

# Measurement News



May 1999

Issue #95



The World Coal Carrying Championships at Gawthorpe, near Wakefield, began 36 years ago with two coalminers arguing about who could run the fastest with a sack of coal on his back. John Hunter won yesterday's event, run over a mile with a 110lb bag, in 4m 27sec

## Fired-up for speed

From Mr John Disley

Sir, Mr John Hunter, the winner of the World Coal Carrying Championships (photograph and caption, April 6) should be immediately signed up for the British Olympic team. His time of 4 minutes 27 seconds for the mile is astounding. It would mean that if he started at the front of next week's London Marathon he would be 200 metres ahead of the field at the mile post, with his 110lb bag of coal.

Of course, it could be that the Yorkshire timekeepers used a cuckoo-clock or that the course was measured by a car's mileometer, both notoriously inaccurate.

Yours faithfully,  
JOHN DISLEY  
(Director),  
The London Marathon Limited,  
PO Box 1234, London SE1 8RZ,  
April 6.

The above photo appeared in *The Times* of London on April 6, 1999.

**THE  TIMES**

The letter to the left appeared in *The Times* on April 8, 1999.

No coal carriers were observed among the lead group during the London Marathon on April 18.

**MEASUREMENT NEWS**  
**#95 - May 1999**

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**1998 MEASUREMENT ACTIVITY**

This summary is based on the course list as it existed on February 27, 1999. It was assumed that all of the 1998 courses had been received, and indeed few have been received since then. Here is how we did last year:

Most active certifier: Tom McBrayer - 143 courses certified (115 in 1997)

Most active measurer: Tie - Glen Lafarlette and Ken Ashby, with 36 each. Lafarlette had 43 courses last year and Ashby had 12.

Most active state: Texas, with 136 courses certified (111 in 1997)

Measurers active in 1998: 297 (311 in 1997)

State with most active measurers: Texas, with 17 (20 in 1997)

Courses certified in 1998: 1158 (1212 last year)

33 people measured 10 or more courses last year, accounting for 52 percent of the courses certified.

**STATUS OF CERTIFIED COURSES**

Active courses (including renewed courses)	10068
Courses renewed after 10 year expiration	138
Total courses	17693
Non-map (these courses were certified in the early 1980's without maps on file. They are considered unrenewable)	539

**A WORKING CERTIFICATION SYSTEM**

In this issue you will see a description of how our certification system works. Ours is certainly not the only certification system in the world, but I believe it to be the best in terms of efficiency and service to the sport. It is published in the hope that those measurers who live in places that are not served by an effective system may make an effort to create their own system. It's not easy to do, but with the right sort of people it can be done.

It's certain that there are other ways to do the job, but I know of none in existence that presently works as well as ours. I am proud of our system and those measurers and certifiers who have worked so hard to make it what it is.

*Pete*

## JONES/OERTH COUNTER PRICE INCREASE

Time has come when I must have a \$5.00 increase in the cost of the counters. My cost keep increasing, and as a matter of fact most of the profit from the counters I pass on to my son, Karl.

The new price should go into effect on June 1, 1999.

Five Digit Counter:	Domestic:	\$65.00	Foreign:	\$75.00
Six Digit Counter:	Domestic:	\$75.00	Foreign:	\$85.00

Postage must be added to all foreign orders. There is never a handling charge.

I do take credit card orders for Visa, MasterCard, and American Express.

The counters are actually individually assembled by hand which we found is the only way to guarantee there will be no binding. They are fitted and very carefully cemented; but even so about 15% have to be pulled apart and reworked.

If the counters are given proper care they should hold up for decades. Mainly they should not be subjected to excessive vibration or fast riding; more than 10mph. The first condition may be difficult to avoid at times. The second is within everyone's capability.

Sincerely,

Paul Oerth

### **Commentary**

I was never aware of the 10 MPH "speed limit" on counters. I have one of the old wired on models, and have ridden it for long periods at much higher speeds 20-30 MPH, as a result of leaving it on the wheel when I've ridden to a course, or simply measured in a hurried fashion. After 10 years I have had no problems (knock wood). Are the glued-on models more speed sensitive, or have I just been (dumb) lucky?

Jim Gerweck

I have also ridden in excess of 10 mph, but doubt I ever exceeded 25 mph, even while coasting down a long hill. I never broke a counter that way. According to the Veeder-Root catalog, the counters have an RPM limit which will be exceeded when riding above a certain speed, one that's pretty slow, as I recall. But the proof's in the pudding, and I've been getting good service out of my Jones/Oerth counter (and its predecessor, the Jones counter) without thinking about what speed I am riding.

Pete Riegel

## 1998 CERTIFICATION STATISTICS

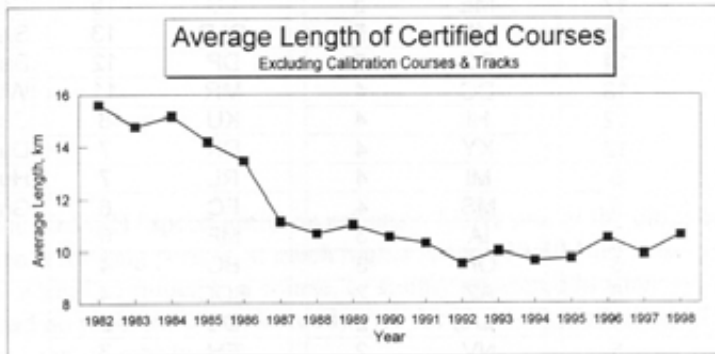
Courses Certified in State in 1998	Active Measurers in State in 1998	Courses Certified by Certifiers in 1998	Measurers with 10 or More ***
TX 136	TX 17	ETM 143	Ashby 36
IL 83	CA 16	JW 80	Lafarlette 36
CA 75	FL 14	BG 71	Hinde 35
FL 54	NY 13	PR 59	Nicoll 28
KS 49	IL 12	DL 53	Beach 25
OH 48	NC 12	RS 52	Thurston 24
NC 44	TN 11	WN 49	Recker 21
NY 44	OR 10	GAN 48	Hess 20
NJ 41	VA 10	RH 48	Scardera 20
OK 39	AR 9	PH 41	Joline 19
TN 38	GA 9	BB 39	Nelson 19
MA 35	IN 9	RT 39	Newman 19
NH 33	MA 9	RN 38	Knight 18
AL 31	MO 9	AM 36	McBrayer 18
PA 28	OH 9	JS 30	Witkowski 18
MN 26	WI 9	WB 27	Rhodes 17
VA 26	KS 8	BS 26	Riegel 17
CT 24	NH 8	RR 26	Knoedel 16
MI 24	AL 7	JD 25	White 16
MO 23	CO 7	DR 24	Connolly 15
SC 23	PA 7	MW 21	Ferguson 15
DC 21	CT 6	WG 21	Melanson 15
IN 21	MD 6	SH 20	Ensz 14
WI 21	NJ 6	TK 18	Polansky 14
MD 19	WA 6	WC 17	Richardson 14
GA 17	ME 5	LB 15	Gerweck 13
WA 15	MN 5	DLP 13	Sissala 13
OR 14	SC 5	DP 12	Belleville 12
AR 13	DC 4	MR 11	Wight 12
CO 12	HI 4	KU 8	Courtney 11
ME 12	KY 4	DK 7	Dausman 11
DE 8	MI 4	RL 7	Hubbard 11
IA 8	MS 4	FC 6	Grass 10
LA 7	IA 3	MF 6	
AZ 6	OK 3	BC 4	Total 602
KY 6	AZ 2	BDC 4	
HI 5	LA 2	DB 3	
MS 5	NV 2	FH 3	
RI 5	UT 2	TD 3	
NV 4	WV 2	DS 2	
NE 3	DE 1	GT 2	
UT 3	MT 1	EM 1	
WV 3	NE 1		
MT 2	NM 1		
NM 2	RI 1		
SD 1	SD 1		
VT 1	VT 1		
AK 0			
ID 0			
ND 0			
WY 0			
<b>Total 1158</b>	<b>Total 297</b>	<b>Total 1158</b>	

\*\*\* This column groups all measurers with the same surname. There are two Thurstons, Bob and Doug. Doug measured 3 courses last year, leaving Bob with 21. There are also Doug and Danny White. Because both names begin with "D," machine sorting is not possible, and examination of individual certificates was not done in creating this chart.

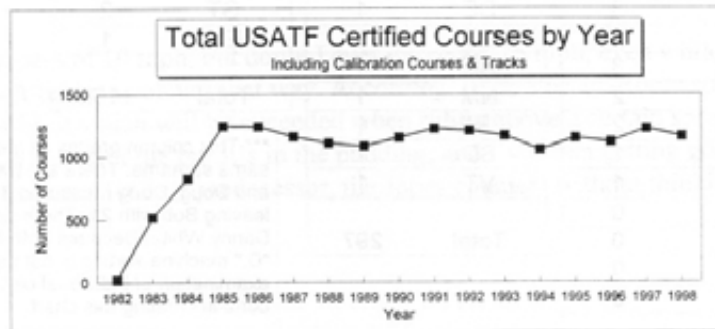
LENGTHS OF CERTIFIED COURSES

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
5 km	1	59	89	187	275	327	350	344	435	480	475	516	489	516	516	592	550	6201
10 km	8	199	308	401	373	338	317	304	247	259	241	223	176	191	188	202	192	4167
8 km	1	43	99	136	102	89	76	73	75	68	65	51	62	71	55	40	46	1152
Marathon	1	49	61	83	59	55	58	54	50	48	50	46	37	61	57	54	65	886
5 miles	2	32	49	90	68	92	70	66	58	64	62	40	34	45	33	41	31	877
Calibration	0	0	3	21	9	9	21	54	62	84	81	65	67	62	63	79	58	738
Half Marathon	0	20	34	61	54	46	37	28	43	33	38	42	40	40	40	44	52	652
15 km	1	28	29	41	45	23	20	18	24	13	17	16	18	19	11	13	14	350
1 mile	0	9	8	23	18	38	17	13	23	21	34	24	24	27	20	20	25	344
10 miles	0	13	18	24	35	16	21	17	22	16	16	15	16	20	19	19	15	302
4 miles	1	4	13	10	18	13	14	17	12	19	18	23	11	25	25	24	17	264
2 miles	0	4	7	25	14	20	19	11	15	13	24	16	10	9	13	9	16	225
20 km	0	7	20	22	24	16	5	8	8	11	11	10	9	6	9	4	8	178
12 km	0	3	10	8	16	10	7	11	4	8	12	1	10	6	12	12	6	136
30 km	1	6	10	9	15	7	4	4	3	11	2	2	4	3	3	4	2	90
25 km	0	6	9	13	14	6	6	5	4	8	2	3	2	4	2	3	3	90
50 km	0	7	9	9	13	5	2	4	1	4	1	4	4	2	6	5	4	80
50 miles	1	2	7	11	7	6	2	7	6	2	3	6	3	2	5	3	3	76
Track	1	3	4	8	3	1	3	6	6	9	4	2	1	2	3	5	2	63
2.5 km	0	1	1	2	7	4	10	7	6	6	4	5	4	1	2	0	0	60
3 miles	0	5	4	4	2	2	2	6	5	4	5	2	2	3	4	4	5	59
3 km	0	2	1	6	3	3	5	1	2	8	5	3	3	2	5	2	5	56
2 km	0	1	0	2	4	5	2	0	2	4	4	8	3	6	3	5	6	55
100 km	0	4	6	4	13	3	3	3	1	1	3	2	1	2	4	2	55	
3.5 miles	0	0	0	0	6	3	2	5	6	3	1	8	3	3	0	8	1	49
1 km	0	1	0	2	1	0	1	3	4	5	2	3	4	6	2	2	6	42
8 miles	0	3	0	4	4	3	0	1	3	0	2	1	0	0	1	1	1	24
20 miles	0	0	3	6	3	3	2	0	1	0	0	0	2	0	0	0	1	21
100 miles	0	0	2	6	2	0	0	0	1	0	0	2	1	0	1	0	3	18
1.25 km	0	0	0	0	0	0	1	1	3	1	2	3	0	0	2	2	2	17
4 km	0	0	1	2	1	1	1	0	0	0	1	1	2	1	2	0	0	13
40 km	0	0	3	1	6	0	0	0	1	0	0	0	0	0	0	1	0	12
7 miles	1	0	1	1	1	2	0	1	1	1	1	1	1	0	0	0	0	12
7 km	0	0	2	1	0	1	2	1	1	0	1	0	1	0	0	0	0	10

Year	Average Length, km
1982	15.6
1983	14.8
1984	15.2
1985	14.2
1986	13.4
1987	11.1
1988	10.7
1989	11.0
1990	10.5
1991	10.3
1992	9.5
1993	10.0
1994	9.6
1995	9.7
1996	10.5
1997	9.9
1998	10.6



Year	Number
1982	20
1983	517
1984	829
1985	1243
1986	1237
1987	1158
1988	1106
1989	1082
1990	1149
1991	1221
1992	1204
1993	1165
1994	1053
1995	1147
1996	1115
1997	1219
1998	1158



NUMBER OF CERTIFIED COURSES BY STATE AND YEAR

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
AK	1	0	0	0	1	4	4	5	6	10	10	1	7	2	1	6	0	58
AL	2	14	8	15	12	11	5	24	27	39	25	28	17	20	24	37	31	339
AR	0	4	5	9	4	4	8	8	13	4	5	9	10	5	3	10	13	114
AZ	0	13	14	23	20	20	7	10	10	16	9	6	3	8	12	9	6	186
CA	4	67	103	146	130	93	133	129	88	139	103	87	81	112	76	103	75	1669
CO	0	29	17	15	30	14	20	23	26	35	36	29	29	14	10	11	12	350
CT	0	1	10	17	22	19	21	31	20	19	21	22	20	18	43	24	328	
DC	0	3	23	25	17	9	11	4	9	7	6	16	11	19	17	11	21	209
DE	0	0	12	25	18	18	13	13	23	23	18	10	11	4	11	11	8	218
FL	0	17	21	60	52	71	70	63	72	84	74	56	59	74	54	75	54	956
GA	0	7	20	50	41	28	32	29	30	35	37	30	24	15	31	18	17	444
HI	0	7	6	9	9	9	6	1	3	0	5	0	3	3	0	9	5	75
IA	1	7	5	12	4	16	5	21	11	14	8	11	10	11	13	13	8	170
ID	0	1	1	4	0	1	0	1	1	2	0	0	1	2	0	0	0	14
IL	0	6	17	11	48	52	45	50	68	70	75	72	69	82	79	64	83	891
IN	0	11	23	36	21	17	8	8	15	10	4	16	16	16	12	25	21	259
KS	0	7	6	12	31	14	21	20	24	23	29	30	33	23	40	24	49	386
KY	0	1	9	19	13	7	16	6	15	7	12	7	1	4	4	11	6	138
LA	0	2	2	11	2	0	1	5	5	2	6	6	4	8	9	4	7	74
MA	2	4	4	17	29	22	17	34	36	36	26	37	17	21	19	33	35	389
MD	0	4	8	16	17	28	14	7	17	5	17	14	19	21	19	20	19	245
ME	0	4	3	26	15	6	9	12	11	17	26	17	16	11	7	9	12	201
MI	0	21	27	37	22	36	31	18	33	17	25	40	37	58	37	33	24	496
MN	0	5	11	27	46	32	12	18	25	15	14	7	14	17	20	33	26	322
MO	0	13	14	10	6	8	10	11	4	14	9	7	17	25	9	9	23	189
MS	0	1	3	18	6	0	2	7	2	1	3	5	1	0	6	1	5	61
MT	0	1	8	5	8	1	4	1	3	7	10	0	3	0	0	0	2	54
NC	1	16	41	88	70	72	55	52	61	57	58	34	25	27	42	64	44	807
ND	0	1	3	0	2	1	0	0	1	2	0	0	0	0	0	0	0	10
NE	0	4	22	20	25	17	3	5	0	6	7	7	1	1	5	3	3	129
NH	0	11	11	21	17	16	9	11	12	12	21	34	13	26	28	15	33	290
NJ	2	15	13	20	38	46	51	33	35	39	50	62	56	48	36	66	41	651
NM	0	1	0	3	3	5	3	11	11	15	4	4	4	4	4	8	2	82
NV	0	0	6	4	5	0	4	1	4	2	2	4	1	3	3	2	4	45
NY	3	28	60	57	48	44	41	45	41	65	43	62	76	52	70	79	44	858
OH	1	43	51	46	52	56	64	64	62	60	91	69	52	53	55	32	48	899
OK	0	34	69	72	65	51	54	50	51	74	78	47	56	60	34	50	39	884
OR	0	23	32	32	14	11	11	9	12	13	8	11	8	12	13	6	14	229
PA	1	23	24	28	29	38	57	50	48	34	26	50	26	32	44	41	28	579
RI	0	2	1	4	5	1	2	9	1	5	4	10	6	5	5	10	5	75
SC	0	0	15	32	41	52	37	35	51	25	36	22	29	29	42	27	23	496
SD	0	1	6	6	2	0	0	4	1	1	1	2	0	0	1	2	1	28
TN	0	3	10	13	10	16	19	9	14	26	23	18	15	21	14	15	38	264
TX	0	10	22	37	97	105	93	71	83	70	85	101	98	105	124	111	136	1348
UT	0	0	3	6	6	14	11	6	15	4	10	10	6	7	0	8	3	109
VA	1	12	17	21	23	26	24	19	14	26	15	17	12	31	24	24	26	332
VT	0	0	1	5	3	5	1	4	3	7	8	4	5	1	4	8	1	60
WA	1	25	37	53	34	18	20	28	20	14	18	18	15	17	19	7	15	359
WI	0	7	0	13	22	20	17	4	14	12	5	6	16	11	15	14	21	197
WV	0	8	4	7	2	4	3	3	0	4	3	1	1	4	2	5	3	54
WY	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
Total	20	517	829	1243	1237	1158	1106	1082	1149	1221	1204	1165	1053	1147	1115	1219	1158	17623

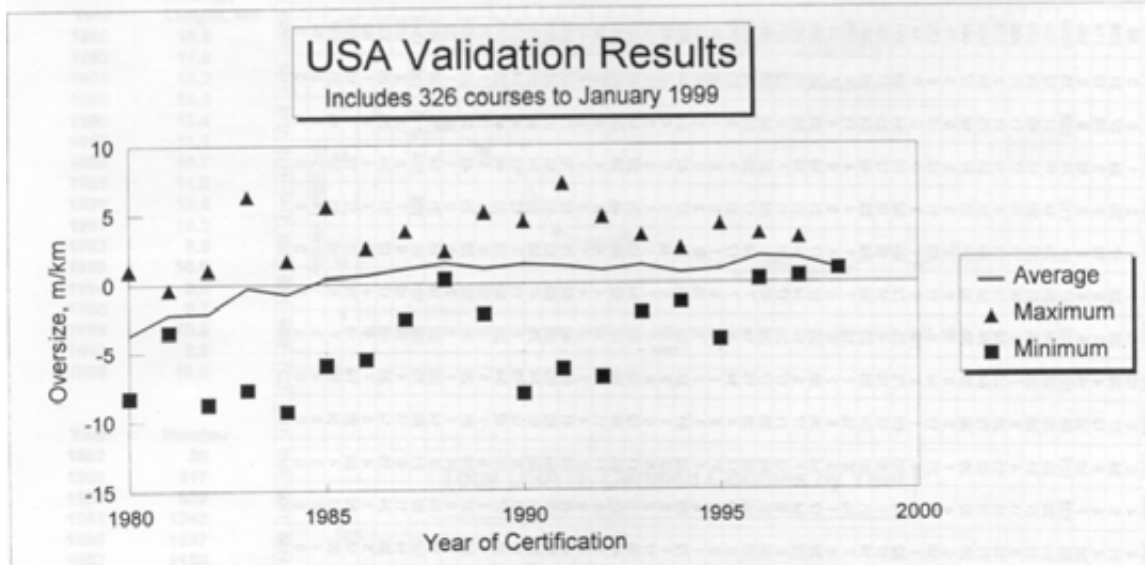
NUMBER OF CERTIFIED COURSES BY CERTIFIER AND YEAR

This listing includes only those certifiers active in 1998

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
AM	0	0	0	0	0	0	0	28	31	50	35	45	41	40	35	54	36	395
BB	0	35	72	81	73	66	60	55	52	74	79	49	56	60	35	52	39	938
BC	0	0	0	0	0	0	1	1	3	2	2	4	1	3	3	2	4	26
BDC	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	9
BG	0	0	0	14	37	22	31	31	28	36	38	37	50	48	49	33	71	525
BS	0	0	0	0	19	43	34	31	51	27	43	27	36	32	41	27	26	437
DB	0	0	0	0	6	50	71	38	39	45	43	41	39	31	26	42	3	474
DK	0	1	10	7	2	2	0	2	0	0	0	0	21	0	21	19	7	92
DL	0	0	0	0	0	23	18	16	41	77	68	51	53	66	53	72	53	591
DLP	0	0	0	0	0	0	4	8	12	4	5	9	10	5	3	9	13	82
DP	0	0	0	0	0	0	10	23	27	35	36	29	29	14	10	11	12	236
DR	0	1	10	15	19	19	19	29	17	19	19	21	20	18	17	42	24	309
DS	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	3	2	11
EM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	3
ETM	0	0	0	10	26	36	64	71	87	71	87	103	101	112	131	115	143	1157
FC	0	0	0	0	0	8	7	20	16	29	9	10	3	9	14	14	6	145
FH	0	0	0	6	6	14	11	6	15	4	10	10	6	7	0	8	3	106
GAN	0	0	0	0	0	0	0	0	0	0	15	31	24	25	16	42	48	201
GT	0	0	0	0	0	0	0	1	1	3	7	10	0	3	0	0	2	27
JD	0	0	0	0	6	11	6	24	25	28	21	16	13	17	20	28	25	240
JS	0	0	0	0	0	0	0	5	14	6	19	15	19	34	22	26	30	190
JW	0	0	0	0	0	0	41	50	67	65	72	69	70	82	79	64	80	739
KU	0	0	0	0	0	0	0	1	5	15	11	14	7	4	7	8	8	80
LB	0	0	0	0	0	0	3	13	15	12	9	11	8	14	13	6	15	119
MF	0	0	0	0	0	0	0	11	7	10	7	8	6	8	10	8	6	81
MR	0	0	0	0	1	19	20	25	18	16	17	18	15	16	19	7	11	202
MW	0	0	0	0	0	0	10	21	23	15	7	18	16	25	19	19	21	194
PH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	65	41	148
PR	1	66	110	154	143	97	85	58	66	62	112	75	51	52	62	52	59	1305
RH	0	0	0	0	0	0	0	0	4	14	10	33	22	26	25	25	48	207
RL	4	48	37	61	6	0	0	0	0	0	0	0	0	0	7	16	7	186
RN	0	0	0	0	0	0	0	0	0	0	5	36	18	22	21	39	38	179
RR	0	2	9	27	46	34	12	18	25	16	14	7	14	18	20	32	26	320
RS	0	2	24	48	51	55	76	68	52	83	61	43	38	60	43	61	52	817
RT	0	9	41	66	55	61	51	23	22	31	22	30	23	42	39	34	39	588
SH	0	0	0	0	22	36	31	18	33	17	25	39	32	58	37	33	20	401
TD	1	24	36	52	33	0	0	0	0	0	0	0	0	0	0	0	3	149
TK	0	11	33	32	43	37	29	8	7	19	11	13	9	15	11	20	18	316
WB	0	0	0	0	0	0	0	0	0	0	0	0	0	12	39	41	27	119
WC	0	0	0	0	0	0	0	0	0	0	4	27	21	15	25	18	17	127
WG	0	0	0	0	42	70	20	4	14	12	5	6	16	10	15	14	21	249
WN	0	4	32	123	124	112	106	117	138	148	139	93	81	75	67	36	49	1444

## USA HISTORICAL VALIDATION RESULTS

Year Certified	Average Oversize	Maximum Oversize	Minimum Oversize	Number Validated
1980	-3.75	1.00	-8.25	4
1981	-2.19	-0.40	-3.51	6
1982	-2.12	1.00	-8.75	17
1983	-0.25	6.33	-7.70	24
1984	-0.73	1.68	-9.25	31
1985	0.39	5.58	-5.93	34
1986	0.59	2.55	-5.56	34
1987	1.03	3.78	-2.62	19
1988	1.45	2.32	0.31	15
1989	1.06	5.12	-2.26	18
1990	1.35	4.47	-8.06	28
1991	1.22	7.21	-6.25	16
1992	0.90	4.80	-6.89	17
1993	1.27	3.44	-2.16	16
1994	0.72	2.50	-1.41	17
1995	0.95	4.22	-4.16	12
1996	1.91	3.54	0.27	7
1997	1.75	3.22	0.45	9
1998	0.95	0.95	0.95	1





## HOW THE US CERTIFICATION SYSTEM WORKS

This article was written while I was preparing to go to Vancouver to give a course measurement seminar. I discovered that several students were curious about how an effective certification system could be developed, and this is my attempt to describe how the US system works. I believe our system to be the best one I have seen, although there are others, notably in Great Britain and France, which also function well, but use different basic principles.

\*\*\*\*\*

Measurement of road courses in the United States is overseen by the Road Running Technical Council (RRTC) of USA Track & Field (USATF). The official function of RRTC is to support the activities of the Road Running Information Center (RRIC), which keeps USATF records for road running. Records must be set on courses certified before the race. Record performances will have the race timing information checked by RRIC, and also may have the course checked as well. The check of the course is called a validation measurement. If the course is short of the nominal distance, the record is disallowed.

In the US we have a standard measurement book - *Course Measurement Procedures*. With blank forms (for copying) and supporting instructive text, the book tells measurers exactly what they need to do to get a course certified. Validation experience indicates that an inexperienced measurer, using the book alone as a guide, will produce an acceptable course 85 percent of the time. With experience, the success rate exceeds 95 percent. Standard format is important, as the certifiers all receive data in a uniform format, which facilitates checking of the work.

The US has a single "certifier" for each of its states. The certifier's job is to receive measurement information from measurers, and check it. If something isn't right, the certifier tells the measurer what to do to correct it. If everything is OK, the certifier creates a certificate and makes multiple copies, each with the course map on the back. One copy remains in the certifier's files. Two copies of the certificate are sent back to the measurer. It is the measurer's job to see that the race director receives his/her copy. Two more copies are mailed to the certifier's Vice-Chairman, of which there are two, one for each side of the Mississippi River. The Vice Chairmen oversee the activities of their certifiers, collect courses as they are sent, file one copy, and send the other copiers in batches to the Registrar of Courses. The Registrar enters the course data into a list, and files the courses.

The RRTC Chairman oversees the entire system, and also publishes *Measurement News* (MN). The importance of continuing communication cannot be overemphasized. *Measurement News*, published bimonthly, has provided a valuable forum in which many new ideas and techniques have been explored. It is the glue that holds the US certification system together. It's rather like a small-town newspaper. Its editorial policy is to give as much credit as possible whenever possible. Recipients of MN are encouraged to send in articles and comments. Each issue will usually include developing strings of commentary on the items being discussed. Each issue also includes a "map of the month" showing an example of a competently drawn map. Stories of recent measurements are also published. Lists of newly certified courses are published. Each May issue includes a statistical summary of the previous year, indicating which certifiers have been most active, who has been measuring the most, and activity in the various states.

The system is designed to be self-sufficient in terms of funding, with operating costs paid for by those who receive service. Each certifier may charge a reviewing fee, not to exceed \$25.00. This is paid by the person who applies for certification. This money covers the out-of-pocket costs of the certifiers, and

allows them to fund a trip to the annual USATF convention, if they wish. Out of this \$25.00, \$2.00 is sent to the course registrar for each course certified. This pays for computers, printers, scanners, copiers and other items of office equipment, which are not funded by USATF.

Since 1982, over 17000 courses have been certified in the US (1100 to 1200 new courses each year is the norm), and each is on file, complete with course map. These certificates are available to anyone who asks, for whatever reason, for a fee of \$2.00. This activity is important, as what is the purpose of filling file cabinets with documents which will never be read? We want people to use the system.

The computer has played a large part in our ability to do an effective job of certification. In the early days, typewriter and carbon paper was all that was available, and it was impossible to do the job being done today. Now we have a smooth-running and effective system.

It's important to note that the measurers themselves created our system, not the federation. It was only after a working system was in place that the USATF put us under its wing. It has provided a much-needed legitimacy to what we do, and its financial contribution has also helped greatly. But the rock on which we stand is a passion for the measuring work itself, and pride in a job well done.

What makes me think the US system is so good, anyway?

- We serve the running community in a timely manner
- We have an enormous output of new courses each year
- We check, through validations, the quality of what we do
- We develop about 50 new measurers each year
- Our course lists, certificates and course maps are open for anybody to use

**How to begin?** I believe the first step needed is for someone, a self-motivated leader, to amass information concerning anyone who has ever measured a course, and begin a dialogue. Those measurers who respond may lead to the locations of other measurers. When enough measurers have been acquired, organizational thinking may begin.

If possible, obtain the approval of the federation. If this is impossible, invent an impressive name for the measurement organization, even if there are only two or three people involved.

It's important not to be too bossy in the organization, and recognize that different people will bring different talents to the table. Good ideas must prevail over politics. A degree of flexibility must be allowed, and the introduction of new ideas. That's the only way to improve things. With so few people working together a bureaucracy is only extra friction. Division of labor will become apparent with experience. Keep things simple.

Don't get bogged down in over-organization. With few people active in the process, it's generally easier and more efficient to do things by consensus. I've seen clubs with fewer than 40 members spend too much time organizing committees, subcommittees and rules, which uses time that could otherwise be spent on productive activity. Also, reward work. Workers are more important to an organization than critics. Those who work should have more to say about how things are done than those who don't work. Nothing can be more deadening than to be overseen by a guy in a blazer who struts his office and does little or nothing.

In my own case, nobody asked me to begin publishing MN. I just thought it was a good idea. It helped me learn. In retrospect, I think it is the principal reason I occupy the top position in the US measurement community and hold the IAAF position as well. I expect to continue to hold these positions until someone

else wants to do the work I am doing, can do it as well or better, or I decide I've had enough.

Once a degree of mutual confidence has been acquired, selection of certifiers can begin. At first a certifier may have to cover a lot of territory, until he identifies people who he believes are capable of doing the job. Then he may recommend that new certifiers be created. In the US, we have found that a single certifier can easily handle all the work within a given state.

How the above is done will depend, to a large degree, on the character and inclinations of the leader. He must be willing to work hard, and to support the certifiers. It's also important that paperwork be processed in a timely manner. People who submit data are always in a great sweat to have it processed. I believe anything beyond a week to be unacceptable, unless vacation time intrudes.

Money also comes into the picture. Some believe that everyone should be a pure volunteer. I disagree. I've seen too many volunteer organizations be a day late and a dollar short. In general, it is no burden on anyone to pay nominal fees for service. This also eliminates anyone using the lame excuse that someone should be patient because "I'm a volunteer." A reasonable fee structure can help create a viable system that needs no outside subsidy, and works in an efficient and timely manner.

The role of the federation should be one of noninterfering support for the effort. Some funding will perhaps be needed if the officers of the measurement organization are to meet.

The issue of measurer "credentials" has not arisen in the US. This is purely an IAAF/AIMS issue. In the US the only credential needed is a desire to measure. One need not even be a member of the federation. Of course, we do have the validation process to keep things honest. It has been a valuable tool in helping us to understand how well our system works.

US certifiers are experienced measurers, and they are allowed to sign off on their own courses, thus certifying themselves with no further review. This carries a vague odor of organizational incest, but once confidence is established, further review is a waste of time.

The self-selection process (measure because you are personally moved to do so) has resulted in new measurers popping up with frequency, and most go on to become experienced. A measurer's greatest credential is his experience. Also, those who participate in the dialogue of *Measurement News* inevitably become better-known than those who do not.

The 1996 Olympic Marathon was laid out by a noncertifier without great experience. However, the work was checked in a giant measurement party in which 27 measurers participated, from six countries. In general, most of the "important" races are measured by certifiers, but not because they are forced to. It's just that the more experience one acquires, the greater one's reputation.

So, what's needed is, briefly:

- 1) A person willing and able to step in and start things up.
- 2) Frequent communication and dissemination of information
- 3) A standard set of forms and instructional materials
- 4) People willing to do the work in a timely and accurate manner.



**B-URRRY SCURRY 10K**  
Clinton, Ia

1/22/99

USATAF CERTIFICATION  
IA 99001 KU



MAP OF THE MONTH  
by Karl Ungurean



**NOTES:**

Course was measured using SFR. Runners may use entire road, except where shown on map. Cones will be placed in center of road on S Bluff Blvd about 500' before traffic island by College Ave and will extend to first sharp right turn after College Ave. Also, Harts Mill Rd will be coned in center of street from Windsor Dr to turn around and runners must use the south side of street.  
Measured on 10/04/98 & 10/20/98 by Karl Ungurean & Kentley Loewenstein. MAP IS NOT TO SCALE.  
Used Calibration Course #1A94001 KU.

**SPLIT MARKERS:**

- Start:** On Lincoln Blvd - NE entrance to the Max Lynn parking lot, 6'-10" SW from the 1<sup>st</sup> expansion joint SW from the parking lot entrance, or 2'-10" from "no parking any time" sign.
- 1 KM:** On 7<sup>th</sup> Ave S - 2' N from "left lane must turn left" sign on east side of street & N of Douglas Ct.
- 1 MILE:** On S Bluff Blvd - 15' E from traffic light at intersection with S 14<sup>th</sup> St, on N side of street.
- 2 MILE:** On Harts Mill Rd - 14'-6" from east end of bridge (Mill Creek)
- 3 MILE:** On Harts Mill Rd - 81' W from 4<sup>th</sup> utility pole E from 30<sup>th</sup> St.
- T.A.:** On Harts Mill Rd - 43'-10" E from 2<sup>nd</sup> utility pole E from 30<sup>th</sup> St.
- 4 MILE:** On Harts Mill Rd - 8' E from 3<sup>rd</sup> utility pole E from 30<sup>th</sup> St.
- 5 MILE:** On Harts Mill Rd - 21'-8" N from mail box #2200, W from 22<sup>nd</sup> St S.
- 6 MILE:** On S Bluff Blvd - 56' NE from mail box #1460.
- FINISH:** On Lincoln Blvd - 17'-8" SW from SW side of storm sewer near S 10<sup>th</sup> St.

**Subj: Olympic Marathon measurements**

Date: 3/11/99 5:13:41 PM Eastern Standard Time  
From: cundysm@ozemail.com.au (Dave Cundy & Fran Seton)  
To: MNForum@aol.com (MNForum)  
CC: Riegelpete@aol.com (Pete Riegel), jrswoods@iswt.com

It's time for an update on measurement arrangements for the Olympic marathon and race walks courses. We have undertaken preliminary measurements of both courses but cannot get too excited yet about detailed measurements because some roads are under construction or to be modified.

The Olympic Stadium was unofficially opened last weekend with 104000 people turning up to a rugby league match. Yesterday I was able to get onto the track, which was laid just prior to Christmas, and measure backwards from the finish line and out through the tunnel. It was again a rough measurement with any number of obstacles in the way but, at least, it was the first time I could get through the tunnel.

The walks course will start and finish in the Stadium. The principal part of the course will be a 2000 metre T-shaped circuit outside the Stadium. I have now measured the 2000 metre circuit twice but, again, very roughly because it is still a construction site. But I know we have enough space to fit in a good 2000 metre loop which will be used for the 20km and 50km walks. Women will walk 20km in Sydney; there is no longer a 10km on the program. I have been unable to measure the connecting bit between the Stadium tunnel and the 2000 metre circuit because it is very much under construction.

I was also able to measure backwards from the finish line and get a rough measurement back to the 40km mark of the marathon. I anticipate that sometime in the next 6-8 weeks I will do a good measure (with police assistance) backwards from the finish line to roughly the 33km mark. At that point a new road is being constructed. A portion of road around the 9k and 14k marks is to be rebuilt but we have already measured (with Jack Grosko) across these sections and got rough measurements. The next stage will be to measure for a second time from the start line (which has been slightly relocated since Jack was here last year) to roughly the 31k mark. The missing link will not be completed until next year.

Of course, I'm hoping all the route is finished in time to do a full measurement on 100% of the Olympic course prior to the SOCOG test event on 30 April 2000. I anticipate a final pre-test event measurement as late as early April 2000.

All should then be set for a formal measurement exercise sometime between May and August 2000. It is very much on my agenda but, of course, in something as large as the Olympics we need approval from many people. As a starting point, the police need to agree to a limit of bicycles on the course.

Both the walks and marathon courses still require IAAF approval.

Dave Cundy  
Road Events Manager, Athletics - SOCOG  
IAAF course measurement area coordinator for Asia & Oceania

## COMPAQ BALMORAL INTERNATIONAL ROAD RACES

### LOCATION OF DISTANCE MARKERS

#### PREAMBLE

This is the second year of this event. The measurement exercise for this event last year was undertaken by me before last years race.

As set out in the notes attached to my measurement report last year there was significant difficulty attached to the permanent marking of the interval points due to the fact that, on the roads within the Royal Estate, there are virtually no useful reference points with which to identify the locations as is the normal convention.

This was compounded by the fact that the estate managers were reluctant to allow us to place relatively permanent markers in position. The interval points were therefore marked by means of road marking spray which was clearly visible on the day of last years events.

However, after last years event, they agreed to allow us to place more permanent markers in the appropriate positions for this years race; but, as the sprayed marks from last years event are now somewhat faded, it was considered wise to undertake another measurement exercise in order to be certain of the interval points.

There was therefore significant curiosity on my part as to how my work this year would compare to last years given that the routes for the 4 km and 5 miles races were unchanged with same start and finish points. (The 10 km race is a new event this year on a different day. It is a "mass" run whereas the others are by invitation only. The route for this new event takes in one large lap outside the estate grounds although it starts and finishes in the estate and in fact shares the same finish gantry which is used for all the events). Also, I now have a different bike which produces completely different calibration figures to my old one!

I am pleased to report therefore that my measurements for both the 4 km and 5 miles races were both within 2 metres of last years measurements with all interval points even closer. It was interesting to note that at some points my new mark was a few inches past last years mark whilst in other instances they were inches before. I put these variations - and the marginal overall differences - down to differences in the riding line between the two measurement exercises 12 months apart.

#### MEANS OF MARKING THE INTERVAL POINTS

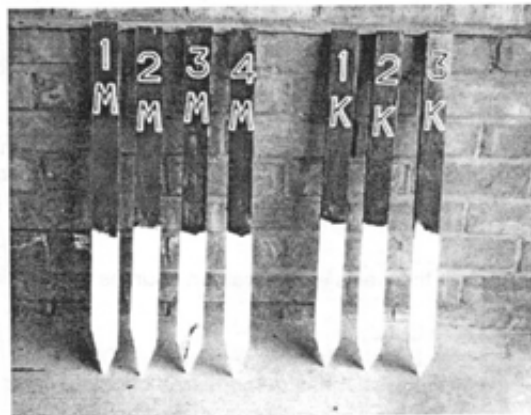
Given the extremely approximate nature of any written description of the interval points, although I did offer some last year, I do not feel it helpful to do so again.

Instead, I attach as part of this report, photographs of the painted wooden stakes used to mark both the 4 km and 5 miles races and showing one of the markers in position. These markers are all now in position on the routes and can be checked upon quite easily. I also attach the usual maps of the start and finish points for all of the races.

M. Coleby 1st April 1999



The 3 kilometre marker in position after installation. Hammer is held by Max Coleby, who accompanied Lennart Julin on his measurement, then ran behind Ingrid Kristiansen in her world record run at London in 1985 thus verifying the correctness of the course.



Examples of the interval marker stakes. In this instance for the 5 miles and 4 kilometre races inside the royal estate.



## PI DOES NOT LIE

I was contacted by the race director of the Johnny Appleseed Marathon to do a course measurement. I asked Mike Wickiser to help out, and we rode the course together. To the left you will see a short portion of the course. Winding northeast from Butler, Ohio, the course follows a winding rural highway. As traffic was infrequent but fast, I was concerned about safety. Below you will see some of the options I could have used, and the one I chose.

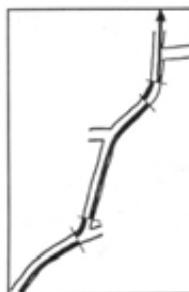
### OPTION 3 - THE ONE I USED



I decided that Mike and I would ride legally all the way, on the right-hand side, and make a geometric correction for each left-hand bend. The road was 5 meters wide between the right-hand and left-hand runner's paths, about 30 cm (one foot) from the edges. Careful measurement of a USGS topographic map, using a protractor, yielded the degree of curvature for each of the left-hand bends. Note that we did not have to correct for the right-hand bends, as we were already measuring where we were supposed to be.

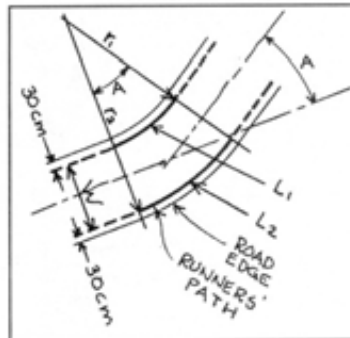


**OPTION 1** - The first option was to ride the course using the whole road. As I considered this even more suicidal than usual, I rejected this option.



**OPTION 2** - It was possible to use an offset maneuver before each left-hand bend. Lock the wheel, move to the left, measure around the curve on the left-hand side, lock the wheel, move to the right, and resume measuring. I rejected this option because the bends were long and sweeping, and it would have kept us riding in the face of oncoming traffic that could not see us.

The title, *Pi does not Lie* was originally the title of a short article by Ben Buckner, surveying professor and my early mentor.



$$L_1 = 2\pi r_1(A/360)$$

$$L_2 = 2\pi r_2(A/360)$$

$$L_2 - L_1 = 2\pi(A/360)(r_2 - r_1)$$

$$\text{but } r_2 - r_1 = W$$

Therefore,

$$L_2 - L_1 = 2\pi WA/360$$

Note: In the above,  
 $L_1$  is the length of the measured path on the inside of the curve  
 $L_2$  is the length of the measured path on the outside of the curve.  
 $r_1$  is the radius to  $L_1$ ,  $r_2$  is the radius to  $L_2$ .  
 $A$  is the angle (degrees) between straight sections to either side of the curve.  
 $W$  is the road width between  $L_1$  and  $L_2$ .

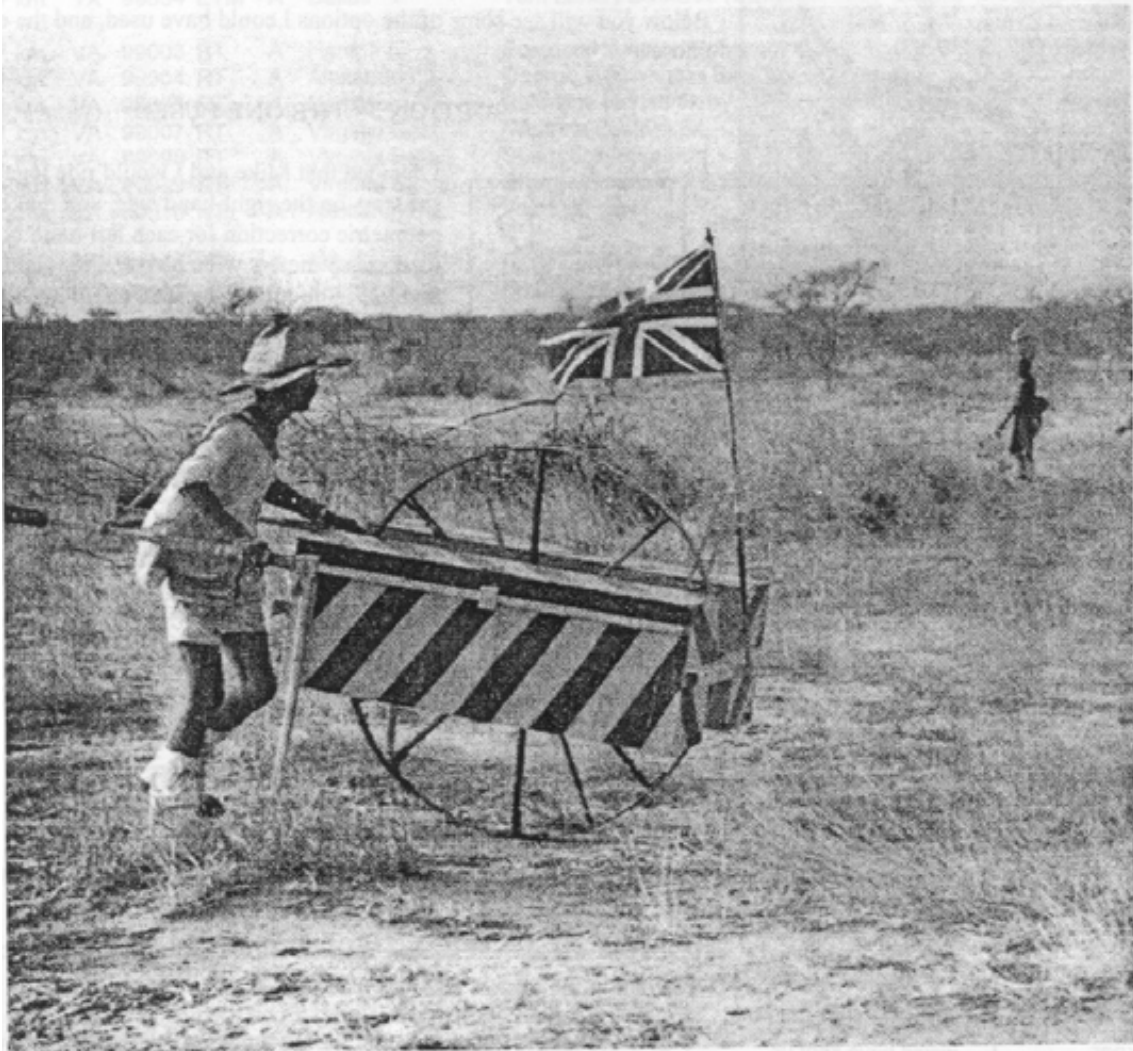
$W$  and  $L$  must be expressed in the same units (feet or meters)

For the section of road used in the example, the 49 degree curve is shorter than what we measured by  $2 \times 3.14 \times 5 \times 49 / 360 = 4.3$  meters. Similarly, the 38 degree curve is shorter by 3.3 meters. Therefore the entire measured length of the segment was reduced by 7.6 meters.

This works fine when no split layout is involved, and only an accurate overall length is needed. When splits need to be laid down, it will quickly drive you crazy.

*Fate* 19

## PUZZLE OF THE MONTH



After reading the recent MNForum discussions of using measuring wheels for off-road measurements, Roger Gibbons send the Editor this photo. Readers are invited to send an explanation of what this man is doing.



## TIDBITS FROM MNFORUM

MNF #0227 27Feb99

### TAPE ON THE WHEEL

Jim Gerweck's story about the local character who put tape on the wheel and was going to mentally count revolutions caused a mental recall. I was asked to validate the course of the Mardi Gras Ultramarathon, a 100 km out-back race held on the levee of the Mississippi River, in New Orleans.

I made my reservations and packed my things. I had to change planes in Atlanta. While in Atlanta, waiting for my connecting flight, I had an uneasy feeling and rummaged through my carry-on baggage. Sure enough, I had forgotten to bring a Jones Counter. I was desperate, and could not figure out what to do. Was the whole trip in the toilet? I figured at the worst I could put some tape on the front wheel and count revolutions, but for 50 km? Be serious. By great good luck, Chuck George of New Orleans had a Jones counter. He was directing a race on measurement day, but I was able to borrow his counter (the only one in New Orleans at the time) in time to get the job done.

The course passed and I returned home chagrined and greatly relieved.

Pete Riegel  
riegelpete@aol.com

MNF #0233 08Mar99

### SHORT SKS

On 4/29/98 12:48 PM Damon Lease wrote:  
Years later, I finally broke 18:00 for 5K, only to find out that the course was 20 meters short. Since I ran 17:59, there is no way I can claim to have broken 18:00 legitimately. I even suspect that my 18:03 was on a short course. That pushes my legit PR up to 18:31.

These were obviously not certified courses, or not run on the certified route. As someone who's measured many courses, I can say that non-certified 5K's are notorious for being short. Many of them have lots of turns, and the measurers do not do the tangents. I've remeasured 5K's that have been short 300 yards. One group swore up and down I was wrong after a came up 150 yards over their measured distance. They measured it with a wheel, twice, right down the center line of the road, there was no way they were wrong. Tangents are a BIG deal. Trust me.

How does measuring tangents work? I always wondered how they measure around turns.

What does this mean in terms of a race, should you take the inside line (I guess of course, as it is always shorter), or do you cheat yourself by doing that?

Geoffrey Carman  
geoffc@yorku.ca

Dear Geoffrey,

How are tangents measured? Visualize the course having stout steel walls 6 feet high set 30 cm (one foot) inside the curbs or legal course boundaries. Tie a steel cable to the start line. String the cable all along the course. At the finish tie it to a bulldozer. Fire up the dozer and pull the cable tight. That's the measured

path. It takes the straightest, shortest path through all s-bends, and skins all corners a foot from the curb or edge.

How much difference does it make? Take a typical roadway, say 10 meters wide. The centerline measurement will lie 5 meters from the corner curb. The tangent measurement will lie 0.3 meters from it. The radial difference is 4.7 meters.

Get out your geometry book. Over a single 90 degree turn the 4.7 meters radial difference will account for 7.4 meters of course length, the centerline measurement being larger. If the course has a lot of turns this will add up. How it could add up to 300 meters shortness in a 5k beats me. That sounds like simply bad measurement on somebody's part.

In terms of racing, run the shortest path you can manage without leaving the roadway, if shortest distance is your goal. It's not cheating. I've found that there is sometimes a good tradeoff between shortest distance and best footing. That's difficult to quantify.

I hope this helps.

Pete Riegel  
riegelpete@aol.com

I can provide a real life example. A local 5K the first year had some incredibly fast times. The race director attributed it to his astute choice of course, which was a reasonably flat and fairly straight out and back dogleg course.

For the first year, he and his friend had measured it straight down the center line with a surveying wheel. Since several runners were close to age group records, he decided to have it certified for the next year.

The course only had three right angle turns, but went out and back on a road that wound back and forth not radically, but significantly. The different between his measurement and mine? 150 meters. Even if we take into account the 5 meter SCPF, that's a significant different. (Not the largest I've found, one course with 18 turns was off by 1/4 mile in 5K).

Let's look at it from a runners standpoint. A runner that didn't cut the tangents when running that course would run at additional 30 seconds at a six minute pace.

Keith Stone  
kstone@interpath.com

### CERTIFICATION NUMBERS

From Pete Riegel:

I have contracted with a race director to measure a marathon course. As soon as the snow is gone, I intend to get on the job. The race director, however, needs to get out his race flyers, and wants the certification number. He sent me the following:

Pete:

Do you know the certification # you will be using for the XXXXXXXXXX Marathon? - Jack

Dear Jack,

I've scolded a lot of certifiers for giving out course numbers before the course is certified. It has caused a lot of administrative hassle when someone sets a record and nobody knows anything about the course.

Sorry, but I won't give out a number until the work is done, and I issue the certificate. As soon as the weather breaks and we have a couple of days in the 50's, I'll be getting on it. Once we're done with the riding, the paperwork will take only a day or two.

I'd really like to help out, but this is a policy on which I won't bend.

Best regards, Pete

#### EXPIRED COURSES

In a message dated 3/8/99 6:24:33 PM Eastern Standard Time, okie@digital.net writes:

Pete - several months ago through e-mail to you, I "10-year renewed" the Hammock 5k course in Sebring Florida, #FL87032BH ...to keep it listed as an "active" course.

Question posed to me by a race director preparing brochures for an upcoming event at this Sebring site: "Does the certification number change with the 10-year renewal?"

I assumed it didn't... the race director was concerned that runners might interpret the "1987" in the certification code as an "outdated" course.

Is there any change/revision to the certification number to signify an "active course"?

Thanks.

Ed Okie

Dear Ed,

There is no change to the course number when it is renewed. The status of a course may be determined by looking at the "status" column in the course list.

"A" = Active.

"D" = Deleted from list by state certifier.

"M" = No map on file, course not in good standing.

"P" = Passed validation.

"F" = Failed validation.

"V" = Passed validation at more than 1 m/km. Considered pre-validated

"X" = Expired - ten years has elapsed since original certification.

"93" = Restored to list after 10 year expiration. The "93" refers to the year the course was renewed.

Aside from not being considered as "currently active" there is no penalty inherent in being "expired." If the course has not changed since its original certification, it remains valid for record-setting and PR's. If it has changed, the course is invalid.

Only a small fraction of courses are ever renewed.

The policy of allowing courses to expire was created in order, it was hoped, to get rid of the deadwood in the course listings. We have over 17,000 courses now listed, with maps on file, covering

1982-1999. I am sure that well over half of these courses are no longer in use, but we have no way of knowing which ones.

I'd love to find a good way to cull the deadwood, but so far we have not come up with one. One way would be to put teeth in expiration, and simply require a remeasurement every ten years. This, however, would place an unneeded burden on some races, simply to make the RRTC paperwork tidier.

Assigning a new number and certificate upon renewal might have some merit, but then we'd have the same course having two numbers. As things stand, each number is a unique identifier of a course.

Another approach would be to abandon the expiration policy entirely. Since it carries no teeth, why have people fill out forms? It's work to no end. Many courses have changed over the years, and each change generates a new certificate. It is usually the case that the most recently certified version of a course is the version which is currently used. We do make mistakes, and maybe the expiration policy was one.

Got any suggestions? I am posting this to MNForum in the hope that others may have something to say.

Best regards, Pete Riegel  
riegelpete@aol.com

This was a topic of some lengthy discussion at the Orlando Convention. My feeling is that if the majority of courses fall into disuse within 10 years, there is no harm in deleting them from the list at that time. Here in New England, courses seem to have a greater "lifespan," some having been run unchanged for more than 3 decades. We are seeing many races celebrate their 20th anniversaries, and many more are at least 10 years old.

As long as the renewal mechanism is in place, I see no potential penalty for races with such longevity. There is a form, the RD and/or course measurer fills it out and sends it to the state certifier, and the course gets another 10 year extension. I just gave one to Rick Favier of the Wolfpit RC for the Ridgefield Half Marathon. Interestingly, state certifier Dave Reik had never seen one of the renewal forms.

The whole process is simple, if there has been no change to the route - if there has, it needs to be remeasured in any case.

It seems fairly cut and dried to me. Just make sure that there is something on the course cert. stating "This is good for 10 years from date of issuance, and may be renewed upon blah-blah-blah."

Jim Gerweck  
ZGerweck@aol.com