

Runner's World

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START

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**Proper Pacing
For The Marathon.**

**Running's
Motivating Forces.**

**Women's
Secret Weapon: Fat.**

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"High-Calorie" Workouts.**

**David Pain--
"Godfather Of Aging Jocks"**

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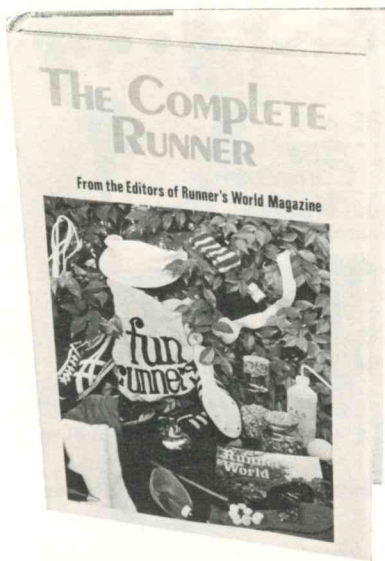
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MAY WE SUGGEST...



Runner's World readers responded enthusiastically to our last catalog, ordering many of the books we'd recommended on other sports and activities. We'd like to recommend the following recent arrivals to everyone who likes good sports reading, for improvement or enjoyment.

RUNNING

1. **THE COMPLETE MIDDLE-DISTANCE RUNNER**, Watts, Wilson, Horwill. Three of England's top track coaches combine to give you the benefit of their years of successful coaching experience. Hardback, 126 pp., ill., \$4.95.

SAILING

2. **THIS IS SAILING**, Richard Creagh-Osborne. This is a different, highly successful approach to the teaching of small boat handling. Hundreds of detailed, full-color drawings combine with expertly-written text to give the reader a unique feel for the sport. Hardback, 222 pp., ill., \$12.95.

SOCCER

3. **FOOTBALL FITNESS**, Bill Watson. One of England's leading trainers presents a complete guide to methods for achieving the strength and flexibility needed for successful soccer play. Useful for general sports fitness too. 132 pp., ill., \$2.50.

BICYCLING

4. **DELONG'S GUIDE TO BICYCLES AND BICYCLING**, Fred DeLong. One of bicycling's most respected authors has written the most complete and authoritative book on bicycling ever published. A great all-around introduction to the bicycle experience. 278 big (8½ x 11) pp., ill., \$12.95.

OUTDOOR ADVENTURE

5. **DRIFTING HOME**, Pierre Berton. One of Canada's most famous outdoor authors gives a fascinating account of his and his family's experiences floating down the mighty Yukon River into the author's own past. A warmly personal adventure story. Just published. 196 pp., ill., \$7.95.

6. **THE COMPLETE GUIDE TO CROSS-COUNTRY SKIING & TOURING**, Art Tokle and Martin Luray. One of the best-selling books on the sport ever published, now available in paperback. Serves as an excellent all-around introductory guide. Paperback, 172 pp., ill. \$2.45.

7. **SURVIVAL WITH STYLE**, Bradford Angier. Exhaustively thorough book on how to survive (even thrive!) in the wilderness. Written with the thought that it is all too often the casual hiker or fisherman who may become lost through the vagaries of nature. 1972 paperback. 320 pp., ill., \$2.45.

8. **HANG GLIDING**, Don Poynter. The most complete book on hang gliding ever published. Should be read by everyone thinking of trying this exhilarating but hazardous sport. Paperback, 198 pp., ill., \$5.95.

9. **THE COMPLETE WALKER**, Colin Fletcher. America's most famous backpacking book has been completely revised and enlarged. This 1974 edition is every bit as valuable and important as its popular predecessor. A "must" for the outdoorsman. 1974 Hardback. 512 pp., ill. \$8.95.

YOGA

10. **ILLUSTRATED YOGA**, William Zorn. A beginner's book, presenting simple, basic yoga postures and routines for relaxation and body harmony. 1971 paperback, 166 pp., ill., \$2.00.

11. **PRACTICAL YOGA**, Prof. Ernest Wood. A deep look into the mental side of yoga meditation and relaxation. Not recommended for those who merely intend to use yoga as an aid to their running programs, but to those interested in learning more of the total effects of yogic activity. 1948 paperback, 244 pp., \$2.00.

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Volume Nine — December, 1974 — Number Twelve



COVER:
Being female, Anita Scandurra enjoys a metabolic advantage over men in long distance races. Dr. Joan Ulliott tells of it in this issue. (Jeff Johnson photo)

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FROM THE PUBLISHER

Do you take color slides? If so, we might be interested in using one of them on an upcoming cover of *Runner's World*, for which you would be paid \$50. We don't use only "world-class" runners on the cover because most of our readers don't fall into this category. So the next time you're out taking photos, don't forget to send your better ones along this way.

A couple of pointers: the slide must be in perfect focus. When you project it upon the wall, if it looks fuzzy then we wouldn't use it. Any high-quality shot will be considered. I will say that I am very picky in what I use, but if you never send anything in you'll never know if it was acceptable or not. Send your slides directly to me.

Joe Henderson covered most of the details about submitting articles in the October issue (the editorial), but you might want to know what we are paying for articles. Currently, we are paying \$25 per published page for the interview. The city series brings \$20. We are paying up to \$40 per page for major features. And the minimum rate is \$10 per published page. By writing to Joe, you may obtain further details.

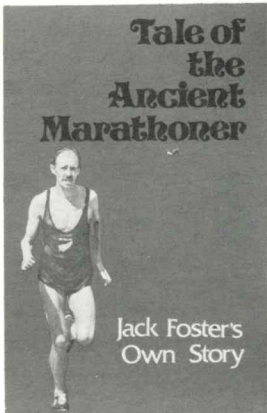
Keep in mind that certainly we can use only top-quality articles. But, as I mentioned with color slides, unless you try you will never know if the article would make it or not. With all material, the more unique the subject matter is, the better chance you have of seeing it published. We get articles every day about "my feelings during a marathon," and we can't use very many of them. An article about what to wear, how to train, diet, racing, etc., might be a better choice.

So let us hear from you. Even an idea for an article will be helpful. *Runner's World* is your magazine and your ideas are very important to us.

Bob Anderson

Did You Know

That Jack Foster, at age 41, ranks as one of the dozen fastest marathoners of all-time? That most running injuries, even those as distant as the knees and hips, originate in the feet?



JACK FOSTER'S OWN STORY

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TALE OF THE ANCIENT MARATHONER

Jack Foster has lived out the dream of every aging athlete. At 32, the New Zealander started running. Like most 32-year-olds, he had an expanding waistline and goals no bigger than reducing it.

He writes, "One day, I had the bright idea that I'd have a run. A half-hour run would be no trouble. What I thought to be many miles later, I arrived back. 'What's wrong, have you forgotten something?' my wife asked. I didn't understand. 'You've only been gone seven minutes,' she said.

"Impossible. I was sure I'd run at least six or seven miles. I was soaked in perspiration and felt tired. I'd thought I wasn't in too bad shape physically. Now I was worried. If I was like this now, how would I be when I was 40?"

At 40, Foster was an Olympic marathoner and a world record holder at 20 miles. At 41, he ran 2:11 for the marathon—a time not a dozen men have ever bettered.

A delightfully low-key individual, Foster tells in *The Tale of the Ancient Marathoner* how he improved so much, so late, mixing accounts of his own career with advice for runners of every age.

Don't miss it! 52 pages. \$1.50.

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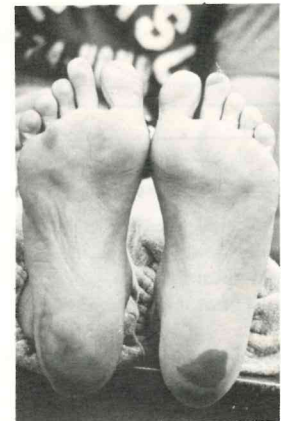
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FITNESS STARTS AT GROUND LEVEL

A person can't say, "I feel great...except for the pain in my feet." When the feet hurt, he hurts all over. The feet link up with every other part of the anatomy. And with athletes the feet are usually the weakest link in the chain—the one that breaks first.

The feet break down when extraordinary stresses are put on them: running in poorly-made, ill-fitting or badly-worn shoes...on hard surfaces...for too many miles, too fast...with poor running technique...with muscles grown tight and out of balance...on legs and feet that heredity has ruled inadequate.

Any one or combination of these factors can cause an injury. And most injuries are linked, directly or indirectly, to how the foot meets the ground. In this fact lies hope. Running injuries coming from this source are predictable and preventable.

Athlete's Feet is written to help runners read and understand their symptoms, and interpret the causes of their serious foot-related problems.

Podiatrists—doctors specializing in foot care—offer valuable tips on self-treating injuries as they happen, and on preventing them from happening again. A special section evaluates the safety features of 30 models of shoes.

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REFLECTIONS ON A "GOLDEN AGE"

I'm from another age and can't completely escape it. I started running in the 1950s. Hardly anyone ran then, and when you met another runner on the streets you almost wanted to hug him. You settled for a wave and a "hi," and felt better knowing you weren't alone.

The other day, I ran past a man and said, "Morning." He looked straight ahead and said nothing. I thought he hadn't heard me. "Good morning!" I said, louder this time.

He snapped his head around and glared at me, still saying nothing but baring his teeth in a snarl worthy of a dog facing an intruder on his property. If he hadn't heard me, fine. If he was too tired to answer or was intentionally ignoring me, fine too. I wasn't that hard up for an answer. But that look! That bothered me.

Running through three different decades hasn't rid me of certain naive notions about runners. I still imagine there's a strange alchemy in running which gives ordinary people saint-like qualities. I forget they're just people who run, with about the same mixture of personalities as non-runners.

I've been accused, with good reason, of "viewing the sport through rose-colored sweat." I'm told I see a runner's world where no one is greedy, no one would run up his buddy's back to win, every runner smiles and waves at other runners he meets on the streets.

It was easy thinking this way when few people ran and little evidence was available that some were less than noble in their actions and intentions. It's harder to think this way now, but I guess I've never quite gotten over it.

As the sport has grown up and I've fallen into positions where I see and hear of runners' failings, I've been disappointed sometimes. Or maybe disillusioned is a better word, because to be disillusioned you first have to be "illusioned." You have to carry around an unreal view of your world, one that breaks down painfully under the weight of facts.

My unreal view started crumbling as the 1970s began. This magazine had a new name and an idealistic new editor who wrote in his first editorial:

"If winning is beautiful, the pursuit of individual excellence is 99 times more so. Barely 1% of the world's runners win major races regularly. All 100% of us, though, can succeed in making ourselves faster, fitter, freer..."

"RW dedicates itself to promoting this unique atmosphere we have going, an atmosphere that allows individuals to pursue the excellence we define for ourselves in the world's most democratic sport."

I wrote that editorial five years ago. In the meantime, distance running in the United States has enjoyed a sort of "Golden Age." It has grown tremendously. Participation is up several-fold. There are 10 times more racing opportunities now than at the end of the 1960s. Women's and age-group running have boomed. The level of technical sophistication among runners has never been higher. They've never had better coaching, equipment, medical care.

I don't think I'm exaggerating when I say that more challenges have come to running in these last five years than in the previous 50. Not all the changes have been good ones. But that's the way it goes in revolutionary times.

Running's Golden Age continues. But not all of the individual runners have kept pace with the sudden changes. Many don't care for impersonal races with thousands of runners. They're bothered when they read of blood-doping and 200-mile training weeks as the price of success, and of athletes expecting to be paid to perform as if they were rock stars.

Runners who haven't kept up with the revolution may put their personal Golden Ages back in earlier, simpler times.

My best memories are of the late 1960s, when road running was starting to grow but races still weren't crowded. Road racing was new to me, and I liked its informality after years of more structured track competition in high school and college.

Most northern California road races in 1967 and '68 had fields of 25-50—the same 25-50 every week. I knew almost everyone who ran. We had a pecking order which helped measure degrees of success or failure.

Injuries kept me away from these races for several years. When I came back they weren't as I remembered. The fields were many times bigger than before, and the people I knew were hidden in the crowds. I rarely go to the big races any more because I like to remember them as they had been...

Or maybe as they never were? Memories work that way. They are old pictures, retouched to blot out the bad and highlight the good. We take pictures through the wide, innocent eyes of a child experiencing this thing for the first time and seeing the promise of better things to come.

"The memory of a supposed Golden Age," says runner Rollin Workman of Cincinnati, "is usually the memory of one's youth, when everything is new and exciting and seemingly filled with possibilities which everyone feels are unlimited. When people realize that the alternatives are limited and that what one is familiar with is no longer new and unformed, the memory of a lost Golden Age begins to appear."

As a runner travels the same path again and again, he sees the holes in it. He was promised youth and feels old. Promised health and got hurt. Promised a simple, cheap sport and got one that's gone slick and professional. Promised that runners are special people and they turn out to be about like everyone else.

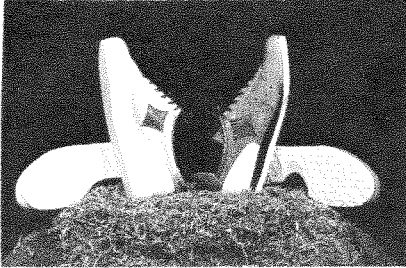
A runner who started in 1970 or earlier might be feeling this way now, with the first half of the decade ending. I suspect that his vague discontent, like mine, has more to do with the length of time he's been in the sport than with running's present state of development.

Someone coming into running today probably feels the same child-like excitement that others of us felt five, 10 or more years ago. Today's newcomer might feel let down in 1979 when running isn't new to him any more and is even more developed than now. He may look back on 1974 as his Golden Age.

That's okay, so long as running isn't thrown away as soon as the glitter wears away to reveal its real foundation. ●

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Training Spins

Dr. Kaj Johansen recently won the National AAU 50-kilometer championship, recording his best marathon of 2:28 en route. His article is reprinted from the San Diego Track Club Newsletter.

Though I am somewhat notorious for high-mileage training (130-140 miles a week), it's quite clear that this sort of "saturation" approach is only one alternative. Since runners the likes of 42-year-old Jack Foster of New Zealand (third-ranked in 1974 among marathoners with 2:11) are gaining great successes with minimal weekly mileage, it is well to consider their training programs to discover whether, in fact, high mileage really is essential.

Foster, for example, trains only 70 miles a week. Phil Camp, who ran 2:20 in last year's AAU championship marathon, is a sporadic trainer who probably averages little more than 50 miles a week. Bill Gookin indulges in a training protocol which is neither regular nor particularly taxing, yet has run well below 2:30.

There are common denominators among these low-mileage, high-performance athletes. One is that they all have better-than-average speed for distance runners. Foster, for example, has run near 29 minutes for 10,000 meters. Camp is a 28-minute six-miler. Gookin, 41, has in recent years run the mile in the 4:20s.

The second point is that, though all are now engaged in low-mileage programs, all have been competitive runners for many years. All, at one time or another, have build up a tremendous reserve of endurance. For most, it has come through years of training and racing (Gookin has been running competitively for 27 years), though Foster probably owes his extraordinary running prowess to a background of bicycling.

All of this supports what I might call the "spinning wheel" theory of physical fitness. The name arises from an analogy pointed out by my rowing coach in college. He wished to demonstrate that, once a racing shell is moving along very rapidly, the oarsmen can keep the boat moving along by rather less than maximal effort on each stroke. And in fact, a maximal effort may well disrupt the smooth course of the boat and slow it down.

It is as though, when you turn a bicycle over and start spinning a wheel with

your finger, you can keep the rapidly spinning wheel going with very little effort if you are careful not to get your fingers caught in the spokes.

Similarly, once one has a backlog of speed and endurance (the two cardinal products of a vigorous training program), one need expend very little extra effort to maintain that level of fitness. Indeed, by being conservative about training, one minimizes fatigue and injuries, and saves maximally for the supreme effort of competition.

It is unclear what the physiologic basis for the "spinning wheel" theory of fitness might be. But the examples of the probably correct nature of the idea are far more numerous than the few names mentioned here. It is yet another argument against the fallacious belief that in order to be good one has to spend many hours a day for years in training. It supports the basic tenet that moderation should be the order of the day.

—From Kaj Johansen, M.D.

Man vs. Computer

The last runner crossed the finish line, but an important race was still going on.

The featured race was the Virginia Tech High School Cross-Country Invitational at Blacksburg. The unannounced event was a race between the common manual scoring system and a computerized scoring program engineered by Tech student Eugene Myers.

Each runner's name, number and school were punched out on separate IBM cards before the race. The two hundred cards were arranged in the same order as the competitors' numbers.

Myers and Helene Young managed all the computer scoring and worked against the "manual group" of five officials.

As the runners completed the 2.3 miles, Myers arranged the cards in the order of finish. Ten minutes after the race, he drove to Tech's computer center and ran his program.

Myers had the complete results 20 minutes after the race had ended. He returned to the course to find the manual group hard at work.

The manual group completed its work in an hour. It could have fin-

ished in 45 minutes, but to err is human. After the group had finished, compiling the results, it discovered errors in the team scores.

While the coaches and runners were reading Myers' printout of the results, the manual group had to begin its team scoring process again.

Computerized results were not only quicker but proved more accurate. The accuracy was double-checked by both sides.

"If we had a computer-linked terminal on the course," said Myers, "the scoring would have been completed as the last man stepped out of the chute."

Myers added, "I believe computerizing the scoring at cross-country meets, particularly large meets, would improve the interest in the sport a great deal." All it takes is a simple program that most first year computer science students could write. The total cost of my entire program for this meet was \$10."

The increasing quality and quantity of United States runners has created a demand for quick scoring by computers. Some day they may even have it in Boston.

—From Ted Neeves

Race Directing

The race director is the guy who gives freely of his spare time to promote and organize events. Since no race could be run and scored without his efforts, we runners should be grateful for his dedication. However, you probably have entered at least one race where the director was a little too dedicated.

Imagine that you are awaiting the start of a 15-mile run. It is five degrees below zero and the wind is howling. The start is already 20 minutes late. Finally, you spot the race director approaching in his heated car. He grins and looks over the large field of starters as they jump around trying to stave off frostbite. He takes one more sip of his coffee and prepares to read his long list of announcements.

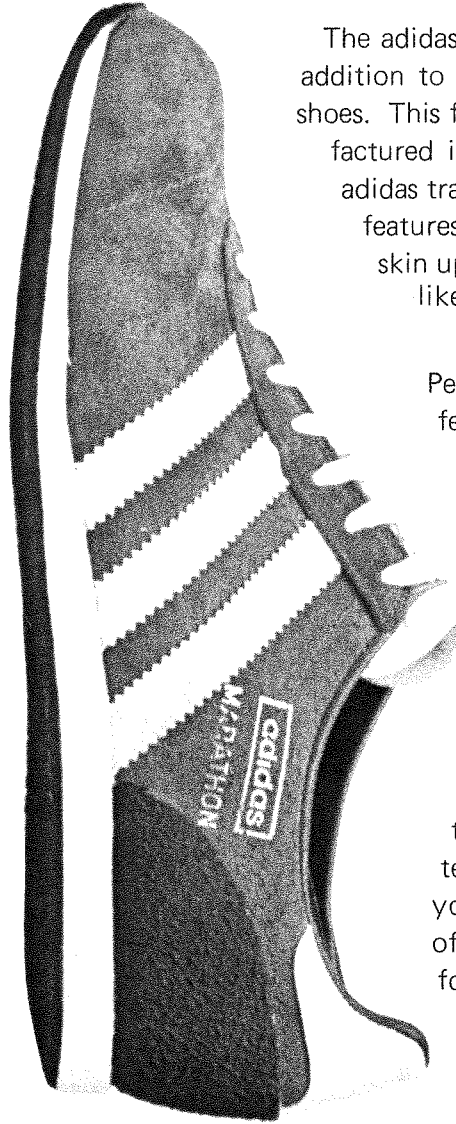
"I would like to start by welcoming all of you to the beautiful town of Rappacana, a growing suburb which boasts a population of 96... Oh, I've just been informed that a recent birth makes it 97. Well, I said it was growing."

"Come on, let's get started," one irate runner shouts.

"It's freezing out here," yells another.

But the director continues, "It's

The New Marathon



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This superior racing shoe is capped off with a finely crafted heel counter and a well padded achilles tendon protector. We advise you to order your own pair of Marathons today—before your competition does. Sizes: 7-12. \$32.95.

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If you're like most of us, you hate throwing away an old pair of running shoes. And for some good reasons. You paid good money for them. It took more than a few hard miles to break them in properly. And there's probably a lot of wear left in every part of them but the soles. So don't throw them away.

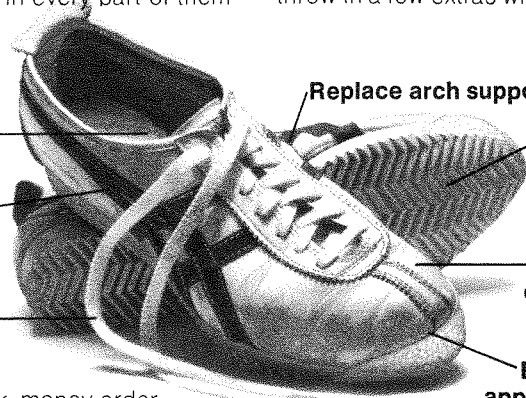
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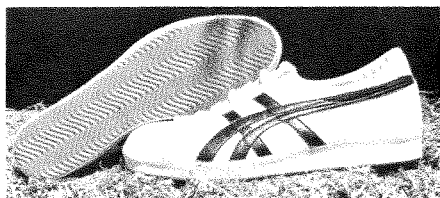
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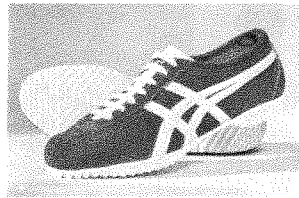
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News & Views

now my pleasure to introduce the mayor of Rappacana, who was responsible for installing the town's first and only parking meter, which you will witness on your left at the three-mile point into day's race. Please join me in welcoming the honorable Mayor Jesse Quagmar!"

The mayor waits for the frozen hands to stop clapping before he pulls out his prepared speech: "Thank you very much Mr. Director and athletes. I am happy to extend to you all the best wishes of our community and Godspeed (ha, ha)."

The runners applaud, but then groan as the mayor flips a page and continues to read: "I'm sure you would all be interested to know that, although we are only a small town, we do have many dedicated runners residing here. In fact, they are all in today's race and I'd like them to step forward as I introduce them. But please hold the applause until I complete the entire list, in order that we can get things started before the blizzard. Let's see, we have John Wilson and Greg Myers. Now I turn the proceedings back to the director, thank you."

The director takes the microphone back and reluctantly sets aside his coffee: "Wasn't it nice of the mayor to stop by? Well, I guess we're ready to go... Oh, just one more note. A photographer for the *Rappacana Gazette* is on hand today and he would appreciate it if you would all smile at the 10-mile mark as well as at the finish. And don't forget to pick up some souvenirs of your day in Rappacana. They're available at either of the fine stores in town. Okay, if there are no questions I'll fire the gun."

There is a five-minute pause as he waits for questions, and then after four misfires, you're off!

Fortunately, the race itself is one place where the race director is unable to hinder the proceedings. So we pick up our narrative at the post-race ceremonies, which begin about an hour after the last runner finishes.

"Well, wasn't that a stimulating race? I do hope you all took time to admire the town's more beautiful sights, such as Rappacana Falls which was at the seven-mile point. I'm sure you're all anxious to return when the water is flowing. We're ready to hand out today's awards now. This won't take long since we only have 10 trophies.

"In 10th place, we have the man who you all remember from his outstanding performance last year when he fin-

ished 27th in a field of 30 at the local Rutabaga Festival 4.3-miler. Here he is, Greg Myers and his lovely wife, Linda, and their six children. Nice run, Greg.

"In ninth place was Harry Wolf. You know there's a funny little story about Harry that I love to tell, and since it only takes about five minutes..."

—From Jeffrey Rosen

Record Relay

The world record for the 24-hour relay, an American invention, has left the country for the first time since the race began in 1970.

Scotland's Edinburgh Athletic Club ran 297 miles 1145 yards in late September. This broke by more than 2½ miles the record held by a US Olympic camp team.

The Scots averaged 4:50.9 for their individual miles, even while losing one runner halfway through the relay. Leading off for the team that included sub-2:16 marathoners was Jim Alder, world record holder at 30 kilometers.

Members, their mileages and time ranges:

Jim Alder	32 (4:38-5:00)
Jim Dingwall	32 (4:38-4:57)
Doug Gunstone	31 (4:42-5:04)
Phil Hay	16 (4:45-5:20)
Danny Knowles	31 (4:41-4:59)
Ron Knowles	31 (4:41-5:04)
Alec Mathieson	31 (4:43-5:01)
Joe Patton	31 (4:39-4:55)
Alec Wight	31 (4:44-4:56)
Jim Wight	31 (4:42-5:02)

The Wights are brothers, both 2:15 marathoners. The Knowles are 19-year-old twins.

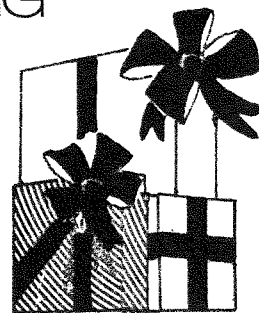
Runner's World originated the 24-hour relay competition. The format is 2-10 runners going a mile apiece in a set rotation. *RW* keeps statistics on the event, which may be run anywhere, at any time of the year. For rules and records, write to 24-Hour Relay, Box 366, Mountain View, CA 94040.

These are the top teams for 1974 up to November 13: Edinburgh Athletic Club, 297m 1145y; Blackheath Harriers, 286m 963y; Cal Poly, 285m 1320y; Nato, 280m 1110y; Williams Road Runners "A", 278m 573y; Indiana Striders All-Stars, 274m 241y; Bloom Track Club, 273m 440y; Wanda's Wonders, 269m 774y; Northern Baltimore Track Club, 267m 1025y; Marine Corps Quantico "A" 265m 1123y; Oakland Striders, 265m 337y; G.T.O., 264m 540y; Spartans, 262m 1342y; San Carlos Lopare Club, 262m 1204y; Sand Piper Express, 261m 1565y; Huntington Track Club, 260m 1581y. ●

CHRISTMAS SHOPPING

AT

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It's getting late to "shop by mail" at Starting Line Sports for Christmas gifts, but if you live in the northern California area, drop by our two retail stores and we'll help you pick out the perfect gifts for your fellow runners or outdoorsmen. All items are available by mail too, but we can't guarantee pre-Christmas delivery. Here's a sampling of what we offer:

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Tiger Jayhawk—Tiger's latest lightweight racing shoe, ideal for road running and cross-country. Sizes 4-13. \$18.95.

Tiger Boston—Runners can't find a better all-around training shoe. Nylon uppers, ideal for training or racing. Sizes 3-13. \$17.95.

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Puma 9190—The super long distance shoe featuring leather-reinforced nylon uppers, extra foot cushioning, and a new long-wearing sole. Sizes 5-13. \$25.40.

... and over 80 other models in stock.

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adidas rain suit—100% polyamide, wind and waterproof. With hood and leg zippers. Colors: navy or royal blue, red, yellow. Sizes: xxs, xs, s, m, l, xl, xxl. Set—\$28.95. Top or bottom separately—\$14.50.

All-Pro nylon mesh singlets—High-quality singlets for racing or high-level training. Men's: in gold, kelly green, royal blue, red, white; sizes m, l, xl. \$4.95.

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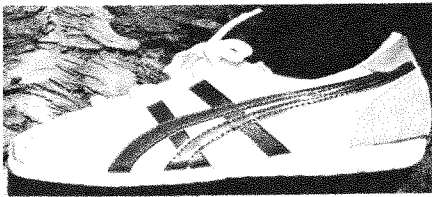
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R.W. INTERVIEW

by Janet Heinonen

PAUL GEIS

You can't say "Paul Geis" in Eugene without saying "Prefontaine."

The transplant from Texas, now an Oregon senior, rarely runs in anyone's shadow on American soil, yet there's always conjecture of Prefontaine-Geis duels. Although Geis is busy with a collegiate schedule and Prefontaine sets his own schedule, Eugeneans still can't resist comparisons.

Some hail Geis as Pre's replacement. But Prefontaine is still running and still has his fanatic followers. Nonetheless, Geis does have the limelight in the more structured realm of collegiate track.

Angularly-built Geis shrugs off comparisons with Prefontaine. He says he doesn't want to be an idol, an "ultra-Pre," the track-town hero. He doesn't want to see "Go Paul" posters and T-shirts. He just wants to achieve what all runners want: fast times and important wins.

Geis is a gummy runner, but cautious. He loves to sit and wait for his prey to tire. Although he doesn't have devastating speed, he does have the ability to run hard and still finish with the strength which he says is more important than speed.

Coming into this cross-country season with impressive track credentials (a 12:55 three-mile, an equivalent 13:23 5000 meters, the NCAA three-mile title), Geis maintained that he was leery about his debut as an Oregon harrier. He had almost no previous experience in this type of running. But after the interview, he easily extended his running reputation to cross-country, dominating the strong Pac-8 conference.

RW: Were you any kind of a high school star?

Geis: No. Just within my own level. At my high school, a non-denominational private school, I was the best distance runner. I ran 4:12 my senior year. I was coached by Jerry Laird who had trained under (Hungarian coach Mihaly) Igloi and was a runner himself. I did the interval-type sessions every day. I never did any long runs as such. Everything was on the track.

RW: Then you went to Rice University?

Geis: Yes, and I trained under Jerry again, but only in an advisory capacity. As far as my coaches were concerned, I was doing my own workouts.

RW: What kind of success did you have?

Geis: I ran 13:32 for three miles and 4:11.8 for the mile.

RW: What led you to Oregon and convince you to lose a year of eligibility?

Geis: I came out here (to Eugene) for the Olympic Trials and the NCAA in '72, and I was so impressed by the way people in Eugene accepted track. They were really behind it. It reminded me of football in Texas, where football is the king. If I wanted to run, to see what I could do, what my potentials were, then this was the place to do it. I knew that with the Texas weather, six months hot every year, I'd never see my true potential.

RW: Were you recruited at all by Oregon coach Bill Dellinger?

Geis: No. I called Dellinger and told him that I wanted to transfer and he told me all the problems that would incur. For the most part, he really tried to discourage me. But I had made up my mind.

RW: Were you surprised that he tried to discourage you?

Geis: I was then, but looking back now, I can see why. We have so many good distance runners at Oregon that it almost causes trouble to have another one transfer, especially when they're not even eligible for a year. If anything, we have a problem of masses. Just too many.

RW: What changes did you find in the training, compared with what you had been doing?

Geis: I think the Oregon system is superior to the Igloi system because you have your rest days. The hard-easy system. It's especially good for me because I get sick easily. By going easy and then going hard, you can hit the hard days more intensively. It enables you to hit higher plateaus.



Jeff Johnson photo

I also lift weights, three days a week, on my easy days. Right now (fall) it's a very heavy routine, then I'll ease off during the competitive season—quantity and high repetitions for upper body strength. Everything is strength-oriented. I never lifted before I got here. I'd say that was one of the major changes in my program, other than changing to less time on the track.

RW: What kind of work are you doing now?

Geis: About 80-90 miles a week. Three days a week of intervals, on the track, sawdust and cross-country. We do repeat miles, hill work. But not too much on the track.

RW: Do you think that the atmosphere in Eugene is so competitive—in every workout—that the competitive edge is drained by the time big meets come around?

Geis: For sure. That's been our problem of late. With so many good runners, it's hard to make our team. And we've got good runners that don't get to compete on the weekends during the dual meet season, runners who would be number one on any other team. I don't think that it causes the runners who do make

it to run bad later on. The whole process just makes you run good too soon. It causes us to run our best times too early.

RW: Why do these other runners stay around?

Geis: Well, I think that Dellinger is probably the best distance coach in the United States, and people realize that they can do their best training in numbers. It's almost impossible to train hard by yourself over a long period of time.

RW: Isn't Steve Prefontaine having that problem now?

Geis: Well, he is and he isn't. He's still out there training with us all the time and still has that benefit, of people to train with. And he's welcome to train with me at any time he wants...I look forward to every chance I get to run against Pre. If Eugene gets the AAU track meet next year (it did), that will be an ideal time for us to race each other.

RW: How would you characterize your relationship to Pre?

Geis: We're really very good friends, believe it or not. I think that really surprises people—after that recent issue of *Track & Field News*, where it was played up by the author that we were almost enemies. Steve and I get along really well off the track. On the track, we're as competitive as any two people would be that are two of the better runners in the nation. He's the best. I'm just one of the "betters."

RW: Do you feel "put down" at all since you're always compared to Prefontaine?

Geis: No, I just get tired of it. At one time last year, I'd just answer reporters with "no comment" whenever the name Prefontaine came up. It doesn't bother me as much now. I'm getting to the point where I realize that of course this is going to be a prevalent question. It's not a put-down. But how can you compare two people at different times in their lives? He's a lot older than I and he's got a lot more experience. He's been to the Olympics.

RW: Do you think that Eugene can take two heroes at the same time, in the same event?

Geis: No. But I don't want to be anybody's hero. I enjoy running, but I'm not necessarily trying to displace him. My wanting to beat him is purely an egotistical type of thing. Every distance runner wants to beat someone or run a certain time because that's what you're striving for. Just by beating him,

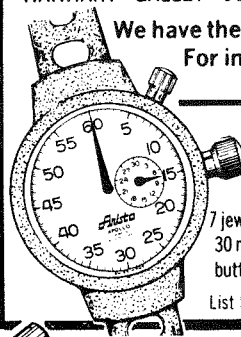
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Paul Geis Interview

I wouldn't expect that it would be "Go, Paul" instead of "Go, Pre." I don't think that at all.

The people that like Pre like him because he's got a certain personality, this cocky image and everything. I've felt that a lot of reporters and people who have interviewed me have thought, "We're going to make him into an 'ultra-Pre.'" They wanted to put me into that same mold, but it just isn't so. We're completely different people.

The super-star treatment that Pre gets bugs me. I see through it all, if anything. Pre has always been super-star to me, never anything but super-star, whereas I've been going through the periods of losing to people I didn't want to lose to and things like that.

RW: You lost frequently this summer to Europeans. Why are they superior?

Geis: They're more aggressive. Our rules prohibit aggressiveness on the track: elbows, physical contact. I've learned a lot during the last two summers over there. But I don't dare use the things I've learned in any NCAA race.

Proper positioning is what it really amounts to. You've got to be in the right position to avoid being boxed, to avoid catching elbows, to be in the position to give an elbow and not catch one back. Or to give an elbow and not be totally disqualified. I've learned about being in the wrong place at the wrong time. I hope I've learned enough so that when the big meets come, like the Olympics, that I won't get boxed in, that I won't get pounded.

RW: So you think you're getting good tactical experience during those summer races?

Geis: For sure. It's really necessary. That's one reason I avoided running at the AAU this summer. The type of meets they run, the dual meets, only have four runners in a race. That's not the type of race you get good times from. It's just that you don't get good times. It's that you don't get the right experience, the jostling, the running in the pack, the tactics, that you get running in a big invitational European meet.

RW: What kind of runner are you, tactically?



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Geis: I like to sit. I'm not a leader. I'd rather sit and wait it out and run my last 440 or 220. If the pace is fast enough, it really isn't your speed, it's your strength that matters. These people who can run 48 or 49 for a quarter at the end of the race, if they're completely tired, they're not going to have any speed. They've got to have strength.

RW: You didn't run in the AAU track meet last summer. Were you boycotting the AAU?

Geis: There was really no boycott as such. It was just that I don't think they're a legitimate organization, if the word "legitimate" isn't too harsh. This summer they took a tour of 15 athletes and eight officials to Europe. I counted them. They left home people like Don Kardong and Mike Manley who both ran good all summer long in all-comer meets.

I don't think that it's fair that they left two really good runners home and took eight officials. I've been on those tours before, and I know you can get by with two or three officials. And they weren't taking a lot of young people like they took the summer before. They were taking older athletes who were pretty much seasoned competitors. They should take more athletes. This is an example of where the AAU isn't really out for the athlete. They're out for themselves. They're out for the money they can make, as exemplified by the TV contracts and their concern for the dollar bill instead of the athletes.

I also reserve the right to either accept or not accept the honor of running for my country. It's my choice. It's not a matter of me not wanting to run for my country. It's a matter of my not wanting someone to force me or coerce me into doing it. I wore my USA uniform in almost every race I ran in Europe. That's my own way of representing my country. I arranged all my own races. I was never once asked for a travel permit.

The AAU sent a telegram to all European federations saying, "The following athletes," listing 10 names, mine included, "previously cleared on such and such a date, are no longer cleared to compete on certain dates because they have refused to compete for their country."

That was incorrect in my case. I didn't even try out. I don't see how they have jurisdiction over me. And they didn't put down everybody's name, just the 10 they had decided on. It was arbitrary.

When things are adjusted so that the athlete has priority over what hap-

pens with the AAU, then I think you'll have more top athletes wanting to compete for the AAU. The AAU tried to play up the money deal over in Europe, saying athletes go over just to make money. It isn't so. The athletes are disillusioned with the AAU.

RW: Are the athletes really just breaking even in Europe, or are they picking up a lot of money?

Geis: Well, I don't know. I'm a strict amateur myself. I never saw money change hands over there. I was really surprised. My last two summers over there, it's been really straightforward. I had some people back in Houston who helped pay for my trip.

RW: What sort of things did you receive from meet promoters?

Geis: I got some pretty nice prizes. Wooden trophies. A little set of crystal which can't be worth over 20 bucks. A little meat cutter.

I came back this summer and had to get a job just to have some spending money this year because the NCAA won't allow me to have a part-time job during the school year.

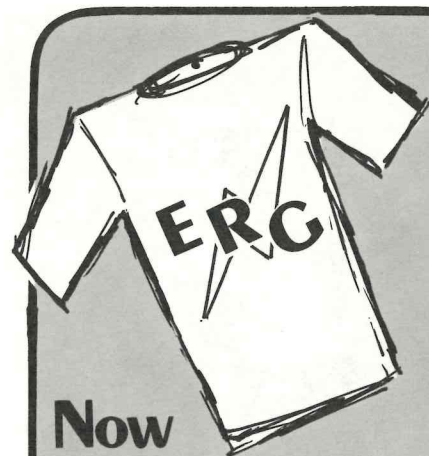
RW: What are your business goals?

Geis: Purely money. I'm working really hard to get into Stanford Graduate School of Business. My father was a stockbroker, and I've really had a lot of exposure to the business world. I'm really into banking, money, the economy and whatnot. I don't know if I'll be able to run during those two years of grad school because that will be the roughest studying I'll ever encounter.

In other words, if I have to take two years off—and that will be after the '76 Olympics—I don't know if I'll even start running again. I might. I might not. I'll just have to wait and see. I am going to run real hard between now and then and try to do whatever I'm capable of... But no goals like "I want a gold medal." It's too unrealistic.

RW: You're pretty busy. What do you do to relax?

Geis: I run. That's the most fantastic time for me, in the morning or afternoon when I'm running. You're running along, breathing hard, or maybe not...but it causes you to think slower. You have to concentrate. And other times you just sort of fall asleep, drift off, especially on morning runs. I run the same course, so I don't have to worry about where I'm going. I just cruise along. Anybody that runs knows that once you get past the stage of it being painful, to the point where you enjoy running, it's therapeutic. ●



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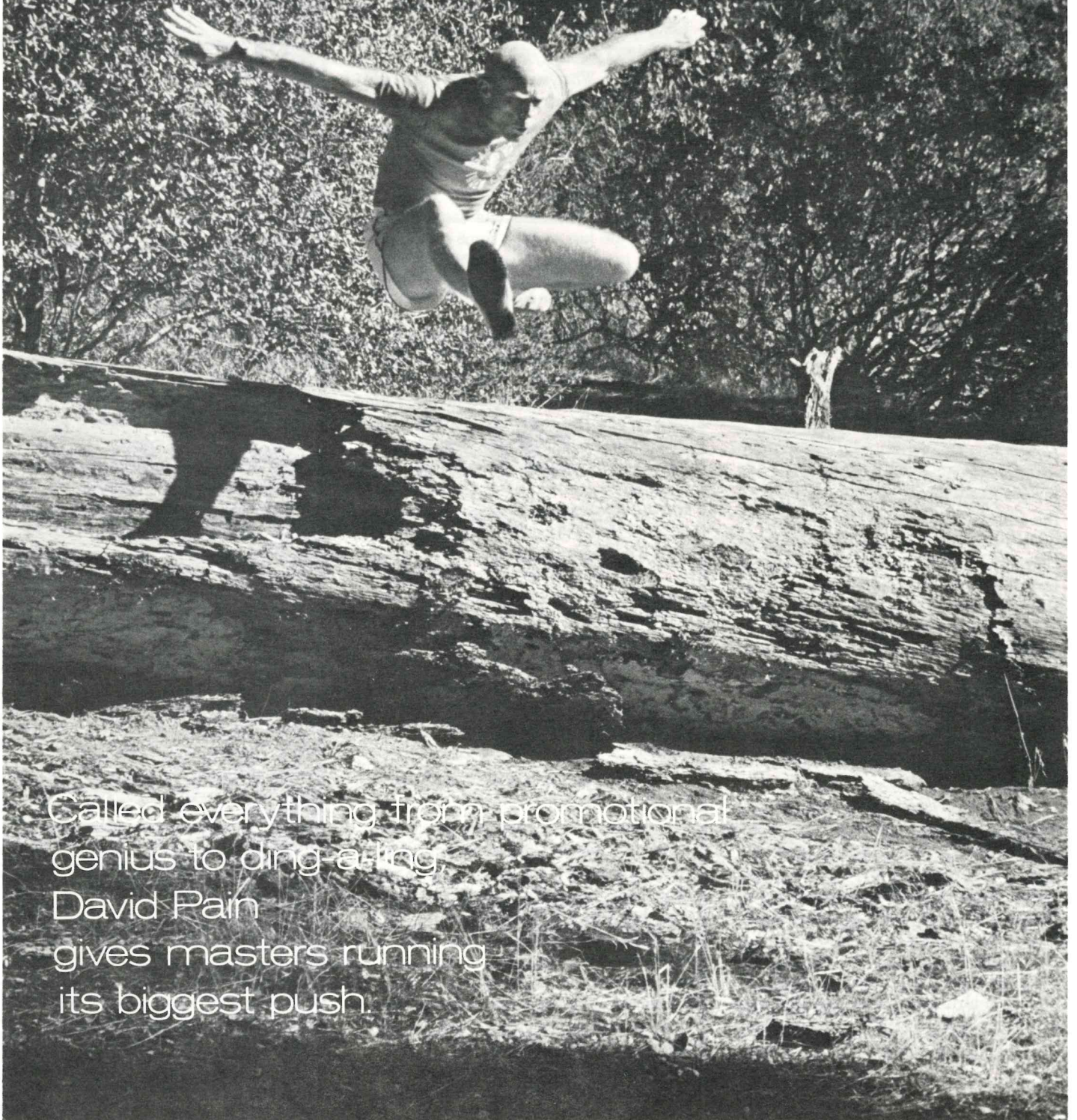
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by Hal Higdon



Called everything from promotional genius to ding-a-ling, David Pain gives masters running its biggest push.

David H. R. Pain—lawyer, promoter, runner, founder of the masters track movement, the man who brought the Batmobile to San Diego—embodies the characteristics of Buddha and Daddy Warbucks. It is not merely that, with head as bald as a torpedo, he bears a superficial resemblance to both. It is more his philosophy of life.

First, in his quest for physical fitness, he seems to follow the principles of Buddhism: namely, that right living, correct thinking and self-denial will enable the soul to reach a divine state of release from earthly sorrow and bodily pain.

Second, as Daddy Warbucks might, he not only assumes a paternalistic attitude toward masters track (“I can talk in terms of *my* program”), but he also does not hesitate to use force (a karate chop here, a lawsuit there) to bring the fruits of a better life to everybody.

“People who are nice never accomplish anything,” states David Pain. “Any time I’ve tried to be nice—on those rare occasions—somebody has spit on me. I learned as a lawyer that you have to be willing to turn the screw. If not, you’re in the wrong business.”

David Pain never has hesitated to turn the screw. Several years ago he talked the San Diego Track Club into grabbing sponsorship of the profitable San Diego Indoor Games causing ousted meet promoter Al Franken to label him a “bald pirate.”

On another occasion, the police had to arrest Pain for refusing to stop running on a municipal golf course. The arresting officer accused him of being a “ding-a-ling.”

In 1968, he organized the first national masters track championships for men in their 40s, earned \$15,000, but ended suing his co-sponsor.

David Pain also feuds frequently with the press. A sports commentator speaking at a San Diego Track Club banquet advised recruiting name athletes to club membership for their publicity value. Pain took the microphone afterwards and retorted that anyone with a girth as ample as that of the commentator’s shouldn’t lecture on physical fitness. The commentator stormed out.

“Dave is brilliant as far as ideas,” says club member Bill Stock. “In diplomacy, he’s zilch.”

At a banquet for an amateur theatrics group, Pain found his conversation

hindered by a rock band and asked them to play more softly. When they didn’t, he pulled the plug on their amplifier. The rock band went home.

At dinner during his masters tour of Europe in 1972, the wife of one of his runners lit a cigarette. David told her to please put it out or leave the room. She left the room.

As part of his almost religious quest to spread the masters movement, Pain had led the 200-member track tour to Europe and encountered controversy wherever he went. The sponsors of the track meet in London wanted to know why the American entry list had been dated properly but postmarked three weeks after the deadline. “My secretary must have forgotten to mail the letter,” Pain suggested.

When the meet organizers in Helsinki suggested cancellation because their officials would be in Munich, Pain told them his group would run whether any Finnish officials appeared or not.

Masters track usually divides runners into five- or 10-year categories beginning at age 40, but in Germany the meet sponsor wanted to run all competitors in a single race. The Daddy Warbucks in David Pain surfaces when he discusses the incident:

“There is no way that you can take *my* Bill Andberg (referring to 63-year-old Minnesota world record holder) and race him against men 20 years younger. They’ll lap him two or three times, but he’s capable of running against those his age and winning. I insist on strict division of ages and this is why the masters program is such a success and is moving ahead.”

The success of the masters program can be measured by the hundreds of athletes in their 40s, 50s, 60s and even 70s who compete in the National AAU masters track championships each year. Started in San Diego, the meet moved in its seventh year to Gresham, Ore., and now rotates from city to city.

Similar full-scale masters track meets also now occur in other areas of the country. Many major track meets (including the Texas, Kansas and Penn Relays) include masters events, largely due to David Pain’s evangelism.

“David is a bit feisty and just like a woodchuck,” suggests San Diego Track Club founder Bill Gookin. “Have you ever encountered a woodchuck? They’re constantly busy-bodying, digging and pushing around, always getting something done.”

Ken Bernard, another club member, nods his head: “Wherever there’s a windmill.”

“If people don’t have goals,” says Pain, “they might as well curl up their toes and die.” In conjunction with the directors of the Canadian National Exhibition, he is planning a world masters championships for Toronto in 1975. He talks about future competitive tours to Russia and Red China.

“I hope they don’t discover life on Mars,” sighs Bill Stock, “or David Pain will have us running there, too.”

David Holland Rose Pain was born in Taplow, Buckinghamshire, England, on July 31, 1922. When he was five, his family moved to Windsor, Ontario, where his father worked on a Ford assembly line. They later settled in California, because of David’s health.

“Smog hadn’t been invented yet,” he comments, “and California was considered the ultimate place for people with consumption.”

He started his own gardening business while attending North Hollywood High School, prospering to the point where he had four assistants caring for 22 yards. His senior year, he quit attending classes, though stopping by daily for assignments. He would have graduated anyway had he not, early in 1941, enlisted in the Navy, which assigned him aboard the SS Washington, a luxury liner converted into a transport.

On the day the Japanese attacked Pearl Harbor, Pain stood on the fantail of his ship off the South African coast and watched two torpedoes fired by a lurking German submarine narrowly miss blowing him to pieces.

Pain applied for a commission through the Navy’s V-12 program, attending college at Occidental and UCLA. Ninety days before earning his commission, he became eligible for discharge. Having previously dropped out of high school, he now dropped out of college, but nevertheless earned entry to the University of Southern California law school, where he met his future wife Helen. He married Helen the following spring, honeymooned one weekend in San Diego, and after graduation (his first) began practicing law in that city.

His law practice gradually expanded and he added two partners, his firm becoming Pain, Moody and Pippen.

“He’s a good lawyer in the court room,” claims Bob Pippen. “He’s tenacious at digging out details.” Pain is tenacious enough to have been threatened more than once for contempt of court. “The only thing Pain doesn’t get chewed out about is long hair,” says Pippen. Several years ago Pain helped win the largest wrongful death verdict in San Diego county: \$470,000 to the widow

of a man killed in a commercial airline crash.

He had begun playing handball and soon was serving as club handball commissioner, organizing competitive trips to Los Angeles and San Francisco.

"David can't be involved a little bit in anything," says his friend Merle Hamilton. "When he goes in, it's with all four feet." Pain fought with the club directors who refused to install different side-walls despite their being ruined by paddle-ball players, quit the club and eventually dropped handball.

"First, I wasn't getting enough exercise. Second, it was too much of a hassle reserving courts and locating opponents. Third, I was getting home too late evenings. I started jogging mornings with my dog."

It didn't take David Pain long to locate other joggers. One of them was Augie Escamilla, a student counselor at San Diego State, who worked out Sunday mornings with a group of older runners. For 12 years, Pain had spent Sunday mornings singing in the choir of the First Presbyterian Church. "I enjoyed it," he says. "I don't think I missed a Sunday." But he dropped out of the choir to run with Augie's group.

"For me to go to church on Sunday now is a total drag," admits Pain. "I'd rather go out and run for an hour. I have received more mental comfort from my running than from all the sermons I previously heard. There is something about being able to run on a beach or in a park in the quiet of nature that totally relieves you of the burden of modern living. You develop an inner peace. You eliminate the turmoils and emotional stresses. I don't think runners make good church-goers, and it's for this very reason."

Running also caused Pain to abandon his seat on the 50-yard line at San Diego Charger football games. "I'd rather be a participant than an observer," he says. Running, however, failed to satisfy Pain's natural competitive urge. Recalling how handball competition was organized along age brackets, he approached the promoters of the San Diego outdoor track meet in 1966 and urged them to add a "masters mile" for older runners. This evolved, two years later, into a full-scale masters track meet.

Competition at this first national meet was spotty and sometimes ludicrous. One runner appeared for the start of the 100-yard dash wearing house slippers with elastic bands to keep them on his feet. A shot putter sewed lace on his gym shorts. A smattering of Olympians—George Rhoden, Bob Richards, Bud Held—added class to early meets, but most participants

"There is something about being able to run on a beach or in a park in the quiet of nature that totally relieves you of the burden of modern living. You develop an inner peace. You eliminate turmoils and emotional stresses. . ."



hadn't competed in 20 years and others never had tried the sport. They were reconstituted joggers: grandfather jocks.

As the masters movement progressed, competition became tougher. A time of 5:00 once won masters miles. Now, 40-year-old six-milers run at that pace. Yet while improving in excellence, the masters program has not lost its humanity. Joggers still remains much a part of the scene. Division into 10-year (and later, five-year) categories helped equalize competition.

The masters program also has created an anomaly: men in their late 30s eagerly anticipating their 40th birthday.

The early masters meets in San Diego may not have been artistic successes, but incredibly they earned large sums of money—largely because of the promotional zeal of David Pain. Pain convinced the Arthritis Foundation to co-sponsor the first masters meet. After all, what better publicity vehicle for such a charity than a bunch of old men running around a track? In the masters' first two years, this relationship earned the San Diego Track Club \$5000 and \$10,000 respectively.

"Lord knows what I would have made the third year if the Club hadn't found out what I was doing," he says.

According to Ken Bernard, "It was the boilerhouse promotion outfit that Dave had selling tickets: 50 solicers in cubbyholes telephoning everybody in town. But people who bought tickets in January wouldn't come to the meet in July. This irritated many members." They became further irritated when Pain had to sue the telephone soliciting company to recover the money. The San Diego Track Club quietly severed relations with its co-sponsors and changed to running its meet on a break-even basis.

Pain found still another windmill to test with his lance. San Diego runners frequently took early morning workouts on private golf courses where they attracted little more than freindly waves from greenskeepers. On municipal golf courses, however, they often were abused by the management and chased from the fairways. Particularly this was true at one public 36-hole course not far from Pain's La Jolla home: Torrey Pines, the site of the annual Andy Williams tournament.

To protest this situation, Pain appeared at a park board meeting with Olympic champion Billy Mills. The board merely referred to committee their suggestion that runners be allowed on public courses. Pain began to escalate the conflict, making certain he went past the manager's office on his morning runs.

On one occasion, he led a group of club runners through the grounds on a

jog-in. Another time, a high school athletic breakfast at Torrey Pines provided the occasion for a mass workout on the fairways. Several times, the manager chased Pain in a golf cart and even tried to use a truck to run him down. Pain became adept at broken-field running.

Finally, one Sunday morning a policeman appeared, called by the management, to issue Pain a misdemeanor ticket for being on the golf course without having paid a greens fee. As he talked with the officer, Pain continued to jog in circles around the police car.

"The officer was quite polite," remembers Pain. "He was only doing his job."

But then a police lieutenant arrived with another officer in a second squad car and began screaming at Pain, using obscenities and calling him a "ding-a-ling." He ordered Pain spread-eagled and frisked. David's dog Suzie, normally the most docile of animals, began barking loudly.

"Grab that dog!" snapped the lieutenant, and when one of the officers obeyed, Suzie bit him on the hand.

Pain was handcuffed, thrown into the back of the squad car, allowed to simmer in the hot sun, driven to the county jail, thrown into a cell with several drunks sleeping it off, and only several hours later was permitted to phone his wife.

"Hi, Helen," David began. "You'll never guess where I am."

Helen had no cash on hand and had to run to their oldest son Randy to borrow bail money. Randy considered their request for a moment: "Now, would Dad bail me out under similar circumstances?"

The arrest made front page of the *San Diego Tribune* and was carried across the country by the wire services not because of any sympathy for David H. R. Pain, gentleman jogger, but because Suzie bit the arresting officer. When Pain appeared in court, the presiding judge declared him not guilty of the misdemeanor of not having paid a greens fee because the course management wouldn't sell joggers tickets, anyway.

At a later meeting of the park board, the public golf courses were declared open to runners as long as they didn't interfere with the golfers. There is some sentiment among runners to have a brass plaque erected on the course commemorating the Battle of Torrey Pines.

Pain usually runs mornings on a private golf course near his home, hopping a fence to do so. Evenings after work, he runs on the beach or at a nearby track. On Saturdays, he sometimes runs from his home to his office in Ocean

Pain (left) took a 200-member tour group to Europe in 1972. In England, he was welcomed by Dr. Roger Bannister, the first sub-4:00 miler.



Beach, a distance of eight miles. Before he installed a shower in his office, he would pause on the doorstep to squirt himself with a garden hose.

"He once had a meeting with two little old ladies," recalls Bob Pippen, "and all he had on was trunks. The average attorney doesn't do that."

Although Helen Pain presently assumes more organizational work related to her husband's projects, much early track business filtered through the offices of Pain, Moody and Pippen, causing minor irritations between partners. Pain lately has taken several long trips abroad either planning for or participating in veteran track meets.

"I can't complain too loudly," admits Bob Pippen. "I'm taking off two months this year myself to go rock climbing in Ecuador."

In his law practice, Pain mostly has abandoned the general work to his partners while accepting only large cases that personally intrigue him. "I'm quite benign in my practice of law now," he admits.

He is less benign when it comes to athletics. After an operation in the spring of 1972 to remove a malignant mole on one leg, he returned to running too soon, ripping the stitches.

"All of us need releases of one form or another," he says. "For some it's alcohol, or women. These character problems become apparent particularly after men get into their 40s. This is when men turn to booze, split up with their wives. become overaggressive in business. As a lawyer, I run into these men all the time. They are totally amoral in the pursuit of the dollar, the making of the deal, the crunching under of their business opponents. These men are not necessarily interested in personal riches. Making money is merely a means of keeping score. They would just as soon put you

in bankruptcy if they were playing for matches."

As the manager at Torrey Pines and members of the San Diego Track Club can attest, David H.R. Pain has not entirely sublimated his own aggressive tendencies in his running, but he is trying. "David always was bullheaded," admits his wife Helen, "but he's becoming more lovable and mellow as he goes on. Interestingly enough, he accuses me of being bullheaded."

Pain's bullheadedness, however, has been the main reason why masters track has become established as a permanent feature in the athletic world. However, he doesn't claim all the credit.

"It's not enough just to have a good idea. It has to come along at the right time. But I do think masters track is the most significant new thing to arise in a very old sport. People now can continue to participate even though their abilities have diminished. And this is the secret of masters track, something that we must never lose sight of. It's the secret of age-group competition. We have had age-group competition for years with kids. Now we have all these old guys competing, and having a wonderful time, because now they can win an event instead of being at the end of the pack."

David H. R. Pain paused as he said that, perhaps realizing that he had become the Baron Pierre de Coubertin of the grandfather jocks. "You know," he finally said, "I get more compensation out of the masters program because I can feel paternalistic about it. I can talk in terms of *my* program, and there's an ego trip involved in knowing you are somewhat instrumental in creating a program that's not only rewarding to yourself but rewarding to others."

With that, David H. R. Pain climbed into shorts, shoes and sweatshirt and went for another run. ●



THE AGE-GROUP "NATIONALS"

DUOMO Photos by
Steven E. Sutton, Gale Constable

A prevailing worry among running people, most often older ones, is that their sport will become another Little League. Overly serious. Overly strenuous. Overly organized...more for the sake of parents than children.

People who worry this way might shudder to hear the cold facts about the "Fifth Annual Road Runner's Club of America National Age-Group Cross-Country Championships." It's a meet with a name almost as big as its field, which is the biggest anywhere for an event of this type.

The meet at New York City's Van Cortlandt Park had 2079 runners this year. A few of them were old enough for high school, but it was mostly a day for pre- and early-teenagers. Kids five and under ran a quarter-mile. The others, in five age groupings, went a mile and a half. Boys and girls ran separately, but went the same distances.

This has been called a "national" meet for several years now, and increasingly it is living up to its name. This year it might even be called "international"; since Mike McKinney, son of a US serviceman stationed in Germany, flew over to compete. Runners came from 20 states, including California.

The highlights:

- Donna Campbell, 13, ran the fastest time ever by a girl on this course. She broke the mark of her well-known sister, Robin.
- Six-year-old Ed Catalnello was the most dramatic winner. He left the others in his race more than a minute behind.
- Records fell in two other boys' races, to Jim Gardiner, 11, and Scott Dahm, 13.

Reciting figures like these, however only fans the fears that Little League running has arrived. Perhaps

it has. But the evil elements that have been predicted of it weren't evident here.

Children were still being children, doing the spontaneous things only they can do. Shrieking from pure joy. Crying from pain and frustration. Springing away too quickly at the start. Walking later on.

As many of the kids wore jackets and Levis and sneakers as wore nylon shorts and singlets and \$30 running shoes.

Parents were there, of course. You don't turn five-year-olds loose by themselves in a park surrounded by the city. Most parents were just being parents, not wild-eyed cheerleaders. They buttoned up coats to keep out the chilly fog. Guided the youngest children along their courses. Offered appropriate praises and sympathy.

We chose to focus on these elements of this event, so that the human elements aren't lost in the barrage of statistics produced by 2000 young runners.

PAGE 18: Jockeying for position at the start of the boys' 6-7 race. (Gale Constable)

BELOW: Fathers guide children in the race for children five and under. (Gale Constable)

UPPER RIGHT: Susan Stahl beats Arlene McCarthy for second in their race for 6-7-year-olds. (S. Sutton)

LOWER RIGHT: Help from mother. (Constable)



R. R. C. CHAMPIONS

BOYS

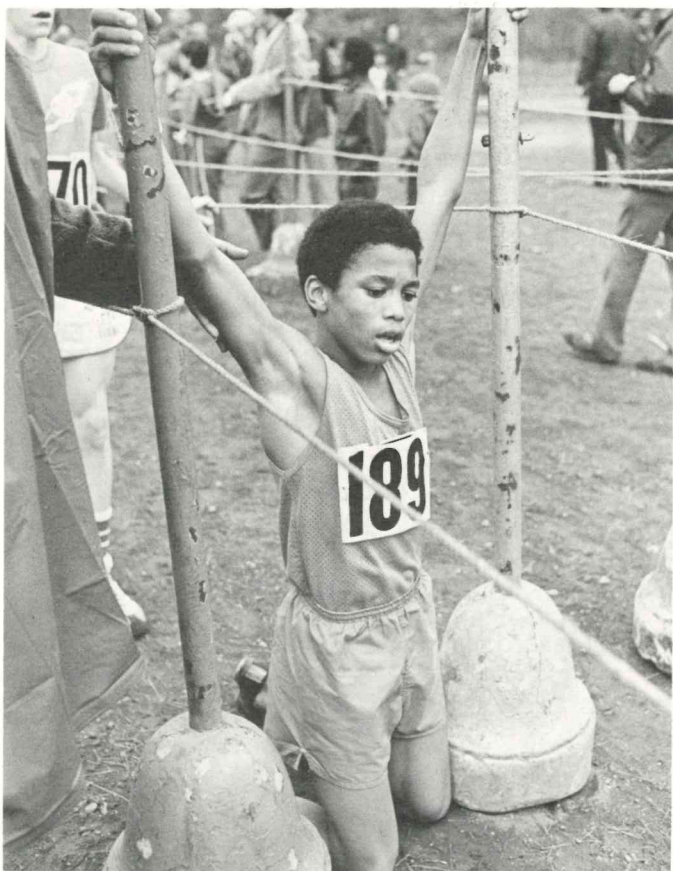
Group	Name (Age, State)	Time
6-7	Ed Catalnello (6, NJ)	10:26.2*
8-9	John Lattino (8, Cal)	9:23.6
10-11	Jim Gardiner (11, NY)	8:49.6*
12-13	Scott Dahm (13, Ohio)	8:16.8*
14-15	Preston Hart (15, NY)	7:55.2

GIRLS

Group	Name (Age, State)	Time
6-7	Gretta Kim (7, Md)	11:43.0
8-9	Davina Jackson (9, DC)	9:58.0
10-11	Kimberly Gallagher (11, Pa)	9:31.6
12-13	Donna Campbell (13, DC)	8:54.4*
14-15	Donna Gardiner (15, Pa)	9:16.6

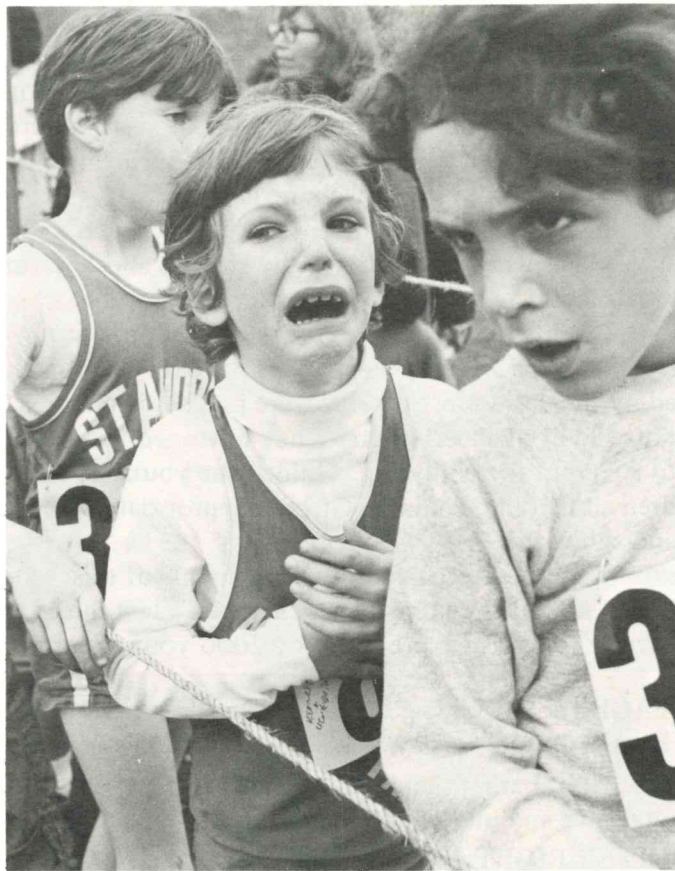
* meet record; all races 1½ miles.





At the R.R.C. Meet

UPPER AND LOWER LEFT: Hanging on to the finish. (Steven Sutton photos)



UPPER RIGHT: Into every race, some pain must come. (Steven Sutton)

LOWER RIGHT: A three-year-old with her prize. (Steven Sutton)



BRITISH PAPER CHASES

BY JOHN BRYANT

Take yourself along to the Thames Hare and Hounds Club in Roehampton, on the southwest outskirts of London, any Saturday during the English winter and you take a hundred-year step back in time.

It's here that competitive cross-country running really got going in the 1860s. And here in an upstairs dressing room of a pub called the King's Head—complete with its faded photographs, Victorian hip-baths and an attendant ladling water from steaming boilers, runners of the Thames Hare and Hounds prepare for their afternoon sport in exactly the surroundings that they have used for more than a century.

This oldest of cross-country running clubs began in an unlikely enough manner—with a bunch of oarsmen. Towards the end of 1867, a few members of the Thames Rowing Club decided the best way to keep themselves fit over the winter months would be to do some running on the nearby Wimbledon Commons.

They held their first "steeplechase" on Dec. 7, 1867. There were reported to

have been a dozen starters and they raced over 2¼ miles of rough and boggy ground—in the dark!

Surprisingly perhaps, the new sport grew rapidly in popularity. By the following year, these pioneer athletes were staging the "paper-chases" that gave the club its name. Paper-chasing, quite simply, involves a couple of runners who set off as "hares," with bags of chopped-up paper which they lay as trails (including false trails) for the pack of "hounds" to follow.

An advance notice of such an event appeared in a publication called the *Sportsman* on Oct. 3, 1868: "A handicap paper hunt will take place on Saturday 17th October, starting from the King's Head, Roehampton Bottom at 4:30 p.m. Hounds, who must be introduced by some member of the Thames Rowing Club or belong to an athletic club, rowing club, school, etc., will be roughly handicapped. A pewter will be given to the hound first to reach each hare."

Soon, similar clubs to the Thames Hare and Hounds were springing up in and around London, organizing steeplechases and paper-chases over any suitable open ground. Inevitably, interclub championships followed—the first one in Epping Forrest in 1976 ending in disaster when everyone lost the way. The second, the following year, over 11¼ miles, starting from Roehampton, was won appropriately by the Thames Hare and Hounds.

The club's founder—a splendidly bearded Victorian gentleman by the name of Walter Rye, one of that original group of rowers who came out of the water to run and who was destined to be the club's president for 60 years—paints a vivid picture of these early days, writing in the 1880s:

"The distance run varies much, and usually consists of a ring of 8-10 miles from the clubhouse, which is generally an old fashioned suburban inn. The longest run we remember was about 24 miles in a little over three hours.

"Hares and hounds alike should run in the colors of their club. Canvas shoes with India-rubber soles, worsted socks, flannel knickerbockers, and white or dark blue waterman's sweaters are the best things to wear in the winter, for if a brook has to be forded or a river swum the warm wet wool prevents any chill being taken in the coldest weather. And those who have tried it are aware that it is cold after sunset running over two miles of heath, fagged out, in wet things.

"When the run is over, the tub—lukewarm if it can be had—is in univer-

sal request, followed, if possible, by a cold douche by means of a bucketful of water from the hands of a stable-helper.

"If the run has been extra wet or cold, a steaming glass of port negus may be wisely taken as a precaution. But it is a singular thing that both before and after the meal that terminates the evening, ginger beer and gin is the favorite drink, having probably been found by long experience to best carry off the extra heat of the body caused by a long run... Tea and a sing-song used to close the evening very pleasantly.

"With a room full of athletes, friendly chaff often leads to matches, and two or three times we remember offhand races coming off late at night, one especially of 16 miles which resulted in the scratch man coming to the front about 300 yards only from home, and both men reaching the goal smothered with mud and bleeding from innumerable scratches."

Paper-chasing is, of course, a thing of the past—though as recently as 1967 the Thames Hare and Hounds held a paper-chase to celebrate their centenary. But the cross-country running that evolved from it flourishes now all over the world.

The members of the Thames Hare and Hounds still meet in their original changing room, and race over courses that have changed little in over 100 years. They still like their warm tub, their drink and their sing-song. And it's likely if one of those early paper-chasers would return today, apart from the price of gin and ginger beer, he would hardly know he had been away. ●

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3 loops, flat course. Awards: 12-13; 14-15; 16-17; 18-29; 30-35; 36-40; 41-45; 46-50; 50-60; 70 & over; first female; entrant traveling longest distance. Also half-marathon at same time with awards. 1974 winner & CR: Wes Bruner, 2:36. Contact: RAY RUSSELL, 208 SE 6th St., Ft. Lauderdale, FL 33301 (305) 563-6850 (Party after race.)



Something very peculiar seems to be happening with women long distance runners. A few examples:

- Eileen Waters finishes her second 50-mile run at a pace of 6:30 per mile, running faster by then than any man on the track. And she isn't in pain like so many of the men. She crosses the finish line to set a new world record of six hours 55 minutes, smiles and exclaims, "Oh, I feel so great!"

- Miki Gorman, looking fresh after her victory (in 2:47) at the 1974 Boston marathon, says to the TV interviewer, "I can't run much faster, but I can run much, much farther. Once I ran 100 miles on the track." (The interviewer looks at 85-pound Miki in obvious disbelief.)

- Natalie Cullimore, in the 1973 Pacific AAU 100-mile championship, outlasts all the men in the field and wins in 18 hours—two hours slower than her best time but two hours faster than the only male finisher.

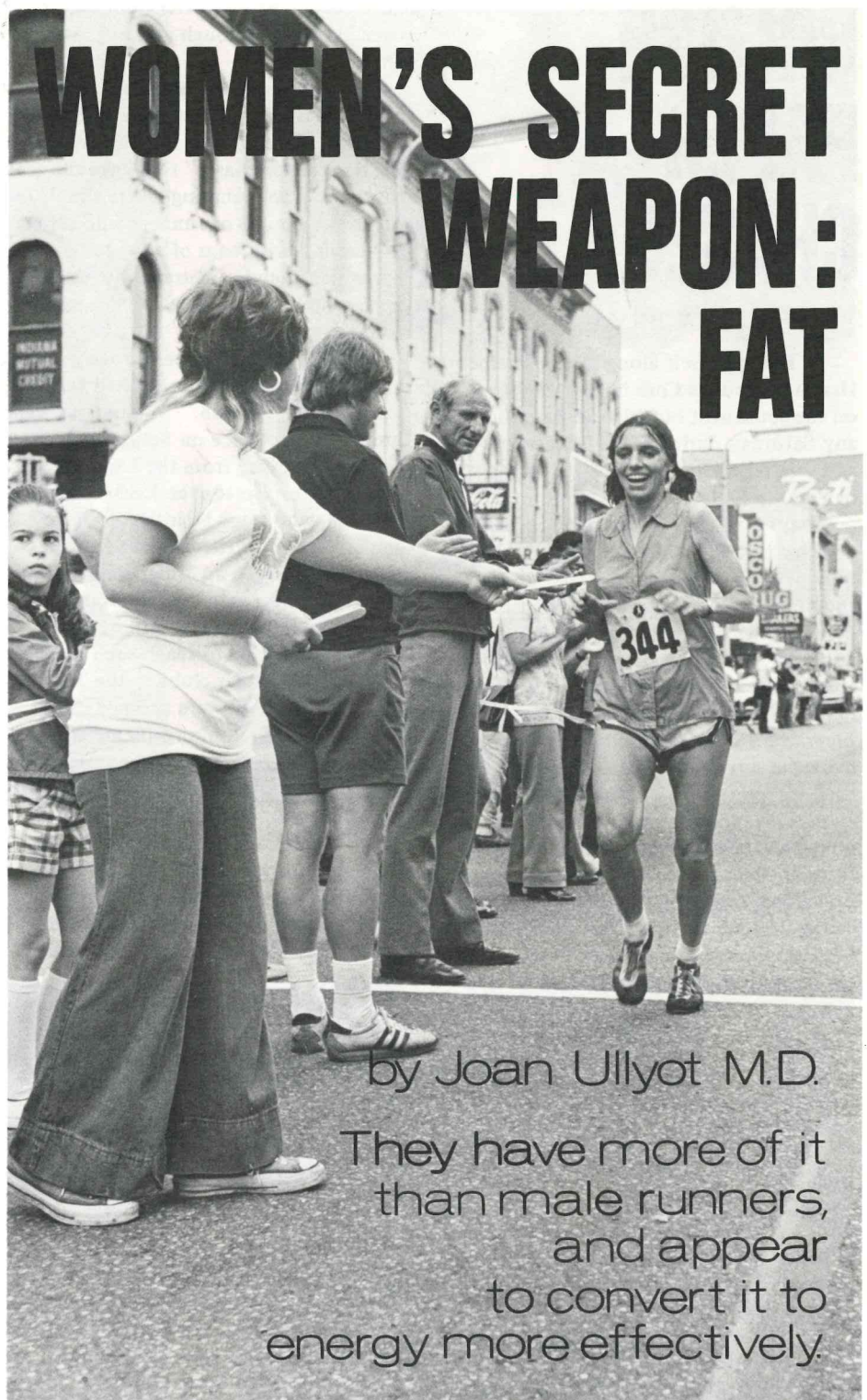
While I was in Germany recently, having tea and chatting with Dr. Ernst van Aaken—doctor, biochemist, coach and lifelong promoter of women's distance running—I mentioned these feats and wondered what was the secret of the women's extraordinary endurance.

The doctor answered immediately: "It's simple. They are running off of their fat."

This was a totally new concept to me (especially since, like many women runners, I am frequently dieting to get rid of fat). I eyed my apple-cake dubiously and ventured to ask, "But what about glycogen?"

Dr. van Aaken laughed, "Is that why you are eating carbohydrates? All the glycogen you could possibly store would only last you for 30 kilometers (18.7 miles) at the most. A simple calculation shows that. All that apple-cake won't help you on Sunday (in the women's international marathon). It will simply add to your weight."

Well, I finished my apple-cake without choking, but determined to find out more about fat metabolism in running. First, I conducted an informal poll of all the leading women marathoners gathered in Waldniel. None of them, surprisingly, had ever "hit the wall" in a long race. This unpleasant phenomenon apparently is far more common among men.



WOMEN'S SECRET WEAPON: FAT

by Joan Uillyot M.D.

They have more of it than male runners, and appear to convert it to energy more effectively.

Several explanations are possible, the simplest of which is psychological. Generally, women run more for enjoyment than to "prove themselves." Thus, women don't usually bash along at high speed and burn themselves out, or quit when they fall off the pace. This is true, but the explanation of this different behavior may be physiological as well as psychological.

"Hitting the wall" is generally considered to result from glycogen depletion.

Thus, various special carbohydrate-loading diets, designed to postpone the moment of truth by increasing glycogen stores, are in vogue. However, fat is always available as fuel, and perhaps women are better at utilizing it. (At present, this suggestion is purely theoretical.)

In the American and Scandinavian preoccupation with glycogen, the important role of fat has been overlooked. Fat in general is regarded as so much dead weight to carry about. Excess "depot

fat" acquired by overeating is just that. However, much of the body's fat—especially that stored by trained long distance runners—is highly active metabolically and serves as a superior fuel for endurance performance.

Adipose tissue has a much higher energy yield per gram than glycogen (7:1 ratio), is easily stored in the various nooks and crannies of the body, and in fact is preferentially—almost exclusively—burned by migrating birds and other species that must cover long distances. The principle endurance muscle of the human body—the heart—also burns fat in preference to all other substrates.

Classic experiments by Christensen and Hansen in 1939 showed that during *submaximal* (aerobic) work up to three hours, fat normally contributes as much as 70% of the energy requirement. The ratio of fat to carbohydrate used as fuel increases with longer exercise. Also, the proportion of fat used could be influenced by various manipulations—diet, work-load and training being the most important.

In brief, glycogen utilization was highest in untrained men working closest to their maximum, and on a high-carbohydrate diet. Conversely, a mixed or high-fat diet, lower (aerobic) work-load and, most importantly, long distance training increased the proportion of fat burned—up to 90%. In other words, the working endurance muscles became more like the heart.

Recent animal experiments by Holloszy in the US have shown that training will almost double the amount of myoglobin, mitochondrial (respiratory chain) enzymes, and the various enzymes involved in the breakdown and oxidation of fat within the leg muscles.

A Swiss researcher named Howald did muscle biopsies of well-trained male 100-kilometer runners and found an average of 22.3% fat mixed in with the lean leg muscle. This compared to about 10% in untrained men and in lean distance runners trained over shorter distances. (Fat contained *within* muscle is not to be confused with percentages of total body fat, which is low in all runners.)

The distinction between active, "trained-on" fat and passive, "eaten on" fat is very important. Only the former is useful. Otherwise, as Dr. van Aaken points out, the best eater would be the best runner.

In order to develop the capacity to use one's fat efficiently, he says, one should run daily over long distances (10-40 kilometers), always aerobically—slowly. Caloric intake should be limited to 2000 per day, including 50 grams of un-



PAGE 22: Nina Kuscsik, frequent sub-3:00 marathoner.

ABOVE: New world record holder Chantal Langlace. (H. Muller)

saturated fat, and runners should take regular fasts. Using this training formula, Dr. van Aaken predicts a men's marathon time of under two hours, and for women times under 2:20.

Granted that the oxidation of fats in running is much more important than most of us have realized. What does all this have to do with women? To begin with, even well-trained women usually have about 10% more fat than similarly trained men. Much of this fat is subcutaneous and serves as useful insulation.

More of the women's total body weight is stored fuel and correspondingly less is dead weight, i.e. muscle. Dr. van Aaken emphasizes that the average woman is 23% muscle vs. 40% in men. Thus, women have a hormonally-determined sex-linked disadvantage in muscle dependent activity—sprints, shot put, etc.—but a corresponding advantage in endurance activities. In running, it is naturally important to be as light as possible—witness Miki Gorman—and muscular men are more handicapped than helped by their bulk over long distances.

In effect, then women are built for

distance running and will always do better, relative to their own capacities, where endurance rather than power is important. Eileen Waters again provides an impressive example. In a recent marathon, she ran her best time of 3:03 (average of seven minutes per mile), starting out at 6:30 per mile and ending up at 6:30. Aside from the rather startling increase in speed with distance, this doesn't sound so remarkable...unless one knows that Eileen's best mile time is about 6:20. An equivalent performance by Frank Shorter would have him run 5:15 per mile for the first half of the race and finish at 4:15, averaging 4:45 for the whole run.

Eileen and probably other women obviously don't "run out of glycogen" and grind to a halt as so many men do. Several explanations are possible (and speculative):

1. Women not only contain more fat (fuel), but they know how to use it more efficiently. Possibly their enzyme systems are more geared to oxidize fat. As far as I know, all studies of fat vs. carbohydrate utilization have been confined to men—or male animals. It would be interesting to have some data on women—milers, marathoners and untrained.

2. Women may burn a higher percentage of fat, thus their available glycogen lasts longer and they feel better. This is quite possible even in the absence of sex-linked enzyme capabilities, since the more aerobically anyone runs, the higher the percentage of fat utilized. Glycogen seems to be reserved more for the anaerobic "heavy work." A man can easily run so fast that he uses up all his glycogen at twice the normal rate, and crashes early. By running aerobically, one can perhaps burn a better mixture of fuels.

The ideal long distance runner has been defined as a strong engine (heart) inside a light frame. The average woman will have a lighter frame than a man of the same height and an equally strong engine, since male and female hearts are equally responsive to training. But women may illustrate a third desirable characteristic: the ability to utilize "high-octane" fuel in the form of fat.

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PLANNING HIGH-CALORIE WORKOUTS

by Joe Henderson

You down a Big Mac, fries and a shake, and gain a quick 1000 calories. How many miles will you have to run to work off those calories? The standard answer would be 10. Running uses up about 100 calories of energy per mile. One hundred times 10 equals 1000.

One hundred calories per mile. It's a round, easy-to-remember figure...and little more than an educated estimate which doesn't take several variables into account. One is the runner's pace. Another is his size.

Three Air Force doctors reported earlier this year that a runner's weight has the biggest influence on his energy consumption, and that pace has little to do with it. (The second conclusion has an important qualification, but we'll get back to it later.)

Drs. Bruce C. Harger, James B. Miller and James C. Thompson took much of the guessing out of running calorie-counting when they published their findings in the April 22 *Journal of the American Medical Association* ("The Caloric Cost of Running," Vol. 228, No. 4, pp. 482-483).

"It seems logical," they wrote, "that careful accounting of calories for both input and output would be the most precise means of prescribing a weight control program."

"Many people run to lose weight," they said. "However, very often fitness books give caloric value for running that is based on a single weight for a period of one hour. We believe this is doubly erroneous since weight is such a large factor in determining cost, and because comparatively few people run for a full hour."

They centered their research around 1½-mile runs—a standard distance in the "Aerobics" program used in the Air Force. For 150-pound men, the caloric cost of running this distance in eight minutes (5:20 mile pace) is only slightly higher than the caloric cost of a run twice that slow. The difference, 16 calories, is less than you'd get from a cube of sugar or a few peanuts. It takes 3500 calories eaten or used to gain or lose one pound.

The doctors noted, "It can be readily seen that pace has very little effect on the caloric cost of running, and thus indi-

viduals in low fitness categories can expend almost as much energy as a similarly-sized person for a given distance. However, the difference in energy cost when comparing various weights is much more dramatic."

They tested runners weighing from 120 to 220 pounds. The heaviest used up as many as 100 more calories than the lightest at a given pace over the 1½-mile test distance.

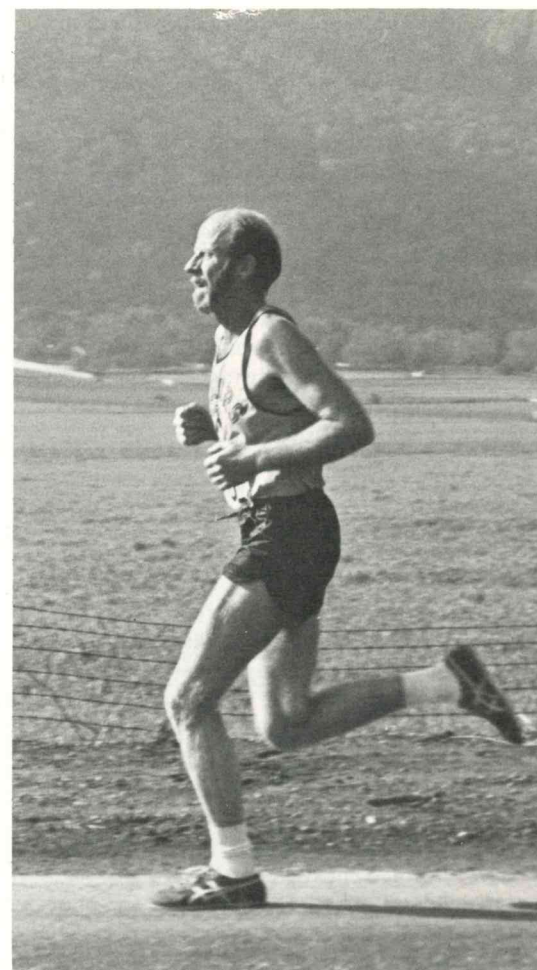
Using the Air Force doctors' figures, runner Russ Akers from Washington adapted Table One. It lists the caloric costs of running in *per-mile* terms. As mentioned, there's almost no difference between fast and slow running.

This is where the important qualification comes in—one the doctors didn't spell out in the article other than quickly mentioning "for a given distance."

You may be thinking, "C'mon, they're saying it takes about the same energy to run at 5:20 mile pace as 10:40? They've gotta be kidding. One's a hard run, the other's almost a walk."

The doctors are as right in what they say as you are. It is harder to run fast. But the slower you go, the longer it takes to run a *given distance*. You're burning fewer calories per minute, but for more minutes.

Dr. David Costill explained this in an earlier issue of *JAMA* ("Physiology of Marathon Running," Aug. 28, 1973, Vol. 221, No. 9, pp. 1024-1029). He said, "Total energy expenditure per kilo-



Fast running burns up more calories per minute than a slow pace, but slow runners take more time to complete a given distance. So the caloric costs of their races are about equal—if they weigh the same. That's the significant variable. (Photos by Doug Schwab, above, and Dale McKinnon, below)





meter distance is constant and independent of velocity.”

Costill gave the example of two marathoners—one running at six-minute pace (2:37) and the other at eight minutes a mile (3:30). The faster runner had an estimated caloric expenditure only about 4% higher than the slower one. But running at six-minute pace cost significantly more *per minute*, about 40% more.

Let's switch things around now and say the runners are competing for the same length of time. It's an hour run on the track. They go the same paces as before, six- and eight-minute miles. They cover 10 and 7½ miles. The caloric costs are about 950 vs. 675.

So pace does make a difference. Your fast miles may not be worth much more than my slow ones. But minute-for-minute, your running is a hell of a lot more productive in caloric terms.

Table Two extrapolates calories-per-minute from the Air Force doctors' research. And since many *RW* readers do run by the hour, hourly totals are in Table Three.

If you want to run off that 1000 calories quickly, run hard for a set period of time. If you aren't in such a hurry, run a set distance at any pace you like. Both ways work. ●

TABLE ONE: CALORIES USED PER MILE OF RUNNING

WEIGHT (pounds)	PACE PER MILE								
	5:20	6:00	6:40	7:20	8:00	8:40	9:20	10:00	10:40
120	83	83	81	80	79	78	77	76	75
130	90	89	88	87	85	84	83	82	81
140	97	95	94	93	92	91	89	88	87
150	103	102	101	99	98	97	95	94	93
160	110	109	107	106	104	103	101	100	99
170	117	115	113	112	111	109	107	106	105
180	123	121	120	119	117	115	114	112	111
190	130	128	127	125	123	121	120	118	117
200	137	135	133	131	129	128	126	124	123
210	143	141	139	137	136	134	132	130	129
220	150	148	146	144	142	140	138	136	135

Note: expenditure of 3500 calories equals one-pound weight loss.

TABLE TWO: CALORIES USED PER MINUTE

WEIGHT (pounds)	PACE PER MILE								
	5:20	6:00	6:40	7:20	8:00	8:40	9:20	10:00	10:40
120	15.6	13.8	12.1	10.9	9.9	9.0	8.3	7.6	7.0
130	16.9	14.8	13.2	11.8	10.7	9.7	8.9	8.2	7.6
140	18.1	15.9	14.1	12.6	11.5	10.5	9.6	8.8	8.1
150	19.4	17.0	15.1	13.5	12.3	11.2	10.2	9.4	8.7
160	20.6	18.1	16.1	14.5	13.0	11.8	10.9	10.0	9.3
170	21.9	19.2	17.0	15.3	13.8	12.7	11.5	10.6	9.8
180	23.1	20.2	18.0	16.2	14.6	13.3	12.2	11.2	10.4
190	24.4	21.3	19.0	17.0	15.4	14.0	12.9	11.8	10.9
200	25.6	22.4	19.9	17.9	16.2	14.8	13.5	12.4	11.5
210	26.9	23.6	20.9	18.7	17.0	15.5	14.1	13.0	12.1
220	28.1	24.7	21.9	19.6	17.8	16.2	14.8	13.6	12.6

TABLE THREE: CALORIES USED PER HOUR

WEIGHT (pounds)	PACE PER MILE								
	5:20	6:00	6:40	7:20	8:00	8:40	9:20	10:00	10:40
120	936	828	726	654	594	540	498	456	420
130	1014	888	792	708	642	582	534	492	456
140	1086	954	846	756	690	630	576	528	486
150	1164	1020	906	810	738	672	612	564	522
160	1236	1086	966	870	780	708	654	600	558
170	1314	1152	1020	918	828	762	690	636	588
180	1386	1212	1080	972	876	798	732	672	624
190	1464	1278	1140	1020	924	840	774	708	654
200	1536	1344	1194	1074	972	888	810	744	690
210	1614	1416	1230	1122	1020	930	846	780	726
220	1686	1482	1314	1176	1068	972	888	816	756

Foot care, warmup, diet, stress, etc.

SPORTS MEDICINE, TOE TO HEAD

by James Nolan

Runners can run pain-free. Their pain is rooted in two defects, both curable.

We can blame our maker for the first defect. It seems that most of us are put together unevenly. One leg is short. One calf is short. The second toe is shorter than the "big" toe. A major bone in the rear foot does not move through its prescribed arc. The result? The feet hit the ground unevenly. The erratic stride is not seen, even by the quick eye. But then the runner piles up the miles, and distance slowly etches the painful story into the lines of his face.

We can blame ourselves for the second defect. Our running muscles grow strong. The opposing muscles groups grow weak. Flexibility is lost. The stronger muscles pull and tug, hip and thigh, ankle and groin. It hurts. And the Stoic, the runner, grins and bears it.

Discussion of these defects and cures dominated an all-day symposium at the Rutgers Medical School in New Jersey in October. Dr. George Sheehan, medical editor of *Runner's World*, organized the symposium which brought together some 120 doctors, interns, coaches and athletes. The highlights:

● **Richard O. Schuster**, of the New York College of Podiatry, said, "We are coming to believe that the shin splint is connected with the short calf muscle. If the calf muscle is tight in the back, the muscles on the front of the shin must pull up and they grow fatigued. What to do? You stretch the calf muscle and add a heel lift."

Schuster recommended the heel-flat-on-the-floor-and-lean-forward-into-the-wall calf stretching, and emphasized the gentle pull, not a bounce motion.

He continued, "If a runner leans too far forward when he runs, he'll develop shin splints. If he runs more erect, he'll turn off the splints."

On leg shortages: "fully one-third



DR. GEORGE SHEEHAN:
"The doctor is educated in isolation. . . He is educated in the treatment of disease, not in health. . . I would not doubt that this is the first time in this medical school that lectures have been given aimed at perfecting man."

of our runners have one short leg. It may not work out on measuring bone length, but because the heelbone mashes through the soft tissue of the heel, you'll find as much as a quarter of an inch. The result? Low back pain. Hip pain. What to do about it? We pack the tissue back under the heel. You can do it with a heel cup or with a shoe insert."

Morton's Foot: "The foot tilts toward the second toe. The cure? Many of you have seen the insert described in *Runner's World*. ("Toe Trouble," April 74). Make it yourself. Thin felt. Looks like a one-fingered glove.

"It's easy to explain. The foot was once a hand and the big or great toe has not evolved fully away from being a thumb."

Groin pains? "Here's our analysis and the results work. Coincidentally with groin pains we find that the rear foot motion is limited. The rear foot

has two motions, an up and down joint and a side to side motion. The side motion should be through an arc of 30 degrees. With a person suffering groin pains we have found this motion limited to eight or 10 degrees.

"If the foot is limited in its side to side motion, then another structure has to get into the side to side motion and that becomes the hip adductors.

"What to do? We take the heel and put it in a neutral position and hold it there and the groin pains go away. Again, with a heel cup or an insert."

Dr. Schuster coupled his talk with a slide show which included weird-looking running shoes. Most with the familiar stripes going this way and that, but there the similarity ended. Built-up heels. Tilted forward soles. A rocking-chaired bottom pair of shoes designed to take pressure off the toes.

"You can do a lot with a pair of shoes," Dr. Schuster concluded.

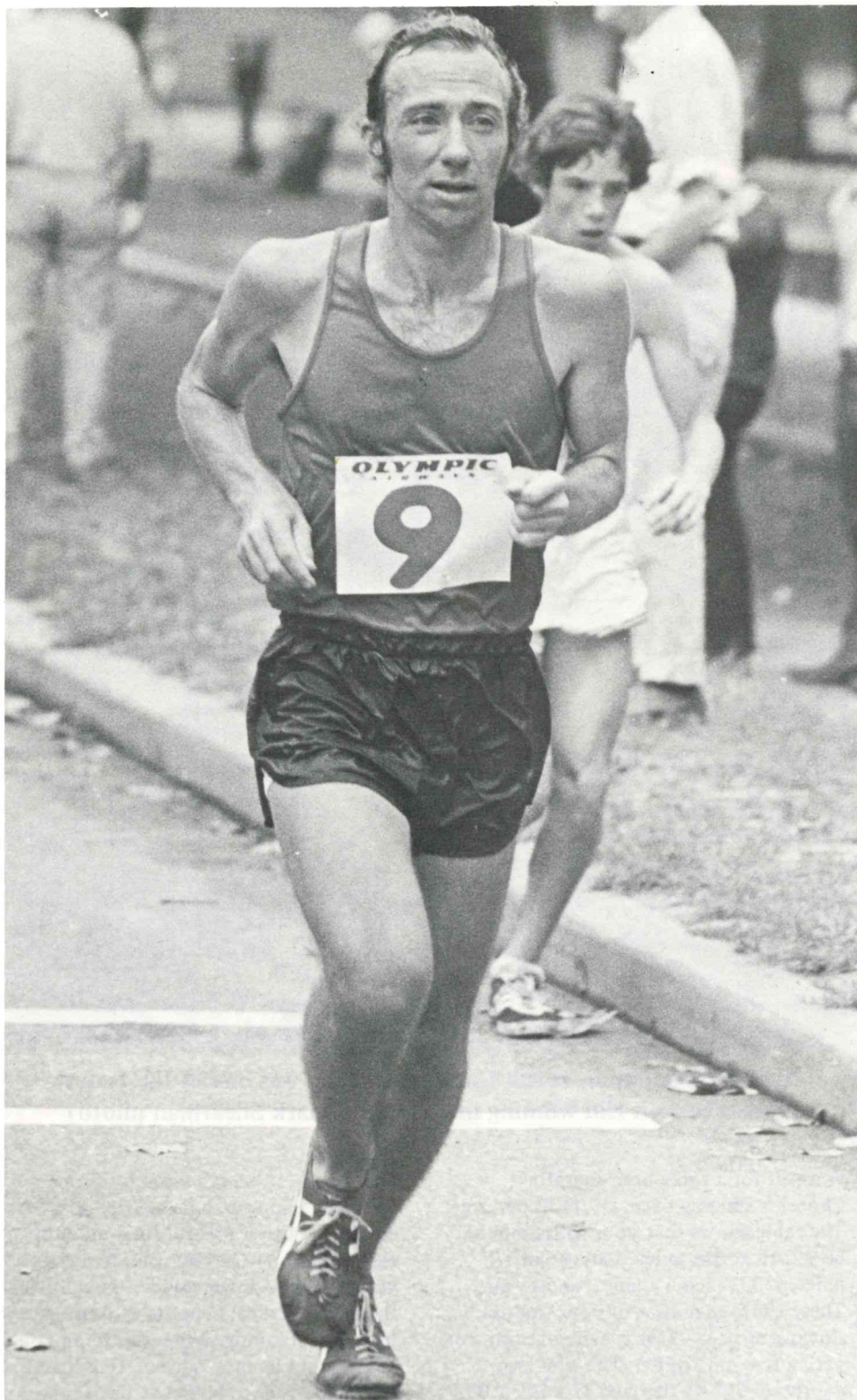
● **Karl Klein**, of the department of physical education at the University of Texas, described the results of a study he made on some 600 young football players. Klein designed tension measurements to be conducted by the coaches who then relayed the results to him. He studied the findings, and on the evidence of muscular and structural imbalance, he predicted which of the boys might suffer injuries. His predictions for the most part were accurate. Those boys who showed evidence of muscular imbalance did, indeed, get hurt.

● **Paul Uram**, who is listed as the "flex" coach for the Pittsburgh Steelers of the National Football League, demonstrated flexibility exercises which are designed to loosen up 250-pound players. Most of them were the fundamental yoga-type exercises familiar to most runners: The calf stretcher mentioned by Dr. Schuster. Various forms of stretches for the hamstring muscle groups, and sitting on the floor with the legs drawn up and the soles of the feet touching for stretching the muscles anchored in the groin.

Uram repeated the advice that runners have been giving each other—that you don't bounce a muscle, you stretch it ever so gently, hold it and then let it relax.

Uram said also that the warmdown was just as important as the warmup—to an athlete. What this means is that the runner, after completing his miles, should go through the same jog-stretch routine that he did before he started. And the worst possible thing that he can do is to hit a hot shower or a sauna or a hot whirlpool bath immediately after his workout.

"You hit that sauna or that whirl-



pool right away and I guarantee you, you'll be a rock tomorrow," Uram said.

● **David Costill**, exercise physiologist of Ball State University in Indiana, drew some simple conclusions from his work on the use of sugar by the muscles.

If you hit a brick wall at 20 miles in a marathon, it means that your muscles have run out of sugar and that's that. Dr. Costill backed this conclusion with slides of muscle fiber sections analyzed

Tom Osler advised runners to take staleness as nature's way of saying, "It's time for a rest, old buddy." (Jeff Johnson photo)

under a microscope which showed the sugar depletion.

The muscle fibers are described as being "fast-twitch" and "slow-twitch." (See "Championship Material," April 74 RW). Distance runners, perhaps because of their training methods, gain their mus-

cle sugar, or fuel, from the slow-twitch fibers. Sprinters gain theirs from the fast-twitch fibers. Both type of fibers are mixed throughout a muscle section.

In a distance event, the runner depletes his slow-twitch fibers and is unable to make use of the fast-twitch fibers because they respond to nervous commands associated with sprinting. And few of us sprint in the last six miles of a marathon.

Costill's studies back some training theories.

1. Alternate hard and easy days since 24 hours is not enough of a rest after a hard training session. (The muscle fibers are still depleted.)

2. Load up on carbohydrates before a marathon. To this second notion, Costill added the observation that the front end of the most popular carbohydrate-loading regimen is not all that important. He sees little gain from first driving the blood sugar level low in the early part of the week by eating mainly protein. A long run followed immediately by several high-carbohydrate days has about the same effect.

And of particular interest to track and cross-country runners and coaches was Costill's findings that carbohydrate-loading had no effect on runners competing in distances of less than an hour's duration.

● **Tom Osler**, a professor of mathematics and former US 50-mile champion, made a moving philosophical statement about the wholeness of the runner, about the runner being one with nature. He discussed staleness and training peaks and valleys, and his statement in essence was that the distance runner should accept staleness. Embrace it. Take staleness as nature's way of saying, "It's time for a rest, old buddy."

● **George Sheehan** summed up the day's proceedings:

"The question that I heard most out in the corridors during the breaks was this, 'Where have men like Schuster and Costill and Osler and Uram and the others been? Why haven't we heard about them?'"

"My answer is that the doctor is educated in isolation from his colleagues. He is educated in the treatment of disease, not in health. That is a much more difficult subject. Health is the study of the universe."

"People who come to this amphitheater are taught to kill the streptococcus, not how to help man perform at his maximum. I would not doubt that this is the first time in this medical school that lectures have been given aimed at perfecting man." ●

by Dan Moore

PROPER PACE FOR THE LONG RACE

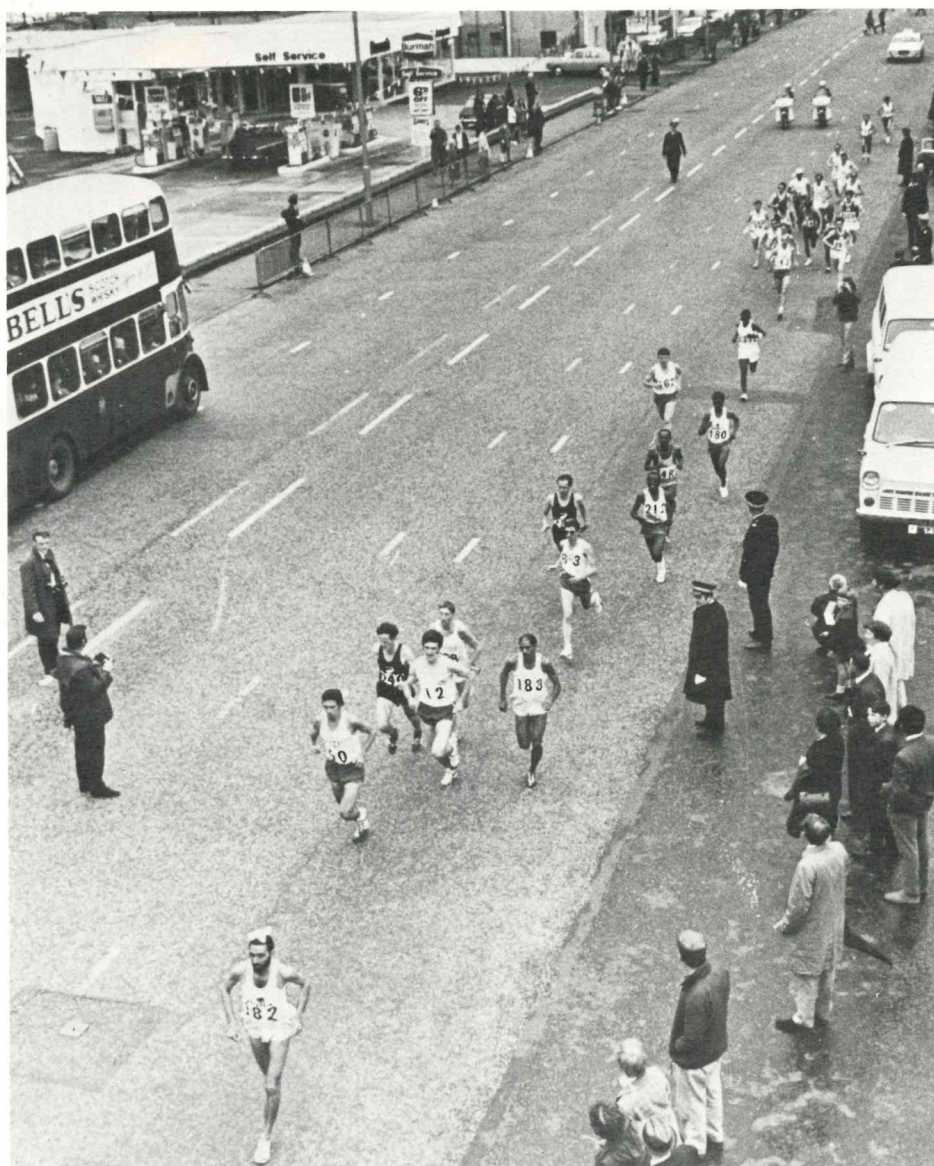
The marathon is a tough race to pace. If you start out too fast, you won't have enough left to run the last five or six miles at your intended pace. On the other hand, if you don't run those first easy miles fast enough, you have to play catch-up when the miles start to hurt. So how do you determine the "right" pace?

One way is to divide the desired finish time by the total distance, and try to run every mile at the same pace. For example, suppose you want to run a three-hour marathon. Three hours divided by 26.22 miles works out to 6:52 per mile. But do you really think you can run *every* mile at exactly 6:52?

Paul Slovic, in his 1974 *Marathon Handbook* article "Pacing the Marathon," found that very few runners are able to run the entire marathon at a constant pace. You know that you will slow down during the race. So you start faster than 6:52, say 6:30, and then run that pace for five miles. Or should it be 10 miles? Then what pace for the next five or 10? It sure is confusing.

Perhaps a graph and a little figuring can help solve the problem. First of all, those who have run the marathon know that pace slows at an increasing rate as we run. An example of this is shown in the graph where pace (in minutes per mile) is plotted against distance run. For example, this marathoner starts at a 6:30 pace and then slows at an increasing rate. During the first five miles he slows to 6:34. At 10 miles, he is hitting a 6:40 pace. By 20 miles, he is still running at 7:01 per mile. However, at mile 25 he is really getting tired and slows to 7:39 minutes per mile. The pace curve then rises steeply, reflecting the effects of "hitting the wall," and at mile 26 the pace is a painful 8:23 per mile. At the end of the marathon, the curve is going straight up, corresponding to the usual feeling that running any farther would be impossible.

The total time for this marathoner is three hours. Suppose you want to pace



The 1970 Commonwealth Games marathon was one of the fastest ever, with Ron Hill winning in 2:09:28. (Mark Shearman photo)

yourself for a three-hour marathon. Choose a starting pace, say 6:30 per mile. The table shows that your splits should be 32:41 at five miles, 1:05:46 at 10 miles, 1:39:25 at 15 miles, and so on. These times take care of your "natural" slowing of pace. This is evident upon comparing five-mile splits. The first five are run in 32:40, the next five in 33:05, the next five in 33:39, and so on until your last mile—the slowest—is 8:10.

With the help of the table, the problem of pacing a marathon simplifies to one of selecting a starting pace. How do you select a starting pace? My recommendation is to choose the *slowest* one in the table that will get you there in the desired time.

For example, I recommend starting at 6:45 to run a three-hour marathon. The reason for this is psychological. If you start faster, you will suffer the men-

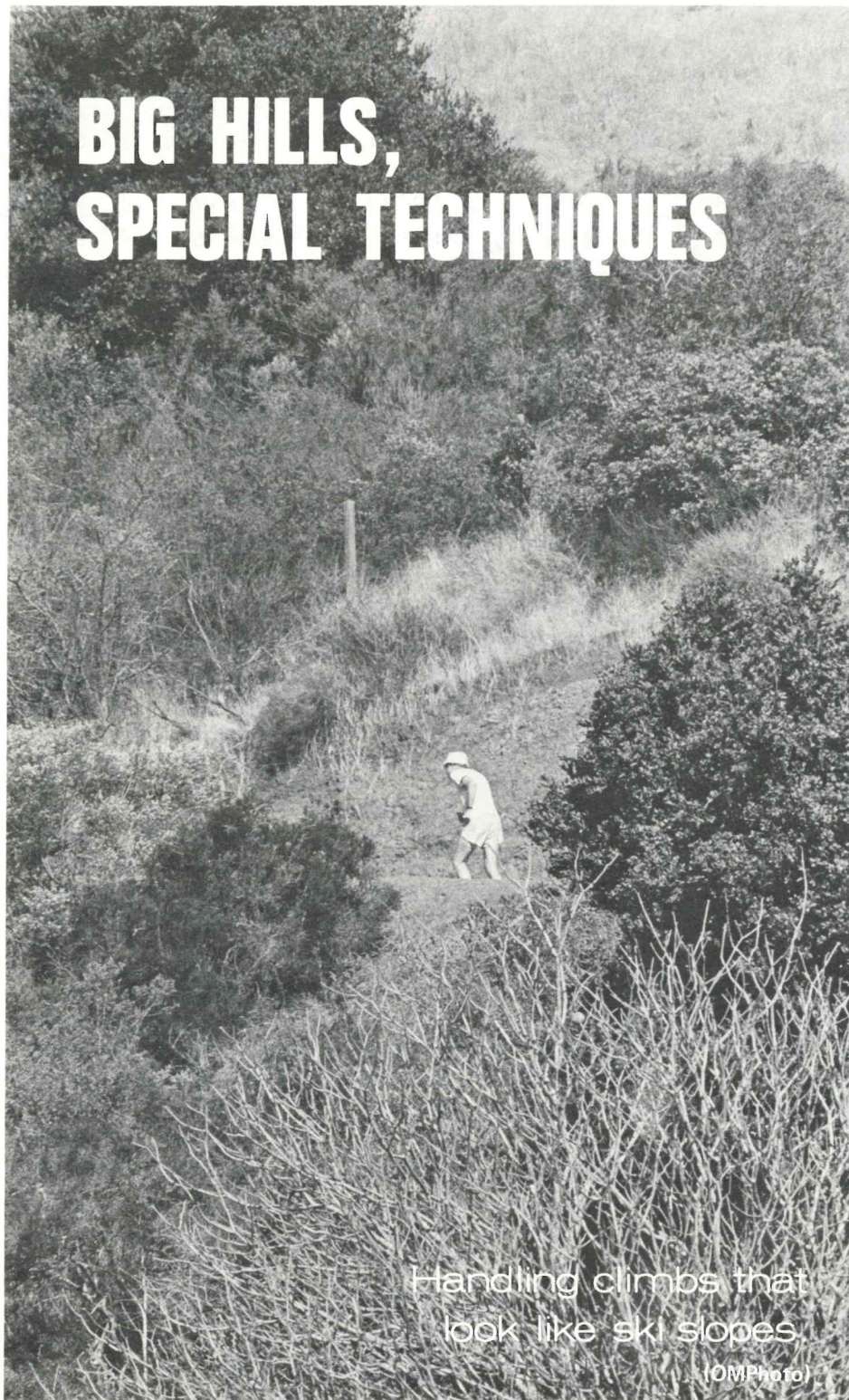
tal anguish of being passed by runners who don't appear to be as tired as you are during those painful final miles of the marathon. On the other hand, if you start at a slower pace, you will reap the psychological benefits of passing people who look more exhausted than you. What could be more stimulating than to pass some runner you have been following for the first 10 or so miles? You can gloat as you sail by him. "Keep it up. Only a few more miles," you say, knowing he can never catch you.

Paul Slovic, in his study of marathon pacing, also found that the fastest runners tended to slow down the *least*. In other words, the 2:30 marathoners ran at an almost constant pace while the 3:30 marathoners tended to start off fast and finish slowly. The key to pacing the marathon is to run the first miles *slow* enough rather than fast enough! ●

How to Set Your Marathon Tempo

Marathon	First mile	5 miles	10 miles	15 miles	20 miles	25 miles	Last mile
2:30	5:00	25:19	51:25	1:18:34	1:47:21	2:19:44	8:38
	5:15	26:28	53:28	1:21:10	1:49:57	2:21:01	7:29
	5:30	27:36	55:28	1:23:41	1:52:23	2:22:09	6:29
2:40	5:15	26:38	54:09	1:22:55	1:53:36	2:28:35	9:37
	5:30	27:47	56:13	1:25:33	1:56:15	2:29:56	8:25
	5:45	28:55	58:14	1:28:06	1:58:46	2:31:07	7:22
	6:00	30:03	1:00:13	1:30:33	2:01:07	2:32:10	6:26
2:50	5:30	27:56	56:53	1:27:15	1:59:50	2:37:25	10:38
	5:45	29:05	58:58	1:29:55	2:02:33	2:38:49	9:23
	6:00	30:14	1:01:00	1:32:30	2:05:06	2:40:04	8:16
	6:15	31:22	1:03:00	1:35:00	2:07:32	2:41:10	7:17
3:00	5:45	29:14	59:37	1:31:35	2:06:04	2:46:14	11:40
	6:00	30:23	1:01:42	1:34:17	2:08:49	2:47:41	10:21
	6:15	31:32	1:03:45	1:36:53	2:11:26	2:48:59	9:12
	6:30	32:41	1:05:46	1:39:25	2:13:54	2:50:09	8:10
	6:45	33:48	1:07:45	1:41:52	2:16:16	2:51:11	7:15
3:10	6:00	30:32	1:02:21	1:35:55	2:12:17	2:55:02	12:42
	6:15	31:42	1:04:26	1:38:38	2:15:04	2:56:32	11:21
	6:30	32:51	1:06:30	1:41:16	2:17:44	2:57:53	10:08
	6:45	33:59	1:08:32	1:43:50	2:20:16	2:59:06	9:03
	7:00	35:07	1:10:32	1:46:19	2:22:40	3:00:12	8:05
3:20	6:15	31:50	1:05:04	1:40:14	2:18:29	3:03:49	13:45
	6:30	33:00	1:07:10	1:42:58	2:21:19	3:05:21	12:21
	6:45	34:09	1:09:15	1:45:38	2:24:01	3:06:46	11:06
	7:00	35:18	1:11:17	1:48:14	2:26:36	3:08:02	9:58
	7:15	36:26	1:13:18	1:50:45	2:29:03	3:09:10	8:58
	7:30	37:34	1:15:17	1:53:12	2:31:24	3:10:13	8:03
3:30	6:30	33:08	1:07:47	1:44:33	2:24:40	3:12:36	14:49
	6:45	34:18	1:09:54	1:47:19	2:27:33	3:14:11	13:23
	7:00	35:27	1:11:59	1:50:00	2:30:17	3:15:38	12:05
	7:15	36:36	1:14:02	1:52:37	2:32:54	3:16:56	10:55
	7:30	37:45	1:16:04	1:55:09	2:35:25	3:18:08	9:51
	7:45	38:53	1:18:03	1:57:38	2:37:49	3:19:13	8:54
	8:00	40:00	1:20:01	2:00:03	2:40:06	3:20:12	8:02
3:40	6:45	34:26	1:10:30	1:48:52	2:30:52	3:21:22	15:53
	7:00	35:36	1:12:38	1:51:38	2:33:46	3:22:59	14:25
	7:15	36:45	1:14:43	1:54:21	2:36:32	3:24:29	13:04
	7:30	37:55	1:16:47	1:56:59	2:39:12	3:25:50	11:52
	7:45	39:03	1:18:49	1:59:33	2:41:45	3:27:04	10:46
	8:00	40:11	1:20:50	2:02:04	2:44:12	3:28:12	9:46
	8:15	41:19	1:22:48	2:04:31	2:46:32	3:29:14	8:51
3:50	7:00	35:44	1:13:13	1:53:10	2:37:02	3:30:08	16:58
	7:15	36:54	1:15:21	1:55:58	2:39:58	3:31:47	15:27
	7:30	38:04	1:17:27	1:58:41	2:42:47	3:33:19	14:05
	7:45	39:13	1:19:32	2:01:21	2:45:29	3:34:43	12:50
	8:00	40:22	1:21:35	2:03:57	2:48:05	3:35:59	11:41
	8:15	41:30	1:23:36	2:06:29	2:50:34	3:37:10	10:39
4:00	7:15	37:02	1:15:56	1:57:29	2:43:13	3:38:57	18:03
	7:30	38:12	1:18:05	2:00:17	2:46:10	3:40:35	16:30
	7:45	39:22	1:20:11	2:03:02	2:49:01	3:42:08	15:06
	8:00	40:31	1:22:16	2:05:43	2:51:45	3:43:34	13:49
	8:15	41:40	1:24:20	2:08:20	2:54:23	3:44:54	12:38
	8:30	42:49	1:26:21	2:10:53	2:56:58	3:46:07	11:33

BIG HILLS, SPECIAL TECHNIQUES



Handling climbs that
look like ski slopes.

(OMPhoto)

by Ken Young

There is a strong element of pride in hill running ability. Two runners who consider themselves tough on hills will compare the hills they train on.

"My hill is bigger than your hill," one says.

"Maybe," says the other, "but my hill is steeper than yours."

Those of us who live and train in

the mountains tend to look down on flatlanders who proclaim to have learned the "secrets" of running hills. Considering the hills that a number of western runners train on, and being biased, I feel that articles such as Hal Higdon's ("Secrets of Running the Hills," and "Advanced Lessons on Hills," July-August 74 *RW*) have relatively little value in telling you how to run hills. If you want to learn how to run hills, read my trail and hill running article in *Running with*

the Elements ("Hill and Trail Running," Booklet No. 35).

The source of controversy probably lies in different concepts of hills. As a flatlander, my idea of a hill was Heartbreak Hill on the Boston course. In fact, a friend of mine in Chicago prepared for the Boston marathon hills by running repeats on a pedestrian overpass. This was the closest thing to a real hill that we had for miles around. Memories of my previous runs at Boston centered on trudging slowly up one hill, only to find it wasn't Heartbreak Hill.

Last year, after nine months on Colorado hills, I ran Boston again. Around 18 or 19 miles, I seemed to start feeling a little sluggish. But looking around, it seemed pretty flat. I thought, "If I feel this bad on the flat, what's it going to be when I reach Heartbreak Hill?" Then I rounded a corner and there was Boston College. I was over the hill. My concept of what constitutes a hill had changed drastically in that year. What used to be dreaded hills now seem no more than minor inconveniences.

My inauguration to training on real hills wasn't exactly planned. Work on my thesis required me to spend a summer at the National Center for Atmospheric Research (NCAR). NCAR is located in Boulder, Colo., and the main building is located southwest of town on a mesa 700 feet above the town and backed up against the Rocky Mountain front range. Since there were shower facilities available, I decided to run to and from work each day as a minimum. This covered only 2½ miles each way, but the last mile going to work involved an altitude gain of 500 feet. Although the hill looks impressive, it wasn't long before it became routine.

The next logical step was to try running some of the trails that take off behind NCAR and go back into the mountains. I figured it would be nice to run easily along the trails, shaded by pines. That should be much more enjoyable than taking the extra time to go down to the university and run laps on a track, exposed to the hot sun, or to run on the roads, fighting traffic and exhaust fumes.

Well, just getting to the main trail (about 700 yards) involved going down a 75-foot hill, jogging up a 120-foot hill and then down another 100 feet. Not very easy. Another 700-800 yards farther along came the next challenge. It was a good thing I couldn't see all of the hill. It wasn't so steep, but when I got to what I thought was the top, I was only halfway up. The hill climbed nearly 400 feet in something like half a mile. Then the trail got rocky and the only scenery I

saw was the rocks immediately before me.

This type of hill, you don't charge, drive or approach lightly. About 20 feet below the top, I was gasping for breath, barely moving. Staggering to the top, I stood, bent over for perhaps a minute, just getting my breath back. But I did manage some semblance of running, all the way to the top. I named this "S.O.B. hill, because when you run to the top, you're too winded to even say "sonovabitch!" It was a good month before I could manage to name the hill properly after running to its summit.

Later, breaking in a new, more difficult trail course, I spotted an even better hill. This time I didn't need to run the hill, I could have gone around. It was just as steep as S.O.B. hill but some 60-70 feet higher. I couldn't let a challenge like that go by, so I tackled it. Halfway up, I felt like I did near the top of S.O.B. hill. Some 30 feet below the top, I felt like I usually do when I try kicking the last 10-20 yards of an all-out 880—the desire is there but the legs have lost all feeling. This hill went without a proper name until this past summer, when I christened it "Ski Slope." Except for the creek and abrupt wall at its base, it would make a great downhill ski slope.

Much of what I've learned about running hills has come from running the hills back of Boulder. I've had opportunities to study not only my own adaptation to hills but also to see how other runners handle my hills. Steve Flanagan is a recent transplant to Colorado. In his native Connecticut, he trained on eastern hills with John Vitale and Amby Burfoot, and also ran a 4:07 mile in college. I met him after the National AAU 15-kilometer championship this summer after he beat me by some 20 seconds on a course generally considered hilly.

Being new to the area and now living in Boulder, Steve approached me, asking if I were going to do a long run the next day. I had planned to do my 15-mile trail course but told him it wasn't exactly an easy course. He decided to try it and I took it easy. On the smaller hills and easier grades, he stayed with me, even when the trail was fairly rough underfoot. On the longer and steeper hills, he would lag back and on Ski Slope and S.O.B. hills, he would barely make halfway in the time I needed to make the top.

It became quite clear then that there are two types of hill running ability. On the flat and courses with rolling hills, his speed gave him the advantage over my strength. Even on courses considered hilly by eastern standards, basic speed was the determining factor. His 4:07 mile speed gave him a larger reserve going up

short hills, an ability to briefly but markedly increase his work rate going up the hill. (With my 4:46 mile, a 5:10 pace for 15 kilometers doesn't leave much reserve for hills.) This type of speed is the kind that Dave Wottle and Jim Ryun have made famous. You can call on it for a few hundred yards (20-30 seconds), but beyond that, forget it. Call this Type A hill running ability.

Now consider Steve's and my relative abilities on hills like the Ski Slope or S.O.B. hills. Here, the steeper and/or higher the hill the more Steve lags behind. On long upgrades (e.g., 1500 feet in three miles), Steve drops back but not at a constant rate. At first he stays with me, then he drops back gradually. Finally, he slows and drops back markedly. This is similar to what happens when a runner goes out too fast in a long, flat race. He maintains the pace for a while, then begins to labor but hangs on and finally collapses abruptly. Thus, the bigger hills require a higher level of aerobic conditioning, and tolerance to oxygen debt becomes less important. Call this Type B hill running ability.

Type B ability is more than simple aerobic conditioning. Not only do hills such as Ski Slope or S.O.B. have to be run in or close to *aerobic steady-state* but they require a *slightly different set of muscles*. If you like running secrets, call these Young's Hill Running Secrets One and Two. The development of these additional muscles must be associated with proper capillarization to insure these muscles will function as required without going into oxygen debt. This means that running good, steep hills is *essential* for developing Type B hill running ability.

Hal Higdon's article is restricted to Type A hill running ability. The faster runner's have a natural advantage on Type A hills, provided they know how to run hills economically and have the confidence. For this, a minimum of practice should turn a Type A runner into a successful hill runner, at least by eastern standards. Tom Fleming and Carl Hatfield would be good examples of Type A hill runners. These runners are tough on courses like the Boston marathon course.

When you get to courses like Mt. Evans, Pike's Peak or Mt. Washington, Type B hill runners have the advantage. This type of ability requires work, and lots of it, on good, tough hills. There are relatively few Type B hill runners since there are relatively few places where a runner can train to develop this type of ability. Chuck Smead is a good example of a Type B hill runner (see "Profile of a Mountain Man," Sept. 74 *RW*), although he probably has a lot of Type A ability as well.

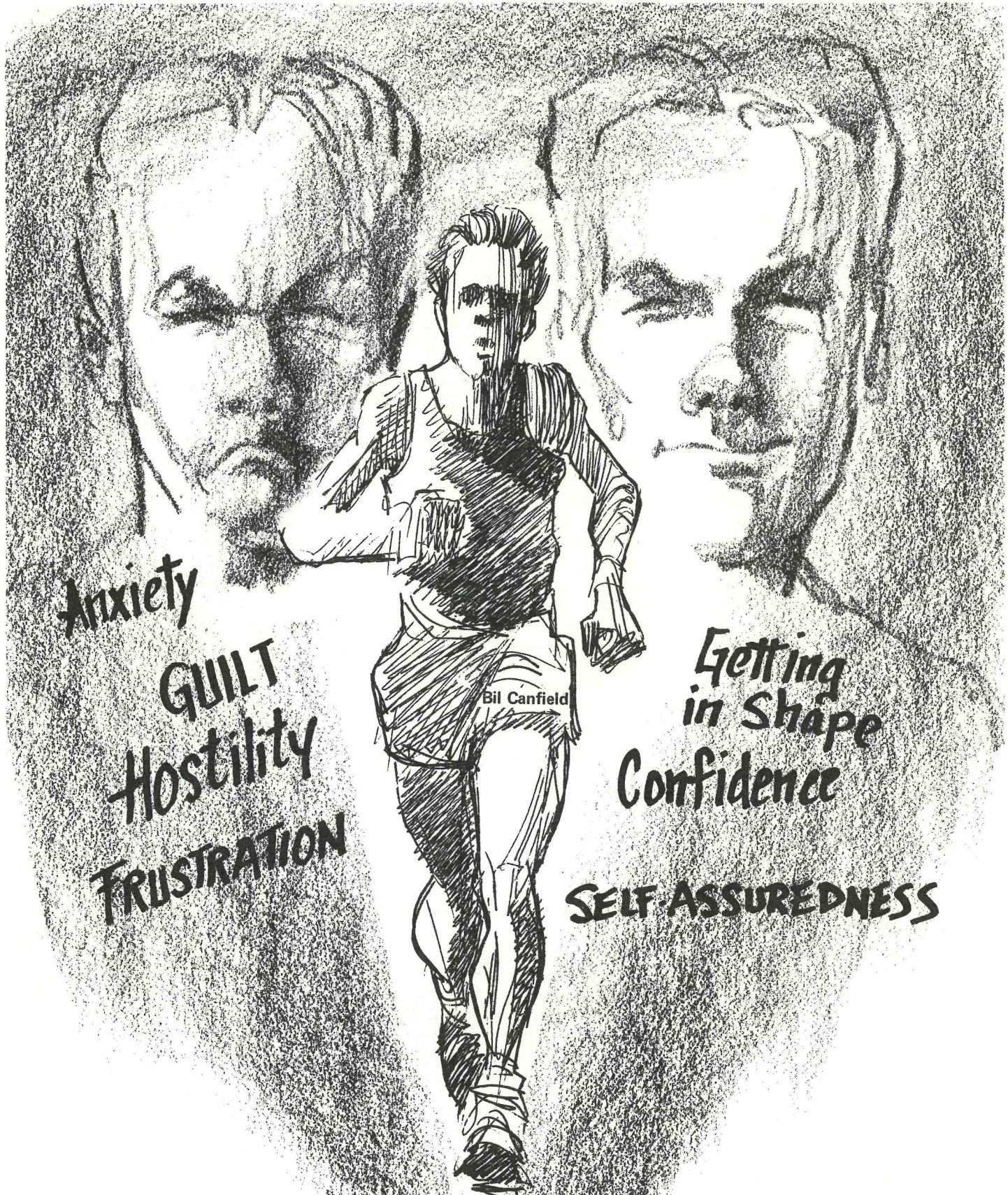
Now that we've defined different types of hill running ability, and by implication, defined different types of hills, a number of interesting questions can be asked. Who really is "King of the Mountain?" If you consider Type A hills, then it would be pretty tough to beat Frank Shorter. (Incidentally, I've seen Frank running trails back of Boulder. Who knows how tough Frank Shorter really is on any and all types of hills?)

Still, my vote for number one on Type B hills and "King of the Mountain" goes to Rick Trujillo. Who is Rick Trujillo? Due to frequent injury problems, Rick hasn't run as many races as Chuck Smead, but in those he has been up for, he has been impressive. In his first try at Pike's Peak, he essentially tied Chuck for the ascent record and won the round trip, breaking Steve Gachupin's record by one second with 3:39:44.

This past summer, Rick and I, along with Mike Petersen of the University of Colorado, ran much of the ascent together. Unfortunately, Mike, not knowing the course, led us off the trail. Rick and I called a stop perhaps a half-mile off the right trail and decided to try to angle back, following a rather poor logging road. We lost one place and an estimated five minutes. Still, Rick was second to the top in 2:11:04 (the extra five minutes would have broken the ascent record by 1½ minutes) and won the round trip in record time of 3:36:40.

Rick is a classic Type AB hill runner. Blessed with 4:06 mile speed, he trains on hills (mountains, really) that boggle the imagination. He lives in Ouray, Colo., at an altitude close to 9000 feet. He has running courses that climb to more than 13,000 feet and over trails that are far from easy. Rick says he is so used to running up and down hills that he gets achilles tendon problems when he runs on the flat.

Another more interesting question is whether eastern hill runners are better than western hill runners. To answer this question, what I propose is a team competition. A team from the states of west of the Mississippi River versus a team from the east. Seven men on a team, five count in scoring as in cross-country. The competition would be held on five different courses over the summit, best three-out-of-five. I suggest the following courses: (1) Mt. Washington (N.H.), (2) Mt. Baldy (Calif.), (3) Mt. Evans (Colo.), (4) Pike's Peak (Colo.), (5) and Double Dipsea (Calif.). Select team managers (perhaps Hal Higdon would like to manage the East team). Then get a sponsor to cover expenses and have the series televised. ●



Anxiety

GUILT

Hostility

FRUSTRATION

Bill Canfield

Getting
in Shape

Confidence

SELF-ASSUREDNESS

RUNNING'S MOTIVATING FORCES

by Carl Tuss

Carl Tuss of Cleveland is a psychiatric social worker, and a 6'5½", 230-pound marathon veteran.

Compared to other dimensions of running, it is conspicuous that our understanding of what motivates the long distance runner still remains in the Dark Ages. In a study I conducted I attempted to raise somewhat this level of understanding. The 162 men canvassed represented a cross-section of ages, from 16-68, as well as differing running abilities. National class athletes, road racers, fitness runners and runners who had suffered heart attacks were scrutinized by the informal interview method. (Statistics are not to be presented as the population is so small.)

The results showed three motivational mechanisms underlying long distance running: (1) mastery of aggression, (2) mastery of anxiety and guilt, and (3) development of mastery of self.

● Mastery of Aggression:

"Aggression" has a spectrum of meanings, with healthy, active assertions at one end gradually blending into more hostile, cruel sadism at the other end. I restrict my discussion to the healthy, active and assertive components of aggression.

Uppermost in the awareness of a third of the men questioned was the insight that their running was an outlet for their aggression.

Sources of aggression were mostly perceived as stemming from the outside world; e.g., some kind of frustration. A few indicated their aggression originated in their own personality. Common to this entire sub-group was their collective mental image as being "aggressive" and having many channels to express their aggression. It is interesting to note that most of these runners were quite successful in other areas of their living.

Among higher caliber runners, aggression expressed in the specific context of competition was important to them. Competition itself appeared to have a special, pleasurable meaning. Competition with the self (e.g., improve one's times) appeared to be more important than competition with others.

A small percentage of high-caliber runners identified that aggression expressed in the specific context of winning or triumphing was of major importance for them. Anything less than a victory or placing well was perceived as a defeat.

● Mastery of Anxiety or Guilt:

Characteristic of a small percentage of runners was the response that running helped to control anxiety or guilt. Sources of anxiety were frequently seen as arising from the outside world. A few could pinpoint their anxiety as having roots in their personality, but it was a rare individual who could be specific about the nature of the mental conflict that plagued him.

Running as a preventive treatment for coronary-prone individuals calmed much anxiety for those who feared future heart attacks or who had already had one. One midwestern psychoanalyst's sole reason for running was to prevent a heart attack.

Anxiety about weight control and other health factors was expressed by a considerable number of runners from all levels of running ability. Several instances of running that took the form of a compulsion were observed. In these individual cases, the runner no longer had control over his sport. Injuries frequently resulted from such compulsive running.

A 67-year-old retired lawyer related that without his daily eight-mile run, he was burdened with strong feelings of tension and depression. Eventually, tendonitis aggravated by his compulsive running called a complete halt to his running for several months.

Among more gifted runners, anxiety was also observed in overcompensatory training that often was not pleasurable. Such excessive running usually masked an anxiety of "not being in shape."

Anxiety about success or winning infected a very small proportion of national-class runners. Winning presented an unconscious conflict for them that may have prevented the full utilization of their abilities.

● **Development or Mastery of the Self:** A number of business executives noted that the early part of their daily runs helped their problem-solving. Clarity of thought increased until the point of fatigue, when an opposite phenomenon—poverty of thought—became prominent.

A large proportion of late-adolescent and young-adult runners viewed their running as having contributed to their growing identity and feelings of "selfhood." Feelings of being an athlete obviously enlarged their respective self-images.

Marathon runners often viewed the marathon as a supreme challenge to be mastered. Implicit in the challenge was the expectation that the self needed to be

at its best in order to tolerate the long and exhausting pressures of this event. Having run a marathon was often viewed as having gained entry into an elite reference group.

Mastery of the self contained in the challenge of "getting into shape" often meant a good deal to the average jogger. Again, the self-image seems to have expanded and feelings of confidence and self-assuredness appeared as fitness was achieved.

Caution should be exercised when applying these findings to other groups, as the population studied was small and perhaps unrepresentative. Keep in mind, too, that this outline has been presented as a simplified form. In reality, human motivation is very complex, having many levels of meanings at differing levels of awareness from conscious to unconscious.

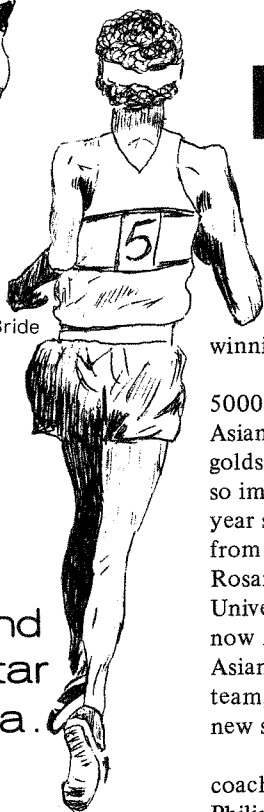
Nevertheless, I hope this study shows that running not only can be a constructive mental and physical health activity which maintains the integrity of the personality, but also it can become a destructive force when the personality itself becomes unbalanced.

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McBride



PITTER PATTER OF LITTLE FEET

LUCIAN ROSA

105-pound distance star Lucian Rosa.

by Dennis McBride

When you run against a star, you are supposed to be impressed. After reading all the clippings about Lucian Rosa, I thought a runner that good would be an imposing, majestic athlete who ran like a big chestnut racehorse.

I was wrong. He runs like a little chestnut pony. At 5'6½", 105 pounds, Lucian is what sportswriters like to call "reed-thin," the kind of a guy who is supposed to disappear when he turns sideways.

Once I got over my initial shock, I was impressed. What else can you be when a runner destroys you, and with so little effort? Lucian floated away with carefully-measured strides, looking for all the world like a big man as he bounded down the trails. I saw him again only at the finish.

He will destroy you on track or trail, but more important is the way that Sellapuliage Lucian Benedict Rosa will disarm you with his graciousness. He is polite almost to the point of discomfort. At 30, Lucian is a star, but he remembers that long before his fourth place finish in the 1974 Boston marathon (in 2:15:53), he ran only 15:05 for 5000 meters in

winning the 1965 Ceylon championship.

Rosa won bronze medals in the 5000 and 10,000 meters at the 1966 Asian Games. Four years later, he took golds in both events. The Japanese were so impressed they offered him a full five-year scholarship. Similar offers came from both East and West Germany. Tom Rosandich, then athletic director at the University of Wisconsin/Parkside and now AD at UW/Milwaukee, was at the Asian Games to help coach the Philippine team, and he had different ideas for the new star.

Rosandich and the Parkside track coach Bob Lawson, also helping with the Philippine team, went to Lucian and convinced him to go to the Wisconsin school. Lucian laughs about the meeting now.

"I didn't know anything about scholarships then," he said. "I thought, 'the USA is a better country, so I'll get a better deal.' After I accepted, I didn't get any plane tickets."

He couldn't afford them, but luckily for Parkside, West Germany offered Lucian another scholarship, this one for 2½ months. Since he was given plane fare, he had an ace up his sleeve. He figured it would cost less to send him to America than back home to Ceylon. Parkside had its star.

Since Parkside was a relatively new school, it didn't have much money to spend, even on international stars. But Rosandich didn't let a little thing like that bother him. He scraped up enough for Lucian's tuition, got him a small job for spending money and found a couple of angels.

Parkside lies on the border between the lakefront cities of Racine and Kenosha, and Rosandich made an appeal to the townspeople. Kenneth and Ruth Joanis, whose children were grown, were anxious to hear the patter of little feet around their house again. They heard it, though the feet were 26 years old.

"I felt kind of lost when I got

here," Lucian said, "and I was new to Mr. and Mrs. Joanis. Now I call them Mom and Dad." He smiled and added, "Mom makes lunches for me."

The Joanises do more. They give him his room and board free, and they buy him clothes. The couple is even there to cheer for him at meets on occasion.

Lucian won a race his first week at Parkside and became a campus celebrity. His friendly disposition made him a favorite among classmates, and his talent made midwest runners miserable.

At Parkside, Lucian had another new experience. He wore running shoes for the first time. He still might be running barefoot today, a la Abebe Bikila, except that the weather interfered. Anyone who has spent a winter in Wisconsin can tell you why.

With a shudder, Lucian recalled his first encounter with post-November Dairyland: "When the snow got real heavy, I said 'no way.' Still, I prefer real light shoes."

In December 1971, he ran his first marathon, the North Central in Naperville, Ill., finishing 16th in 2:48. It was his first race in shoes, though he took them off at 20 miles. Since it was snowing, and about 20 degrees, he froze his feet.

After that, Lucian stayed with shoes. He won the Drake Relays and NAIA marathons in both 1972 and 1973, setting meet records in both the second year—2:25:18 and 2:26:00 respectively. He also won the 1973 Paavo Nurmi race in 2:22:58, but nobody expected the success that lay ahead.

A few weeks after that Nurmi run, Lucian surprised running fans by finishing second to Jeff Galloway in the Charleston 15-miler. He beat class runners like Jon Anderson, Tom Fleming and Neil Cusack. Lucian later ran sixth in the prestigious Springbank 12-miler in London, Ont. Still, nobody paid much attention.

This year, Boston seemed to change all that. No one runs a 2:15 in that race without some fanfare. But Springbank didn't invite him back this year and Lucian can't figure why.

His recent brilliance is a sharp contrast to his fadeout in the Munich Olympics. Here his accented speech takes on a slightly bitter edge.

"I had a bad time at the Olympics," he said. "I was told to go over to Germany 2½ months before. If I had gone over a couple of weeks before, I'd have done much better."

Athletes from smaller countries were told to report to Germany early for

special coaching. Most of them hadn't had the benefit of the coaching experience of a Bob Lawson, though, and Lucian's stay over there only confused a well-plotted training schedule.

The athletes competed once a week, and sometimes twice. Six weeks before the Games, Lucian won the Mid-European marathon in 2:22:27, on a gravel and dirt course. All the racing wore him out.

In Munich, Lucian could only magage a 16th place in his heat of the 10,000, running a 30:20. He did not finish the marathon. "Coach Lawson still talks about it, how I should have stayed here to train," he said.

The deaths of the Israeli athletes had their effect on Lucian, too, as they did on others. For the Ceylon athletes, it was doubly terrifying. Their rooms were next to Israel's. They were asked to leave their rooms, and didn't come back until 11:00 at night. They saw the vans of hostages leaving, never to return.

"I felt kind of bad," Lucian remembered sadly. "The grounds were all empty, and nobody was training. There was a mob of people crowded around a TV in the Village, waiting for news. Everybody talked in whispers. Those who knew German wouldn't talk, so we didn't know what was going on."

Now, Munich is in the past, Montreal in the future. After he graduates with a business degree next spring, Rosa hopes to spend the remaining year in training, perhaps doing some high school coaching on the side. This time he will stay in America until the Olympics.

His training schedule throughout college has been fairly constant, and probably won't change much as he gets ready for Montreal. Normally, he runs just over 100 miles a week. His highest ever was 191½, in a week spent at Rosandich's Olympia Sports Village in northern Wisconsin.

On a typical Sunday, Lucian will run an easy 20 miles. Mondays, he will do repeat workouts of mile, two-mile or 2½ mile intervals. He will run 10 x one mile at about 4:50 average, with two minutes rest.

Five-mile runs, run twice at 27:30, feature a Tuesday workout. Wednesdays will be like Mondays, and Thursdays like Tuesdays.

On Fridays, Lucian runs 45-50 minutes of moderately hard fartlek if Saturday's meet is not important, otherwise five miles at an easy pace. Saturdays he runs races, with a three-mile warmup and a five-mile cooldown.

Each morning, Lucian runs the seven miles to school with a pack on his back, and he used to run back, until he tried it after repeat workouts. "One day I almost had to walk," he said with a grimace, "so I had to give that up."

After Lucian runs in Montreal, his plans are indefinite. He thinks he will go back to Ceylon (now called the Republic of Sri-lanka). "I would like to be a farmer or a fisherman. I would farm American-style. I like coaching, but I would only do that part-time. In my country, I'd have a chance to do that."

He told me, "Up to now, I can say Boston was really my big race, it was a lot of fun, and I met a lot of people. But the 1970 Asian Games was my first big one."

Before those Games, Lucian made a promise to himself. "I never thought I'd win a gold medal, but I took a vow that if I did, on Christmas Day I would run from a sacred town we have to a famous church, 31½ miles away."

Lucian took that run, probably learning for the first time that he could be a great marathoner. It has taken awhile, but the rest of the world has finally learned the same lesson. ●

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Run Gently, Run Long



Run Gently, Run Long is a little about racing success and how to achieve it. But it's mostly about running longevity and how to last. Running, says author Joe Henderson, is too good to be thrown away for a fleeting career as a racer, no matter how temporarily rewarding that career may be.

Run Gently, Run Long talks about the same things Henderson discussed in his famous "LSD" book five years ago. But this is not "LSD Revisited." It's rather a new definition of long slow distance, correcting wrong ideas and filling in holes left by the first book.



Joe Henderson is uniquely qualified to write such a book. He's editor of *Runner's World* magazine and an active runner himself.

Henderson skillfully brings readers up to date on the "state of the art" in gently-paced distance running by alternating chapters on his own experiences and the general principles underlying them. The experiences are personal and fleeting, he writes. The principles are universal and lasting.

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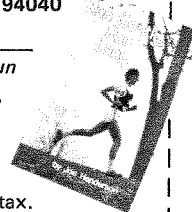
Yes! Please send me _____ copies of *Run Gently, Run Long* at \$2.50 per copy, plus 15 cents postage and handling. I enclose full payment. (California residents, please add 6% sales tax.)

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Bob Specht photo

by Elliott Denman

Dr. Shaul Ladany is an athlete who responds to the biggest of challenges—the longest and toughest race walking events in the world.

Among other things, the 38-year-old who is considered Israel's walking celebrity in track and field owns the world 50-mile track walking record (7:23:50 in 1972), is the 1974 National AAU 75- and 100-kilometer champion, a three-time winner of the classic London to Brighton 52-plus-miler in England, and the 1972 winner of the 100-kilometer classic held annually over the Swiss Alps.

But he took on his toughest race yet this spring—the 183-kilometer two-stage Tour de Var walk in France. He has some fond memories of this one.

"The invitation to this race came to me late on a Thursday, just four days after the US 75-kilometer walk," he explains. "The race was that weekend and I hadn't fully recovered from the 75, let alone trained for 183 kilometers (about 114 miles). Anyway, I was on a plane to Toulon by that night and there the next day."

In typical Ladany fashion—claim-

SHAUL LADANY: NON-STOP WALKER

ing the lead at the starting gun—he zoomed through the first-day assignment of 98 kilometers (60 miles) in 9:41.

"But the next day, after some rest, was pure agony," he admits. "Every step of the way my body said 'this is enough,' but my mind wouldn't let me quit." He finished the second 85 kilometers in 8:05 for a total clocking of 17:46:34, beating many of Europe's crack ultra-distance specialists who constitute a very special breed of athletes.

"In one sense, the Tour de Var is really a 'short race' by French standards," he points out. "It's a tryout race for the Strasbourg to Paris race of 525 kilometers held every June. They invited me to try Strasbourg this year, but I didn't accept. I wouldn't have the time to prepare for it properly. But maybe next year I'll be there."

Obviously, it takes some immense determination to be a winner in "ultra" racing, but there's one champion who doesn't recognize the mental strain of it all.

"I just don't consider this a problem," he says. "I don't know whether this is because of my character or my preparation. Whenever I train for long distances, it is at low speeds, but up to 10 or 12 hours. As such, I've been spared physical problems. The only real

problems come from muscular fatigue after long hours. But before becoming tired, there is a lot of time you can use profitably."

In his case, it involves some serious thought on some serious subjects.

"On my job as a university professor (he's on the staffs of Tel Aviv University, Baruch University in New York and Temple in Philadelphia), I never have enough time to do pure, basic thinking.

"While walking, I'm able to focus on the things I've always been delaying. I can prepare my lectures, organize my thoughts and more. Without the distractions of the outside world, I can do a lot of thinking about research projects. My best ideas always come when I am walking."

That thinking-walking process has brought him professional recognition. His doctorate is in industrial management, and he has a score of patents to his credit.

There's another doctorate in the family—owned by his wife, Shoshonah, who has become a familiar figure at distance walks, keeping her husband's enroute spirits and energy supply up. Daughter Danit is a newcomer to this team.

"This type of walking is mental as well as physical exercise," says Ladany. "People in other 'walks' of life could use more of it. For instance, I heard of a former Chief Judge of the Supreme Court who always spent a few hours strolling in a park before coming to his conclusions."

But what about race situations?


"They're different," he responds. "Generally, you're only thinking, 'When is this darn thing going to be over?'"

Halfway through the October 1973 track 100-miler at Columbia, Mo., Ladany was informed that war had again broken out in his homeland. He hustled through the balance of the race to win easily, rushed to the airport and three sleepless days later was on duty with his Israeli unit as a reserve officer of artillery.

Then, of course, there was the Day of Infamy at Munich. Two days after he finished 19th in the Olympic 50-kilometer walk—he's always considered this distance too short for him—he was one of the fortunate survivors in the Arab

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terrorist attack at the Olympic Village. He managed to scramble to safety, but the list of victims included his personal coach-manager.

The current Olympic situation regarding race walking's status leaves Ladany appalled.

"It just convinces me that race walkers are the stepchildren of the track and field fraternity. The IAAF decision, I feel, could have been averted with the right kind of lobbying. But there weren't enough of us there, with the time and the money, to fight back.

"Even if the verdict is rescinded—and there are a few encouraging signs, like promises to hold both the 20- and 50-kilometers in the proposed World Athletics Championships—we'll still be stepchildren.

"I strongly believe that race walking must step up its own international federation. As part of the IAAF, race walking won't be able to set up such a federation since the national bodies affiliated to the IAAF aren't really representative of race walking interests. We've got to be represented by people who really care whether we exist or not.

"All the arguments for deleting the 50-kilometer don't make sense. Both the 20 and the 50 could be held over traffic-free loops. The crowds could have then at least one sport that was free to all—without the high-priced admission tickets that are almost impossible to get.

"The idea of a race walking federation has a lot of other advantages. Race walkers would be able to solicit for sponsors more actively, for one. There is no shortage of potential industrial sponsors—but it's a matter of going after them. Soft drink companies or shoe manufacturers would be perfect examples. They already have some good sponsorship in countries like France, Italy and Switzerland."

As a near-fixture on the US race walking scene, he recognizes its problems.

"A basic problem in the US is that the race walkers are so dispersed geographically," he says. "We have pockets of activity but not enough national coordination. I see many young walkers coming into the sport. But we've got to keep them highly motivated with important goals to seek."

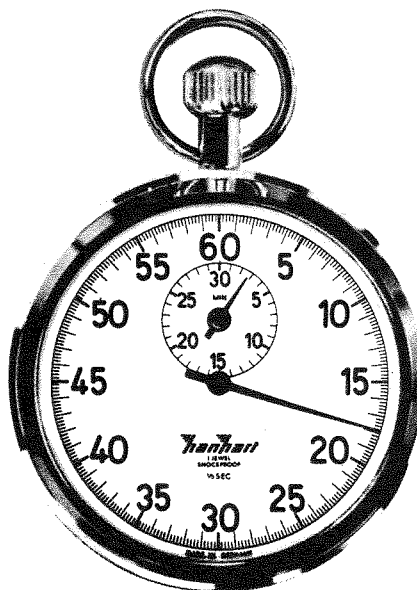
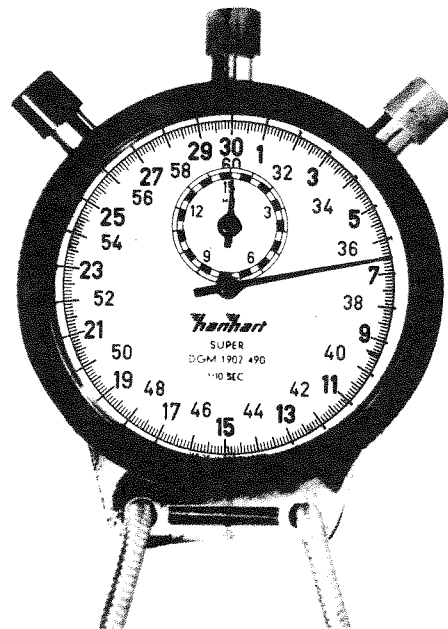
This rock-tough 5'8¾", 140-pound vegetarian—currently representing the Long Island Athletic Club and living in New York's Riverdale—has no problems with his own motivation. The lure of the long routes is enough of a challenge to keep him walking. ●

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Looking AT PEOPLE

● **Jack Foster** writes in *Tale of the Ancient Marathoner*, "I persist at racing marathons, but have never really liked them. I enjoy the challenge they present, but hate those final miles..." One reason he hates them is experiences like the one he had in a Czechoslovakian race this fall. He was running second with less than a mile to go. He finished 18th as the first 18 all came in within two minutes.

● **The Stolpe Family** challenges the **Harger Family** to a mile relay. We wrote about the Hargers' relay record in September ("Looking at People"). The Stolpes say they can field a team of Richard Sr. (50.2 relay leg) and sons Richard Jr. (47-flat), Stan (45.5) and Charles (56 seconds). If they ran these times in the same race, they'd total 3:18.7.

"At one point for each second under five minutes multiplied by the age spread (29 years)," writes Richard Jr., "the total of 2929 is 679 up on the Elsworth Harger total."

● **Ian Stewart**, bronze medalist in the last Olympic 5000, gave up running earlier this year in favor of bike racing. He wanted to make the next British Olympic team in that sport. Now Stewart is running again.

"Ian proved his point," says his bicycling advisor Tommy Godwin. "His success on a bike was amazing. Within months of starting, he was challenging nationally known riders. He didn't actually win a race, but he took several seconds and thirds. Most cyclists take years to get that close.

"Ian trained more than any cyclist and was distressed that others did so little. He burned up so many in training that other local lads wouldn't go out with him."

● **Bob O'Connell** of Illinois ran a 2:29 marathon in October. The significant feature here is that his best mile time is only 5:01. Are there any other sub-2:30 marathoners with slower mile times?

● **John Montoya**, a 62-year-old Indian who runs with the Seniors Track Club, won his division of the recent Mt. Baldy race in southern California. Montoya ran to the 10,000-foot peak shod only in blue bedroom slippers.

● **Terry Cox**, an Australian, made news recently for running all day without advancing one step. He claimed a "world record" of 79 miles on a treadmill.



Comedian-runner Johnnie Kennedy



● **Johnnie Kennedy** has enjoyed the longest run of any TV comedian. After appearing on British television one Saturday night, Kennedy got up early Sunday to race from London to Brighton. He ran the nearly 53 miles at better than eight minutes each. Imagine Archie Bunker trying that.

● **Dr. Kenneth Cooper's** Aerobics Center in Dallas has come up with an interesting statistic. It takes 10 business executives to equal one Frank Shorter. That's how they figured it for the Tyler Cup five-miler, anyway, as Shorter raced a relay team of executives. No results were reported.

● **Chantal Langlace** of France, who earlier this year lost a world marathon best for women when the course was found to be short, now has the record "officially". At least her run was as official as one can be in this event. Chantal ran 2:46:24 at Neuf-Briach, France, on Oct. 27, breaking **Miki Gorman's** mark by 12 seconds.

Meanwhile, at about the same time in Germany, **Christa Kofferschlagger-Vahlensieck** was going even faster. She did 2:42:38. Alas, that course was remeasured at 41,360 meters—835 short of the full distance.

● **Gary Tuttle** has won the largest AAU championship race of the year. More than 900 runners competed in the national hour run, held at two dozen sites around the country with results being tabulated by **John Brennand**. Tuttle covered 12 miles 430 yards—farther than the listed American record, though **Bill Clark** has a longer mark which has been pending since 1971. **George Stewart** and **Phil Camp** also went beyond 12 miles in this year's race, by 106 and 69 yards respectively.

● **Hugh Sweeny** and **Tom Osler**, two of the better-known running writers, staged one of the closest marathon finishes of the year in the Atlantic City race. Sweeny won by less than two seconds in 2:34:22.2.

When Hugh finished, a man greeted him with, "Hey Sweeny, you're a real jerk."

"Why so, sir?" Sweeny asked.

"You insulted my daughter.

You didn't grab her cup of Gatorade when she offered it to you (during the race). You're a real jerk."

In a race this close, Sweeny simply didn't have much time for drinking. Osler was only a few steps back at the end, and just six seconds behind him came **Larry Connolly**. ●

RUNNER'S GUIDE TO KANSAS CITY

Everything's up to date in Kansas City despite the fact that many people think the states of Kansas and Missouri are barren wastelands in the heart of America. Metropolitan Kansas City, covering areas of both Missouri and Kansas, offers many new adventures for travelers who want to don their running gear and maintain their mileage totals.

A warning: in Kansas City, Mo., running on the many golf courses presents a drastic problem as a runner is a no-no on the links. But he can elect instead to use various parks.

Swope Park, located at Swope Parkway and Meyer Boulevard, is the second largest city park in America. This park has a zoo, a lagoon, two golf courses, bicycling paths, Starlight Theater, tennis courts, picnic areas, a variety of playing fields, a lakeside nature center and the Swope Park running course.

The Swope Park cross-country course is located near the zoo and Starlight Theater and is a grassy area with a natural tree line to guide runners over the two-mile route. A flat to rolling course with no large hills, it is the site of the fall park and recreation cross-country meets and all Kansas City, Mo., schools' cross-country meets.

Loose Park, at 51st and Wernall,

has a one-mile course stretched over a concrete sidewalk that one can run over in any type of weather. This park is the site of the Missouri Valley AAU winter road runs, since the winter snow is removed from the sidewalk with regularity. The Jogging for Life program is held here annually.

Penn Valley Park, at Pershing and Main, provides a scenic view of nighttime Kansas City, Mo. This park is elevated high above the downtown business area and is a beautiful, wooded, hilly area. It is safe to run here, and the park isn't so crowded as Swope and Loose Parks because of the hills.

Antioch Park, at 65th and Antioch, in Overland Park, Kans., is a good place to run as well as enjoy the two small lakes, tennis courts, playground areas and beautiful scenery. It is a small and compact park.

Wyandotte County Park, is near the Bonner Springs, Kans., turnpike exchange. The beautiful grassy area has plenty of scenery to allow one to refresh the mind as the steps progress toward his daily mileage goal. The Agricultural Hall of Fame with its exhibits of early agricultural America is located here.

Wyandotte County Lake Park in Kansas City, Kans., has safe, wide roads running four miles around the lake over the hilly roads. It has been the site of many Missouri Valley road runs.

Shawnee Mission Park at 79th and Bonner Road in Shawnee Mission, Kans., is the best running area in the state of Kansas. The park has three running areas available for the competitor as well as the trainer. The grassy two-mile cross-country course is located near the main entrance and provides a real challenge as it is flat, rolling and very hilly.

The 1.7-mile road course is similar in terrain to the grass course. The runner has no problem with radical drivers as the 25 m.p.h. speed limit is well enforced.

The 5.2-mile route provides flat areas and many types of hilly inclines as a runner progresses around the perimeter of the park. The course, used for the 1973 National AAU 25-kilometer championships, is certified.

The Johnson County Park and Recreation District conducts Kansas' only age-group cross-country program over the

two-mile course from October to December for runners grades one through masters. The beauty of these meets is that there is no entry fee but many awards. The course is located near many motels and restaurants and accessible to I-435.

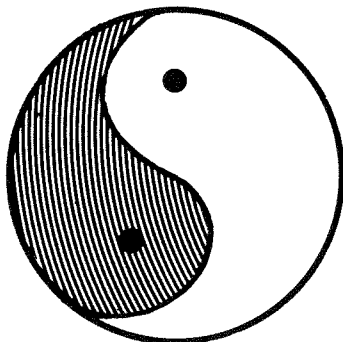
If one desires to run near his motel, all he has to do is make reservations at The Glenwood Manor Motor Motel, 95th and Metcalf in Overland Park. The motel maintains an all-weather track adjacent to the motel complex.

There are more than 60 high schools in metropolitan Kansas City with various types of track facilities. Whether a person can gain access to each respective track will vary with the policies of each school.

Race announcements can readily be obtained from the Missouri Valley AAU office, 201 East Armour Boulevard, Kansas City, Mo. (Phone 816/931-6277.) The AAU office publishes a monthly newsletter as does the Missouri Valley Masters Track and Field Association, featuring races and meets in the area.

(For information about Kansas City area races contact Verlyn J. Schmidt, 5509 West 97th Terrace, Overland Park, Kans. 66207.) •

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CITY SERIES

Kansas City is the 21st city to be covered in this feature since it began in early 1973. Here, alphabetically, are all the cities covered in the past two years.

Atlanta (Sept. 73)	Minneapolis-St. Paul (Oct. 74)
Baltimore (June 74)	New Orleans (Apr. 74)
Boston (July 73)	New York (Mar. 73)
Chicago (June 73)	Philadelphia (Aug. 74)
Denver (Dec. 73)	Phoenix (Nov. 73)
Detroit (May 74)	Portland (Nov. 74)
Honolulu (Feb. 74)	St. Louis (Mar. 74)
Kansas City (Dec. 74)	San Francisco (Aug 73)
Las Vegas (July 74)	Vancouver (Sept. 74)
Los Angeles (May 73)	Wash., D.C. (Apr. 73)
Milwaukee (Jan. 74)	

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by George Sheehan M.D.

MEDICAL ADVICE

AIR POLLUTION

At a running rate of 7:30 per mile for 45 minutes to one hour per day, and assuming a maximum of 20-30 parts per million of carbon monoxide in the environment, one could expect a 3-4% increase above resting levels of carboxyhemoglobin (carbon monoxide in the bloodstream).

In a non-smoker who is able to run a 7:30 mile, such levels would present no undue hazard. In fact, only in individuals with quite advanced coronary heart disease would these levels present dangers.

Training in environments containing these amounts of carbon monoxide should not affect performance. If competition is held under carboxyhemoglobin conditions (3-5%), performance in events 880 yards and above probably would be affected to approximately the same extent as running in the mile-high altitude of Denver.

From my own experience in running and my knowledge of exercise physiology and psychology, I would think that informing the athlete of these effects would be more detrimental than the effects themselves. (Hubert Forster Ph.D., Medical College of Wisconsin, Milwaukee, Wisc.)

HEART EXERCISE

Q : I am aware of the values of exercise on the average person, and I know jogging programs are often used for cardiac patients. My question is, at what point is a person's condition too serious to be helped by exercise? My father has a heart murmur and circulatory problems caused by arteriosclerosis. He is 58. (L.M., California)

A: There is no disease that needs more advice and less medicine than heart disease. And the advice I give to my patients is to become an athlete, albeit a limited one.

People understand about athletes.

They know they warm up before they compete; that they wait until their food is digested before they become active; that they avoid alcohol and tobacco and anything else that would interfere with maximum performance; that they want to be just bone and muscle.

But first of all, they must find their sport. Cardiacs who become athletes have to pick from the low-grade endurance sports: cycling, walking, jogging, swimming, golfing, perhaps doubles tennis.

In your father's instance, I would advise walking. Unless he has previously been in those other sports, they will be too strenuous—at least at the start. After a period of time on a walking program, reaching 1-1½ miles in 30 minutes four times a week, he can move into other activities should he wish to do so.

DAILY RUNNING

Q : This past spring, I was running on the average about 6-8 miles a day and I was feeling pretty good. Since then, I seem to have gone nowhere but down. Over the summer, it became a strain to run five miles. My legs were feeling like lead, and my breathing was labored. I thought maybe this was due to running in the heat, but I'm still feeling that way now, even though the weather has cooled down. Running is supposed to be fun, yet for me it hasn't been for a long time. Any suggestions? (C.M., New York)

A: I have found daily running to be a dangerous practice. I gradually use myself up and am unaware of it. A state of staleness sets in very gradually and like most runners I try harder. The result is loss of both pleasure and ability.

I now take off one day every week, frequently take two days off and more often than I would have thought possible in the past I take three days off. If I finally become aware of and accept the fact that I am stale, I take a nap daily instead of a run. After 3-10 days of naps, I suddenly find again that almost uncontrollable urge to run.

If staleness is not your problem, you most likely have a deficiency. The most likely (and the most satisfactory to treat) is lack of vitamin B-12. Other prevalent deficiencies are thyroid, iron, hormones and other vitamins. You should consult your physician for such investigation and treatment.

HEART VOLUME

Q : I would like to know what is the maximum volume of blood per heartbeat for a well-trained athlete. (G.R., Illinois)

A: The resting stroke volume of

the heart is generally recorded as being from 70-90 cc. Astrand in his *Textbook of Work Physiology* (McGraw Hill) has charted maximal stroke volume in 25-year-old sedentary subjects at 100-150 cc., well-trained athletes at 140-160 cc., and top endurance athletes at 175-210 cc.

The stroke volume usually reaches its maximum at 40% of maximum aerobic work, or at a heartbeat of 110-120 per minute. From there on, there is little increase in the amount of blood ejected during each stroke.

(Reference: Jensen, C.R. and Fisher, A.G.—*Scientific Basis of Athletic Conditioning*, p. 40, Lea & Febiger, Philadelphia, 1972.)

FLAT FEET

Q : While coaching cross-country this year, I've worked with a runner who has flat feet. His feet have no arch at all. In spite of this, he runs well. He seldom complains of pain or discomfort. Is there positive action we can take to prevent future trouble? (J.H., Connecticut)

A: I see nothing to be gained by anticipating trouble that may never occur. For reasons obscure to me, many people have extremely flat feet yet have no symptoms. I would recommend no treatment except for the use of a good training shoe. As the runner gets heavier and into more distance, his feet may become symptomatic. At that point, a heel stabilizer and perhaps a longitudinal arch support might help.

WEIGHT TRAINING

Q : How important should weight training be in sprinters' and middle distance runners' training? Can weight training tighten up your legs and reduce speed? (D.J., Minnesota)

A: Paul Uram, flexibility coach of the Pittsburgh Steelers, thinks that speed is related more to flexibility than strength. It is true that resistance training (uphill running, for instance) is considered essential to middle distance runners. However, the day of flexibility may be upon us. Uram has the Steelers' "front four" doing ballet splits and uniformly decreasing their 40-yard times—the prime speed test in pro football. Uram's program has kept the Washington Redskins and now the Steelers free of non-contact injuries for four years.

The shin muscles, quadriceps and abdominal muscles need strengthening for injury prevention in distance runners coming down to middle distance. Sprinters are more likely to have hamstring weakness and will pull if they don't do weight training for them. ●

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JANUARY COMING EVENTS

NORTHEAST

- 4-5 Pittsburgh Indoor Track Classic, Pittsburgh, Pa. (John Harwick, 467 Beverly Rd., Mt. Lebanon, Pa. 15216).
10 C.Y.O National Indoor Invitational, College Park, Md.
18 East Coast Indoor Invitational, Richmond, Va.
19 Jersey Shore Marathon, Asbury Park, N.J. (Convention Hall; 11 a.m.; open; Tom Baum, 1307 Ocean Ave., Spring Lake, N.J. 07762).
19 Jersey Shore Marathon, Asbury Park, N.J. (Convention Hall; 11 a.m.; open; Tom Baum, 1307 Ocean Ave., Spring Lake, N.J. 07762).
31 Wanamaker Millrose Indoor Games, New York, N.Y.

SOUTHEAST

(In the Nov. *RW* the date of the Peach Bowl marathon was listed incorrectly as Dec. 28—

instead it will be run on Dec. 21).

- 18 Raleigh Marathon, Raleigh, N.C. (11 a.m.; open; Russell Combs, Dept. of Physical Ed., N.C. State Univ., Raleigh, N.C. 27606).
26 Gold Coast Marathon, Boca Raton, Fla. (7:30 a.m.; open; Ray Russell, 208 S.E. Sixth St., Fort Lauderdale, Fla. 33301).

SOUTHWEST

- 1 Sun Carnival Marathon, El Paso, Tx. (Michael Ridley, P.O. Drawer 9698, El Paso, Tx. 79987).
18 Houston Marathon, Houston, Tex. (Memorial Park; 10 a.m.; open; Pete League, 5471 Jackwood, Houston, Tex. 77035).
18 Arkansas 15-kilometer, North Little Rock, Ark. (Burns Park; 10:30 a.m.; Woody Jolley, Track Coach, Parkview H.S., 2500 Barrow Rd., Little Rock, Ark.).

ROCKIES

- 17 Idaho State Indoor Meet of Champ., Pocatello, Idaho.

WEST

- 4 30-kilometer SN-AAU Road Race, Las Vegas, Nev. (Sunset Park; 9 a.m.; open; Las Vegas TC, P.O. Box 869, Las Vegas, Nev. 89101).
4 Ore. AAU 15-kilometer, Lookingglass Ore., (Lookingglass School; 1 p.m.;

Stan Stafford, 744 S.E. Rose St., Roseburg, Ore. 97470).

- 11 Mission Bay Marathon, San Diego, Cal. (Mission Bay Park; 8 a.m.; open; Bill Gookin, 5946 Wenrich Dr., San Diego, Calif. 92120).
11 Ore. AAU 25-kilometer, Central Point, (Crater H.S.; noon; Jerry Swartsley, P.O. Box 1072, Phoenix, Ore.).
11 Mission Bay Marathon, San Diego, Ca. (Mission Bay Park; 8 a.m.; open; Bill Gookin, 5946 Wenrich Dr., San Diego, Cal. 92120).
18 San Dieguito 13.1-mile, Salona Beach, Cal. (Earl Warren Jr. High; 10 a.m.; open; Jim Temples, 2151 Newcastle, Cardiff, Cal. 92007).
18 Sunkist Indoor Games, Los Angeles, Cal.
24 Examiner Indoor Invitational, San Francisco, Cal.
25 Oregon Indoor Invitational, Portland, Ore.
26 World Masters Marathon, Orange, Cal. (Chapman College; 8 a.m.; Bill Selvin, P.O. Box 5694, Orange, Cal. 92667).

WALKS

- 1 Gulf AAU 20-kilometer Walk, Houston, Tex. (Memorial Park; 10 a.m.; John Evans, 4011 Old Galveston Rd., No. 133, Houston, Tex. 77017).

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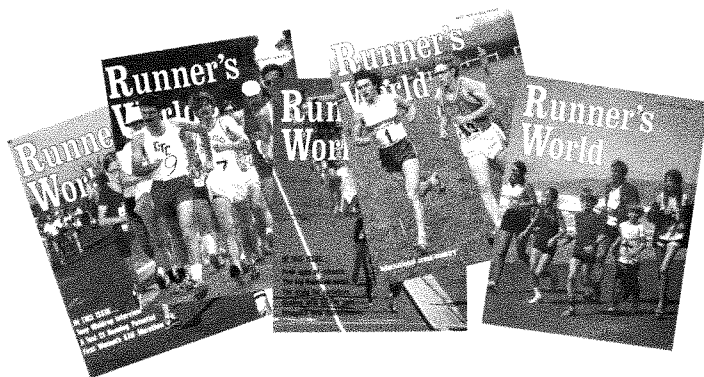
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RACING HIGHLIGHTS

NORTHEAST

● **Baltimore, Md., Sept. 15**—Athlete's Foot 25-kilometer: 1. Robert Dryden (17, NBTC) 1:26:06; 2. Michael Sabino (35, BOC) 1:26:39; 3. James Lears (27, BOC) 1:29:39... 33. Donald Heimiller (43, Balto RR) 1:53:56... 39. Donald Heinicke (60, Howard City St.) 1:56:59... 43. Margaret Rosasce (BRR) 2:04:15. (52 finished, 3 under 1:30, 21 under 1:45; from Bailey St. Clair).

● **N.Y., N.Y., Sept. 29**—N.Y. City marathon: 1. Norbert Sander (31, Millrose AA) 2:26:30; 2. Art McAndrews (30, BAA) 2:28:16; 3. Larry Frederick (25, NYAC) 2:32:18; 4. Arthur Hall (27, Oakwood TC) 2:35:01; 5. William Rodgers (20, Greater Boston TC) 2:35:59; 6. Hugh Sweeney (28, East Orange) 2:37:26; 7. Michael W. Baxter (30, BAA) 2:37:31; 8. Mike Scarborough (19, East Coast AC) 2:41:00; 9. Kevin McDonald (24, N. Jersey St.) 2:44:29; 10. Colin Beer (41, Shore AC) 2:45:10... 20. Don Dixon (47) 2:55:05... 39. Ted Corbitt 54, NY Pioneer C) 3:00:45... 59. Kathrine Switzer (27, Central Park TC) 3:07:29... 101. Irving Taylor (60, Central Jersey TC) 3:23:44... 141. Eliz. Franceschini (31) 3:36:18... 179. Faith Berriman (19) 3:55:06... 181. Ann DeGross (39) 3:55:49. Teams: 1. Boston AA, 24 pts.; 2. Central Park TC, 42 pts. (199 finished, 37 under 3:00, 125 under 3:30, 188 under 4:00).

● **Tilton, N.H., Oct. 12**—Spaulding Oktoberfest 7.3-mile: 1. Michael Cryans (North Country AC) 37:42; 2. Michael Sheldon (North Country AC) 39:09... 8. Clinton Whitney (US Masters, 40+) 42:30... 24. Paula Davenport 51:27... 28. Fran Goodnow (Keene Masters, 60+) 52:48. (32 finished, 13 under 45:00).

● **Malletts Bay, Vt., Oct. 13**—Green Mt. marathon: 1. Keith Martell (GMAA) 2:50:36; 2. Tim Tabor 2:51:45... 13. Linda McGrale 4:11:55. (13 finished, 3 under 3:00, 9 under 3:30; from Larry Kimball).

● **N.Y., N.Y., Oct. 13**—Met. AAU 30-kilometer: 1. Frank Handelman (29, Central Park TC) 1:45:49; 2. Paul Fetscher (27, Long Island AC) 1:48:06; 3. Tom Stoothoff (22, Long Island AC) 1:48:07; 4. C. Dean Perry (24, Bethel Bananas Ct.) 1:48:59; 5. Karl Mueller (37, Central Park TC) 1:49:12; 6. Ai Meehan (27) 1:50:56; 7. Joe Burns (45) 1:51:57... 33. Ted Corbitt (54, N.Y. Pioneers) 2:04:10. Women: 1. Nina Kuscsik (35, Suffolk AC) 2:04:46; Teams: 1. Long Island AC, 15 pts.; 2. Millrose AA 37 pts. (111 finished, 23 under 2:00; from Joe Kleinerman).

● **Long Beach Island, N.J., Oct. 13**—LBI Commemorative 18-mile Run: 1. Tom Fleming (Shore AC) 1:39:09; 2. Gary Pierce (Shore AC) 1:45:41; 3. William Scholl

(Shore AC) 1:45:43; 4. Roy Lapidus 1:45:57; 5. Lawrence Bova (Shore AC) 1:46:46... 8. Colin Beer (40+, Shore AC) 1:50:43... 59. Mary Albright 2:22:49. (90 finished, 22 under 2:00).

● **Manchester, N.H., Oct. 13**—New England 15-kilometer: 1. Will Rodgers (Greater Boston TC) 46:28; 2. Ray Currier (Boston AA) 47:35; 3. Rick Bayko (North Medford C.) 47:59; 4. John Dimick (Green Mt. AC) 48:04; 5. Jim Capazuto (BAA) 48:08; 6. Scott Graham (GBTC) 48:18; 7. Tom Derderian (Sugarloaf Mt. AC) 48:27; 8. Earl McGilvery (NMC) 48:28; 9. Jack McDonald (GBTC) 48:35; 10. Hamilton Amer (GBTC) 48:39... 49. Charlotte Lettis (SMAC) 55:17. (180 started).

● **Ithaca, N.Y., Oct. 13**—Finger Lakes marathon: 1. Keith Hartman (31) 2:31:42; 2. Larry Frederick (25) 2:32:55; 3. George Pfeiffer (24) 2:34:04; 4. Peter Jeffers (35) 2:40:22; 5. Gerard Benedict (28) 2:43:01... 13. Chuck Collins (40) 2:53:35... 22. Frank Moore (52) 3:10:17. (50 finished, 16 under 3:00, 34 under 3:30, 45 under 4:00; from James Hartshorne).

● **Atlantic City, N.J., Oct. 20**—Atlantic City marathon: 1. Hugh Sweeny (27) 2:34:22; 2. Tom Osler (34, Penn AC) 2:34:24; 3. Larry Connolly (31, Penn AC) 2:34:30; 4. Samuel Maizel (19, West Point) 2:35:08; 5. Roy Lapidus (23) 2:36:45... Hubert Morgan (52) 2:48:41... Guenter Erich (41) 2:57:30. Teams: 1. Penn AC, a; 2. Penn AC, b. (71 finished, 32 under 3:00).

● **Gardner, Mass., Oct. 27**—National 20-kilometer: 1. Gary Tuttle (Beverly Hills St.) 1:02:16; 2. William Rodgers (NMC) 1:02:38; 3. Jim Stanley (Summit AC) 1:04:05; 4. Kim Nutter (W. Va. TC) 1:05:00; 5. Tom Derderian (Sugarloaf Mt. AC) 1:05:01; 6. Roy Crothers (Mohegan St.) 1:05:05; 7. George Conefrey (Oregon TC) 1:05:08; 8. Rick Bayko (NMC) 1:05:12; 9. John Dimick (Green Mt. AC) 1:05:21; 10. Ray Currier (BAA) 1:05:36; 11. Scott Graham (Greater Boston AC) 1:05:42; 12. Paul Talkington (Summit AC) 1:05:52; 13. Cletus Griffin (Summit AC) 1:05:56; 14. Vin Flemming (GBTC) 1:06:05; 15. Ken Mueller (BAA) 1:06:07; 16. Edmund Norris (BAA) 1:06:35; 17. Tony Wilcox (SMSC) 1:06:44; 18. Joe Crowley (GBTC) 1:06:50; 19. Earl McGilvery (NMC) 1:07:11; 20. Neil Coville (Cambridge Sports Union) 1:07:17. (56 finished, 35 under 1:10; from Jock Semple).

MIDWEST

● **Columbus, Ohio, Sept. 29**—One hour run: 1. Richie Smith 11m 1604y; 2. Craig Harms 10m 1647y; 3. Tom Byers 10m 1626y... Sue Mallery 9m 379y... George Knox (63) 7m 857y.

● **Canton, Ohio, Oct. 6**—marathon: 1. Mike Markley 2:37:59; 2. Roger Rouiller (W. Va. TC) 2:42:41; 3. George Guins (Mid Ohio St.) 2:43:53... 38. Patricia McSwegin (KSU) 3:23:36. (99 finished, 9 under 3:00, 44 under 3:30, 65 under 4:00). 10-kilometer: 1. Kim Nutter (W. Va. TC) 30:49; 2. Edwin Fry (Ind. U. of Pa. TC) 30:59; 3. Ken Kornbau 31:09; 4. Duane Gaston (Kettering St.) 32:07; 5. Felix Rendina 32:15; 6. Dan Sekerak (Ohio TC) 32:37; 7. John Welch (W. Va. TC) 32:26; 8. P.D. Caseman (Golden

Valley AC) 33:50; 9. Gary Young 34:01; 10. Jim Steppling (Ind. U. of Pa. TC) 34:09... 29. Katy Schilly (Syracuse Chargers) 36:09... 30. Marlene Harewicz 36:19. (592 finished, 14 under 35:00, 113 under 40:00).

● **Detroit, Mich., Oct. 6**—6.4-mile: 1. Al Ruffner (MCS) 33:08; 2. John Cassani (MCS) 33:39; 3. Peter Butler (STC) 34:11; 10. Fred Wright (40+, STC) 37:03. (78 finished).

● **Mossville, Ill., Oct. 13**—8-mile: 1. Gordon Adams (42, Ill. Val. St.) 43:52; 2. Gary Childs (20) 44:17... 6. Kirk Wessler (19, IVS) 48:09... 16. Bob Martin (53) 53:02... 18. Paul Zumwalt (62, IVS) 1:01:32. (19 finished).

● **Rockville, Ind., Oct. 19**—Covered Bridge Road Race, 15-mile: 1. Duane Gaston (22) 1:19:25; 2. Neil Haseaman 1:21:24; 3. Mike Lehman (19) 1:21:24; 4. Jim Mill (18) 1:21:24... 18. Robert Lemont (44) 1:37:41... 22. Elver Gaston (51) 1:44:20... 28. Paula Gaston (21) 1:50:35. (38 finished, 11 under 1:30, 22 under 1:45; from Robert Lemont).

● **Monroe, Ohio, Oct. 20**—Monroe marathon: 1. Ray Morrison 2:42:33; 2. Craig Harms 2:45:25; 3. Gerry Miller 2:48:47; 4. Wendall Sullivan (50) 2:57:00. (19 finished, 6 under 3:00, 14 under 4:00).

● **Delafield, Wisc., Oct. 20**—15-mile: 1. John Lesch 1:21:38; 2. Peter Farwell 1:22:10; 3. Joe Krutz 1:24:11... 11. Duane Hotz (40+) 1:33:30. (24 finished). 5-mile: 1. Jim Samuelson 27:29; 2. Don Czarapeta 27:56; 3. Mary Czarapeta 34:28... 9. John Dick (60+) 39:48. (11 finished). (from Bob Martin).

● **Brookings, S.D., Oct. 26**—10-kilometer: 1. Jeff Hermann (SD State U) 31:59; 2. Cyle Wold (SD State U) 32:00; 3. Garry Bentley (SD State U) 32:05; 4. (33 finished, 14 under 35:00).

SOUTHEAST

● **Jackson, Tenn., Sept. 28**—Andrew Jackson marathon: 1. Mark Bauman 2:40:52; 2. John Dormois 2:46:56; 3. Doug Nelson 2:47:37... 21. Cathy Sigler 3:34:04. (35 finished, 8 under 3:00, 16 under 3:30, 30 under 4:00). 13.1-mile: 1. David Rientjes 1:14:27; 2. Guy Yoe III 1:17:57... 16. Bonnie Blalock 1:37:01. (22 finished).

● **Georgetown, Ky., Oct. 5**—Georgetown marathon: 1. Charles Copp (Bluegrass RC) 2:30:58; 2. Ray Morrison (Washington SC) 2:32:35; 3. Craig Harms (Bowling Green U. TC) 2:35:25; 4. Dan Dusch (Bluegrass RC) 2:39:36... 7. Wendell Sullivan (50, Ohio River RR) 2:55:29. (7 under 3:00; from Jerry Stone).

● **Crowley, La., Oct. 5**—International Rice Festival marathon: 1. Neil Cusack (Ire) 2:14:27; 2. Ron Wayne 2:16:16; 3. Terry Ziegler 2:18:16; 4. Rick Bayko 2:23:14; 5. Robert Costelloe (Ire) 2:34:20... 13. Al Becken (45) 2:53:26... 24. Gene Askew (54) 3:19:24... 33. Walt Stack (67) 3:36:59... 42. Lida Askew (48) 4:01:28. (43 finished, 13 under 3:00, 24 under 3:30, 37 under 4:00; from Charles Attwood).

● **Columbia, S.C., Oct. 5**—Governor's Cup 15-mile: 1. Dennis Spencer (ATC)

1:13:58; 2. Russ Pate (Cola. TC) 1:14:06; 3. George Howe (Clemson) 1:22:05; 4. Tom Raynor (ATC) 1:22:22; 5. Mike Caldwell (Fla. TC) 1:22:36; 6. ... 46. M. Galyean (50+) 1:57:39. (56 finished, 47 under 2:00; from Richard Harris). 5-mile: 1. Leon Cook (USC) 23:26; 2. Ken Layne (Baptist Coll.) 24:00; 3. Bob Day (USC) 24:15; 4. Don Layden (USC) 24:40; 5. Wayne Foster (USC) 25:01... 39. Kathy Taylor (St. Andrews Coll.) 29:38... 72. Ed Shaffer (50+) 32:19. (160 finished, 81 under 33:00; from Richard Harris).

● **Nashville, Tenn., Oct. 5**—Old Hickory 11.2-mile: 1. William Gates (30-39) 1:04:16; 2. Jerry Grahn 1:05:01; 3. John Dormois 1:07:24... Joe McGinness (50+) 1:16:12. (23 finished) 5.8-mile: 1. David Rientzes 31:08; 2. Royce Williams 32:08; 3. Gary Quick 32:31; 4. Bill Olrich 32:54... Charles Gibson (50+) 34:55... Jon Robere (60+) 43:32. (51 finished).

● **Fort Monroe, Va., Oct. 6**—Tidewater St. 6-mile (long course): 1. Randle Fields 34:02... Ted Jones (40+) 42:25... Monica George 50:32. (from Donald Perkins).

● **Huntington, West Va., Oct. 12**—10-kilometer: 1. John Welch 31:15; 2. Brian Sloan 31:17... Jack Rose (40+) 40:22. (15 finished under 50:00; from Edward Canterbury).

● **New Orleans, La., Oct. 13**—5-mile: 1. Taylor Aultman 25:30; 2. John Mayfield 26:03; 3. Jon Winston (16) 26:07. (52 finished; from Cy Quinn).

● **New Orleans, La., Oct. 18**—5-mile: 1. Tom Douple 24:26; 2. Taylor Aultman 24:46. (44 finished; from Cy Quinn).

SOUTHWEST

● **Bartlesville, Okla., Sept. 28**—10-mile: 1. Ken Norton (23) 54:00; 2. Larry Addudell (29) 54:18; 3. Eldred Himsworth (26) 54:40; 4. Tom Laden (17) 59:00; 5. Tom Kempf (50) 1:00:24. (36 finished; from Vern Whiteside).

● **Houston, Tex., Oct. 5**—Gulf AAU 15-kilometer: 1. John McDaniel (21, Gulf Coast TC) 51:56; 2. Danny Green (26, GCTC) 56:07... 7. Bob Ramage (44, Amer. Nat. Run. Team) 1:01:17... 29. Clyde Villemez (63, Cameron TC) 1:12:54... 33. Sally Jurgenson 1:15:15. Teams: 1. Gulf Coast TC, 20 pts.; 2. Terlingua TC, 35 pts. (39 finished, 6 under 1:00).

● **Texarkana, Ark., Oct. 19**—Ark. AAU Cross-Country 4-mile: 1. Tim Geary 19:38; 2. Neal Tucker 19:45; 3. Martin Poole 19:49... Wayne Hansen (40+) 20:34. Teams: 1. Centenary, 44 pts.; 2. LeTourneau, 54 pts. (from Ron Isom).

● **Galveston, Tex., Oct. 19**—American National 18-mile: 1. Donald Kennedy (26) 1:36:51; 2. Dan Clark (22, Bergstrom AFB) 1:40:29; 3. Simon McNamee (34) 1:44:07; 4. Norman Cooper (31) 1:45:12; 5. Wayne Comer (33) 1:48:50... John Stowers (46) 1:57:49... Gene Askew (54) 2:13:58... Clyde J. Villemez (63) 2:18:27... Linda Askew (48) 2:37:44. (95 finished; from Gerrit Hoogenboezem).

● **Phoenix, Ariz., Oct.**—K.T.A.R. T.V. South Mountain Hill Climb, 8½-mile: 1. Scott Giddings 48:04; 2. Martin Trevizo 49:39; 3. David Orapeza 49:46; 4. Pete

Span 50:03; 5. Nathaniel Honeystowa 50:37... Joe Livesay (40+) 52:21... Andi Levario (woman) 2:04:45. (from Joe Livesay).

ROCKIES

● **Denver, Colo., Oct. 12**—YMCA Fall marathon: 1. Ron Nabers 2:36:53; 2. Wayne Snow 2:39:59; 3. Ed Hagerman 2:47:10... Frank McCabe (50+) 3:33:04... Carol Rickauer 4:38:10. (from Roger Gerard).

WEST

● **Arcata, Calif., Sept. 28**—20-kilometer: 1. Chris Defazio, Darrell Fitzgerald 1:06:54; ... 19. Marilyn Taylor 1:34:42. (22 finished, 4 under 1:10, 12 under 1:20).

● **Los Angeles, Cal., Sept. 28**—SPA-AAU 20-kilometer: 1. Gary Tuttle 1:01:14; 2. Dave Babiraki 1:02:06; 3. Mark Covert 1:04:47; 4. Raymond Hughes (35, SCS) 1:05:03; 5. Pat Miller 1:05:26; 6. Mike Chambliss (SBAA) 1:05:43; 7. Bob Branch (CCAC) 1:06:24; 8. Todd Ferguson 1:06:24; 9. Ronald Kurrle (26, PCC) 1:07:12; 10. Marvin Rowley (34, CCAC) 1:07:20... 13. Jerry Smartt (40+) 1:08:04... 32. Ray Gil (50, STC) 1:17:14... 86. James Bole (67, STC) 1:34:14. (97 finished, 14 under 1:10, 44 under 1:20; from John Brennand).

● **Los Angeles, Cal., Oct. 6**—Will Rogers Cross-Country, 9.3-mile: 1. Phil Ryan (30, GWAA) 49:20; 2. Raymond Hughes (35, SCS) 50:55; 3. Marvin Rowley (34, CCAC) 51:06; 4. Bob Branch (CCAC) 51:21; 5. Kaj Johansen (52:32... 14. Pete Mundle (46, SMAA) 53:53... 35. Ray Gil (50, STC) 1:00:13... 79. Susan Lane 1:09:34... 87. Chick Dahlsten (63, CCAC) 1:13:14. Teams: Culver City AC, 58 pts.; 2. Aztlan, 62 pts. (104 finished, 16 under 55:00, 34 under 1:00; from John Brennand).

● **Eugene, Ore., Oct. 13**—Nike-Oregon TC marathon: 1. Phil Camp 2:22:09; 2. Tom Heinonen 2:22:50; 3. George Oja 2:24:35; 4. Bruce Dewsberry 2:29:12; 5. Eric Sigmont 2:32:07... 8. Ed Almeida (50+) 2:46:59... 45. Bobbie Moore 3:30:07. (63 finished, 21 under 3:00).

● **Santa Barbara, Cal., Oct. 13**—Santa Barbara marathon: 1. Carl Swift (21, AAZPC) 2:27:55; 2. Mike Chambliss (25, SBAA) 2:30:20; 3. Jim Barker (27) 2:30:59; 4. Bill Gookin (42) 2:34:46; 5. Michael Maron (25, SBAA) 2:36:34; 6. Dick Bartek (42, SBAA) 2:39:15... 25. Monty Montgomery (68) 2:56:53... 28. Eileen Waters (28, SDTC) 3:03:38... 65. Mary Carman (13) 3:26:12. (117 finished, 26 under 3:00, 72 under 3:30, 102 under 4:00; from John Brennand).

● **Sacramento, Cal., Oct. 20**—PA AAU 50-kilometer: 1. Jim Birnbaum (22, WVTC) 3:09:10; 2. Ross Smith (WVJ & S) 3:15:27... 7. Yvette Cotte (RC Flyers, 15) 4:45:15. (8 finished; from Walt Betschart).

● **Honolulu, Hawaii, Oct. 20**—Hawaiian AAU 15-kilometer: 1. Duncan Macdonald 48:01; 2. Mark Stanforth 48:36; 3. Steve Ferber 50:21... 6. Jerry Chun (15) 52:50... 25. Carlos Mora (44) 1:00:14... 32. Cindy Dalrymple 1:02:29... 33. Joe Goo (50) 1:02:58. (65 finished; from Tom Ferguson).

● **Las Vegas, Nev., Oct. 26**—Southern Nev. AAU 5-mile: 1. Bob Weaver 26:48; 2.

Len Zane 27:26; 3. Dennis Fridly 27:31... 12. Mike Neal (40+) 29:24; 18. Rex Ploen (50+) 31:12... 30. Susie Heckethorn 35:54. (38 finished; from Bill Freedman).

CANADA

● **London, Ont., Oct. 12**—10-kilometer: 1. Grant McLaren (TOC) 30:33; 2. Ron Falck (STC) 32:39; 3. Peter Butler (STC) 32:54. (33 finished, 24 under 40:00).

● **Waterloo, Ont., Oct. 13**—Canadian marathon: 1. Tom Howard 2:17:52; 2. Brian Armstrong 2:18:07; 3. Bruce Kidd 2:21:37; 4. Doug Scorrer 2:22:57; 5. Jackson 2:27:29; 6. Art Taylor (49) 2:29:18. (from Larry Kimball).

RACE WALKING

● **Columbus, Mo., Sept. 28-29**—100-mile: 1. Bob Chapin (42, CTC) 20:09:20; 2. Chuck Hunter (37) 21:14:17; 3. Larry O'Neil (67) 21:53:26; 4. Dave Leuthold (41, CTC) 22:31:43; 5. Leonard Busen (44, CTC) 23:07:27... 10. Joyce Schulte (CTC, 100 km. in 16:39:10. (34 finished; from Joe Duncan).

● **Pine Plains, N.Y., Sept. 29**—Met. AAU 20-kilometer: 1. John Knifton (NYAC) 1:31:30; 2. Ron Kulik (NYAC) 1:43:15.

● **Montreal, Canada, Oct. 5**—USA-Canada 20-kilometer: 1. Bob Henderson 1:34:31; 2. J. Knifton 1:37:14; 3. K. Merschenz 1:37:43; 4. M. Jobin 1:37:55; 5. R. Olszewski 1:39:41 (Can).

● **Montreal, Canada, Oct. 6**—US-Canada 50-kilometer: 1. Augie Hirt 4:40:15; 2. Tom Knatt 4:42:14; 3. Pat Farrelly (Can) 4:48:30; 4. Max Gould (Can) 4:57:51; 5. Bob Rosencratz 5:05:39; 6. J. Doda (Can) 5:22:19.

INTERNATIONAL

● **Scotland, Aug. 24**—Two Bridges 36-mile: 1. J.K. Wight (Edinburgh AC) 3:26:31; 2. R. Heron (Aberdeen AC) 3:32:04; 3. A.J. Wood (40+, Aberdeen AC) 3:32:43... 6. R. Thurston (Washington SC, US) 3:37:53... 21. R. Morrison (WSC, US) 3:59:23... 24. P. Stewart (WSC, US) 4:01:04... 27. E. Jerome (WSC, US) 4:05:12... 47. D.C. Logan (60, N.Y. Pioneers, US) 4:54:42. (52 finished).

● **London, England, Sept. 29**—London to Brighton 5½-mile: 1. J. Newsome (Wakefield Harriers) 5:16:07; 2. C. Woodward (Leamington C & AC) 5:16:13; 3. D.A. Ritchie (Birchfield Harriers) 5:24:54; 4. T.P. O'Reilly (Small Heath Harriers) 5:25:24; 5. I. Burgess (Southampton & Eastleigh) 5:26:53... 10. C. Bristol (US) 5:55:20... 12. P.B. Stewart (WSC, US) 5:58:43... 30. G.M. Rorke (Brown Univ., US) 6:28:35... 64. D.C. Logan (60, N.Y. Pioneer C.) 7:29:57; ...75. O. Appenzeller (New Mexico TC) 7:57:58. (77 finished).

● **Florence, Italy, Sept. 29**—15-kilometer: 1. Luciano Ceni 47:10... 6. Tom Sturak (43, US) 52:15... 7. Jacki Hansen (US) 52:15.

● **Kosice, Czech., Oct. 6**—Kosice Peace marathon: 1. Keith Angus (Great Brit.) 2:20:09; 2. Hans Truppel (East Ger.) 2:20:14; 3. W. Cierpinski (East Ger.) 2:20:28... 16. Steve Hoag (US) 2:22:08. ●

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READERS' COMMENTS

WOMEN MASTERS

Catherine Smith missed the point when she insisted on running in the track events at the AAU Masters championships, as did meet director Jim Puckett ("Looking at People," Sept. 74).

Heretofore at the Masters, special track events have been presented for the ladies, and their entry in the marathon has been encouraged. Puckett decided otherwise, and a confrontation resulted.

By the same token, Catherine Smith insisted on bullying her way into the track events where she didn't belong and where she was patently outclassed.

What we do at the club level is one thing, but at a national championship a different standard applies. What if the masters attempted to crash the women's AAU national championships? The best masters are competitive against the open women. However, I'd be the first to concede that the men don't belong in the women's championships any more than Catherine Smith did in Gresham.

*David H. R. Pain
San Diego, Calif.*

THE RICE RACE

Would you believe a marathon in Crowley, La.?

After moving to this Cajun town of 17,000, Dr. Charles Atwood, a marathon runner, was anxious to initiate the totally unheard of sport of road racing in his new hometown. As a result, a 26-miler was scheduled for Oct. 5 to coincide with the annual Rice Festival.

Boston marathon champion Neil Cusack won in 2:14:27, one of the fastest times ever run in the US. I finished second in a personal best of 2:16:16, and Terry Ziegler was third in 2:18:16, also a personal best.

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the race to a local radio station, which in turn broadcast up-to-the-minute reports. To top it all off, 5000 astonished onlookers greeted the runners at the finish line.

In general, it was probably the best-organized first-time marathon ever held. Congratulations to Dr. Atwood and Crowley.

Ron Wayne
Berkeley, Calif.

ADDRESSES

I find when I race in other cities that I get acquainted with other runners but never ask for their addresses to stay in touch with them.

Here is my thought: When the race organizers prepare the results, why don't they include the addresses of the runners? That would give a fellow a chance to stay in touch, exchange experiences, etc.

Horst Fiebig
Elgin, Ill.

CONFUSED

I was told LSD (long slow distance) was a distance of 10 miles or more. "The Running Bookie" ("News and Views," Aug. 74) said he was running 4-8 miles of LSD. Who are we to believe? Like the Running Bookie wrote, the more you read about running, the more confused one gets.

Bill Holden
Phoenixville, Pa.

(Joe Henderson answers: I have a certain interest in LSD, since I used the term in a book a few years back. Someone else may have defined LSD as 10 miles or more, but I never did. To me, long slow distance is simply any rather extended run—whatever is "extended" to you, a mile or 10 miles or 50 miles—at a comfortable pace—whatever is "comfortable" to you, six-minute miles, nine-minute miles or 12-minute. I've never thought of it in any more specific terms than that.)

BREATHING

For the last nine months, my daily run has been taking me over courses which are from 25-50% uphill. In trying to overcome some resistance to uphill running, I have read many articles in *RW* and elsewhere.

Upon self-experimentation, and this works on both hills and flats. I have discovered that if I inhale as deeply as possible 5-10 times while approaching a hill, that 30 seconds to a minute later I experience a feeling of extra strength, energy and relaxing of muscle tension

in the legs for at least five minutes. It feels as if I had just taken a brief respite from my running and makes me feel like running on and on.

I would like to know if other runners have experienced this sensation, or if there is some medical or physiological explanation for this feeling of rejuvenation.

Ronald Roberts
Wallingford, Conn.

WORTH NOTING

In the October issue article "140 Miles or Bust" ("News and Views"), Carl Hatfield stated some very interesting facts which helped me to realize more about quality than quantity in my running.

But I would like to know why the third place finisher in the national AAU marathon was not mentioned. The man's name is Don Kennedy, and his third place was his highest finish in a major competitive race. I don't think he should have been overlooked in this article.

Gary Church
Mobile, Ala.

(Mr. Church is partially correct. We should have mentioned the third place finisher. But it wasn't Don Kennedy. It was Terry Ziegler. Kennedy was third in the 1973 AAU marathon.)

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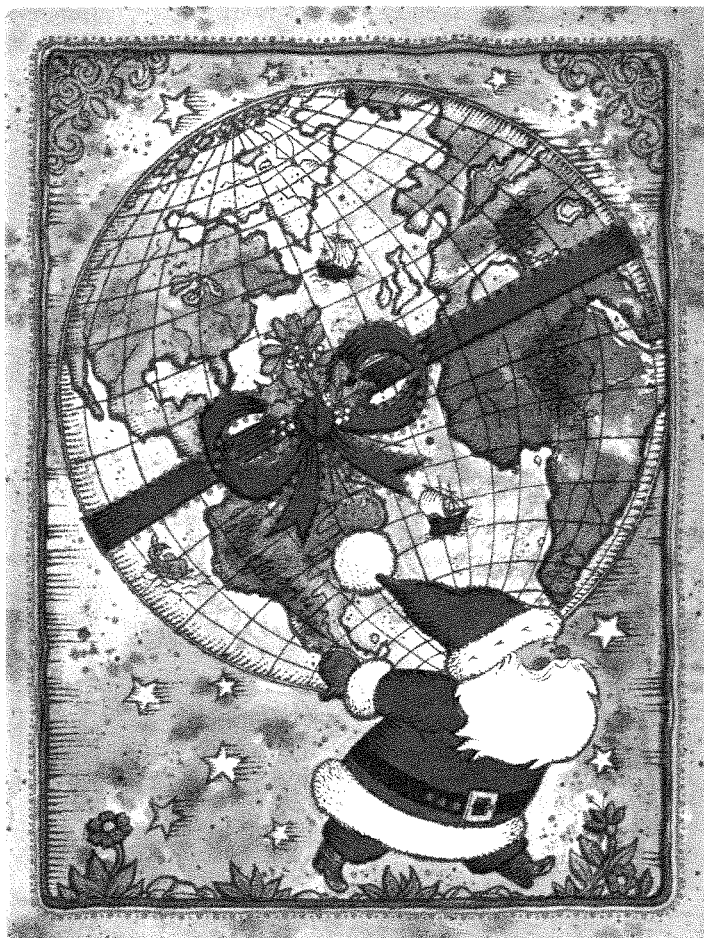
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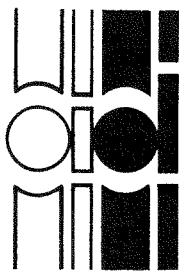
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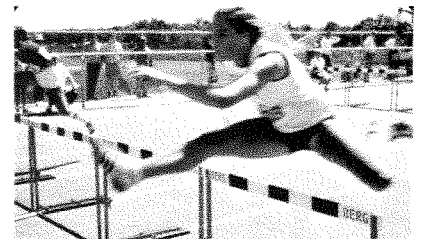
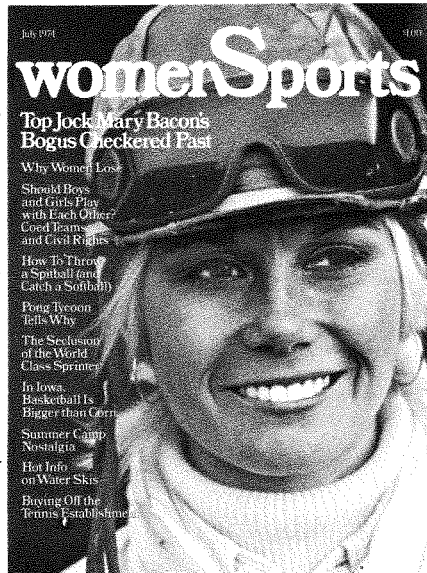
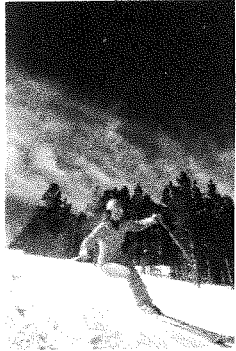
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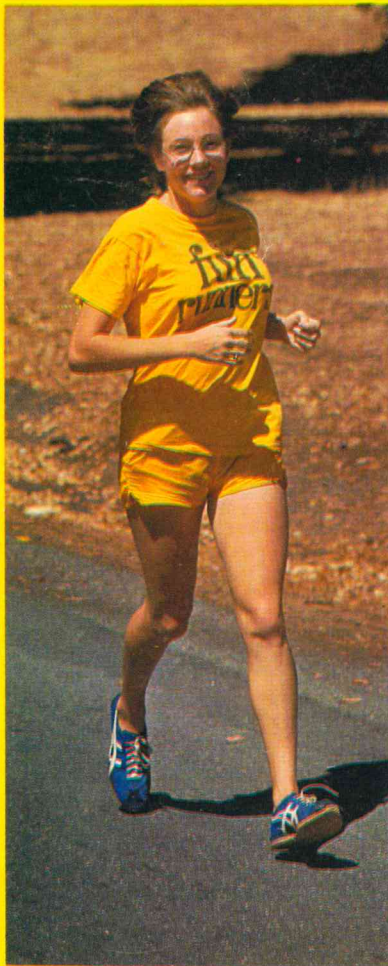
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