselves did not seem unduly concerned about the small distances shaved from the course by the few corners that were cut in Maldonado - the crowd I was with was concerned more with head-to-head competition rather than with records. And there is yet no system of recognizing age-group performances in South America.

The awards ceremony in Manaus was attended by hundreds of people who sat in sunny, 100F, high humidity conditions to see the runners honored. At one point the Manaus Fire Department set up a pumper and hosed down the crowd, to their immense enthusiasm. When the ceremony was over, most of the crowd seemed to be heading for the beach for a swim.

Tourist Stuff

The day after the Manaus race I was able to take an Amazon tour. The Rio Negro is 8 km wide at Manaus, an immense flow. It was low water, and the guide pointed out water marks on the trees, showing how, in the rainy season, the water rises 10 meters. That's more fresh water than I could get my mind around.

We parked the boat in the shade and fished for Piranhas using bits of fresh meat. At one point the guide dropped his fishing pole into the water, and destroyed the myth of the Piranha for me, since he just jumped in and took five minutes diving to the bottom to recover it. Maybe the piranhas weren't hungry.

While I was in Manaus, a wild story was flying around. It seems that a 7 meter long anaconda had come into the city from the surrounding jungle, and had been killed. Normally they would capture such a huge snake for a zoo, but it had a suspicious large bulge in the middle, and a 16 year old boy had been reported missing. They opened up the snake and found the remains.

MEDICIONES REALIZADAS

TEMPORADA 93 – 94

por Jorge TOURIÑO Lado (SPA)

FROM SPAIN, VIA AIMC NEWS

DISTANCIA	PRUEBA	FECHA	MEDIDOR1	MEDIDOR2	MEDICION
Media Maratón	Granada	14/11/93	RUIZ, Ramón	MORENO, Salvador	11/11/93
Media Maratón	Poblats Marítims	21/11/93	PASTOR, Vicente	PEREZ, Ricardo	13/11/93
Marcha	Cto. de Barcelona	23/01/94	LUCERO, Dolores		22/01/94
Media Maratón	Ciudad de Murcia	6/02/94	UNICA, Modesto	SANCHEZ, Sebastián	30/01/94
Maratón	Valencia	6/02/94	SOLE, José	VIZUETE, Manuel	22/12/93
Marcha	Cto. Tarragona	13/03/94	NINOT, Ramón		6/02/94
Marcha	Orense (Cto. de España)	20/03/94	TOURIÑO, Jorge	FEIJOO, Alfonso	19/03/94
Media Maratón	Bahía de Palma	27/03/94	REINOSO, Soler	OLIVER, Baldomero	20/03/94
Media Maratón	Canals	27/03/94	GALLEGO, Juan	BOIX, Enrique	27/03/94
Media Maratón	La Rioja	27/03/94	PARA, Emiliano	MANGAS, José	6/03/94
Media Maratón	Barcelona (Gzdo. García)	10/04/94	REINOSO, Jordi	CALS, Rosendo	19/03/94
Media Maratón	Soria	10/04/94	PEREZ, Fermín	MANGAS, José	3/04/94
Maratón	Región de Murcia **	17/04/94			17/04/94
Marcha	Cantones de la Coruña	21/05/94	BLANCO, Jorge		21/05/94
Maratón	La Rioja - Valle del Cidacos	22/05/94	PARA, Emiliano	MANGAS, José	8/05/94
Cursa	Pont de Gol de Valls	22/05/94	NINOT, Ramon		22/05/94
Media Maratón	Benicarlo	19/06/94	GALLEGO, Juan	BOIX, Enrique	8/05/94
Media Maratón	Villa de Benasque - Huesca	19/06/94	ANDREU, José A.		22/05/94
Legua	Ciudad de Torrent	23/07/94	GALLEGO, Juan	BOIX, Enrique	10/07/94
Media Maratón	Pas-Ayto. de Pielagos	3/09/94	IGLESIAS, Simón	BEITIA, José	26/06/94
Maratón	Lanzarote	4/12/94	PEREZ, Fermín	BAUTISTA, José	30/10/94

DIFERENCIAS ENTRE MEDIDORES

(MAXIMO - MINIMO) ; MINIMO =< 0,0010

MEDICION	NOMBRE	CATEGORIA	PRUEBA	DISTANCIA	MEDICION 1°	MEDICION 2°	DIFER. en M.	FIABILIDAD
11/11/93	MORENO - RUIZ	B - A	1/2 GRANADA	21.097,50	20.596,16	20.599,91	3,75	0,0001821
30/01/94	S. CERON - UNICA	B - B	1/2 MURCIA	21.097,50	21.120,35	21.123,02	2,67	0,0001264
3/04/94	FERMIN - MANGAS	A - A	1/2 SEGOVIA	21.097,50	21.205,62	21.209,85	4,23	0,0001995
19/03/94	REINOSO - CALS	A - B	MARCHA	2.500,00	2.543,60	2.544,63	1,03	0,0004049
19/03/94	TOURIÑO - FEIJOO	I - C	MARCHA	2.000,00	1.999,73	2.001,60	1,87	0,0009351
8/05/94	PARA - MANGAS	A - A	M. LA RIOJA	42.195,00	42.195,01	42.196,45	1,44	0,0000341
26/06/94	SIMON - BEITIA	A - C	1/2 PIELAGOS	21.097,50	21.093,00	21.110,00	17,00	0,0008060
30/10/94	FERMIN - BAUTISTA	A - C	1/2 LANZAROTE	21.097,50	22.792,18	22.808,30	16,12	0,0007073

	Nom de l'épreuve	Date du mesurage	Mesures effectuées en mètres par		Ecart de mesure en mètres	Coefficient de fiabilité
			Christian DELERUE	Jean-Marie GRALL		
1	Semi-Marathon de LIFFRÉ 21.100 km	26-12-91	21028.22	21022.22	7.00	0.000333
2	10 et 21.100 km de PLUMAUGAT	30-12-91	10027.65	10032.15	4.50	0.000448
3	TOUT RENNES COURT 21.100 km	12-01-92	21163.30	21174.81	11.51	0.000543
4	RIMOUX 21.100 km	18-01-91	20515.55	20517.68	2.13	0.000103
5	Semi-Marathon de l'ODET 21.100 km	21-06-92	7054.60	7051.90	2.70	0.000382
6	10 km de MORDELLES	28-11-92	2417.34	2417.42	0.12	0.000049
7	CHAVAGNE Oxygène 15 km	28-11-92	8754.46	8751.36	3.10	0.000354
8	SERVON/VILAINE 15 km	05-12-92	5617.97	5617.67	0.30	0.000053
9	St GERMAIN/ILLE 15 km	12-12-92	6916.84	6918.14	1.30	0.000188
10	MONTAUBAN de BRETAGNE 15 km	28-12-92	8362.52	8361.86	0.66	0.000079
11	Relais de BAGUER-MORVAN 42.195 km	29-12-92	41813.71	41824.22	10.51	0.000251
12	St MALO-St SERVAN 15 km	29-12-92	4679.68	4679.07	0.61	0.000130
13	MARTIGNÉ-FERCHAUD 100 km	16-01-93	25052.95	25054.14	1.19	0.000047
14	MARTIGNÉ-FERCHAUD 21.100 km	16-01-93	7090.97	7088.38	2.59	0.000365
15	CESSON-SÉVIGNÉ 21.100 km	28-02-93	21204.61	21211.28	6.67	0.000314
16	LA GUIBRA St SULPICE 21.100 km	05-03-93	12558.04	12560.08	2.04	0.000162
17	TROIS CLOCHERS BRIE 21.100 km	27-03-93	21025.72	21025.47	0.25	0.000012
18	Marathon de CHAUVIGNÉ 42.195 km	01-06-93	41651.25	41657.98	6.73	0.000161
19	Les Marronnaises REDON 21.100 km	25-09-93	20961.56	20966.06	4.50	0.000214
20	MOUTIERS-VITRÉ 21.100 km	07-10-93	21322.55	21322.53	0.02	0.000001
21	ARGENTRÉ-VITRÉ 10 km	07-10-93	10154.68	10156.13	1.45	0.000142
22	10 km de MONTFORT/MEU	13-11-93	3502.38	3503.31	0.83	0.000237
23	TOUR de RENNES 15 km	29-12-93	15040.48	15042.39	1.91	0.000127
24	Semi-Marathon de LIFFRÉ Modification	31-12-93	5886.54	5885.25	1.29	0.000219
25	Semi des 3 CLOCHERS JANZÉ 21.100 km	03-02-94	1455.75	1455.73	0.02	0.000013
26	Foulées de NOUVOITOU 15 km	24-02-94	4594.46	4593.91	0.55	0.000119
27	Foulées de NOYAL/VILAINE 15 km	31-03-94	10122.74	10125.12	2.38	0.000235
28	10 km de MELESSE	14-04-94	9950.02	9948.43	1.59	0.000159
29	15 km de ST MARC LE BLANC	19-05-94	14755.21	14752.44	2.77	0.000187
30	15 km de CLEUNAY	06-07-94	4978.88	4977.78	1.10	0.000220
31	Foulées de TREMBLAY 15.65610 km	28-07-94	2610.01	2609.35	0.66	0.000252
32	CANCALE-ST MALO 21.100 km	13-09-94	21092.06	21086.21	5.85	0.000277
33	LA GUERCHE-ARGENTRÉ 21.100 km	20-09-94	5648.35	5645.84	2.51	0.000444
34	VITRÉ-ARGENTRÉ 10 km	20-09-94	10005.30	10008.59	3.29	0.000328
35	24 H. de VANNES Circuit fermé Cht FRANCE	11-11-94	1995.32	1993.98	1.34	0.000672
36	THORIGNÉ-FOUILLARD 15 km	29-12-94	4939.89	4939.90	0.01	0.000002
37	CLÉDER 100 km Cht FRANCE	14-01-95	58635.35	58644.64	9.29	0.000158
38	MORDELLES 10 km	28-01-95	3339.58	3339.23	0.35	0.000105

Σ | | 517926.49 | 517962.65 |

Pour 38 mesures communes le coefficient de fiabilité moyen est : 0.000213

Jean Marie GRALL (FRA) a étudié la comparaison des 2 mesures réalisées pour 38 épreuves différentes en 3 ans avec Christian DELERUE (FRA).

Les résultats sont assez stupéfiants puisque pour 517 km de routes mesurées la différence globale entre les 2 mesureurs n'est que de 36 mètres ! ... Qui dit mieux ?

Toutes les mesures sont largement inférieures au coefficient de fiabilité de 0.001000 réglementaire (0,1%) . Il est communément admis qu'un coefficient de comparaison inférieur à 0.000800 est satisfaisant . Le travail en équipes de 2 mesureurs permet presque toujours d'atteindre des coefficients inférieurs à 0.000500