New York, Feb. 22—It was a clean sweep for southern California walkers at the National AAU Indoor Championships as Sue Brodock captured the women's mile and Larry Walker came home first in the men's 2 mile. Both set American Indoor records in the process. The least noteworthy aspect of the affair is that the men's walk was surrounded with some controversy which seems to be the usual state of affairs for this event.

In the women's race, Miss Brodock, who recently established a world's best for 1 mile outdoors, was content to follow National 10K titlist Ellen Kinkow for better than half the distance before moving out of the win. Ellen set a very good pace, passing the half mile in 3:33 but was unable to sustain such a pace and was passed after 7 of the 11 laps. Sue went on to finish in 7:28.6 breaking the Championship and American record set 20 years ago by Lynn Olson at 7:37. (Lynn, now Mrs. Steve Hayden, was on the sidelines but did not yet feel ready to compete.) Allen hung on to equal the old record.

No one else was close but Ohio's Carol Mphanco clearly beat the rest and just missed dipping under 8 minutes. Judges for the race were Charlie Sliecock, H. B. Henry Danson, and Steve Hayden with the only caution going to Miss Kinkow.

The men's race, unfortunately, was not so clean, but in a highly competitive and fast paced race, Larry Walker showed flawless form to record 13:24.0, breaking the old American Indoor record of 13:41.8 set way back in 1956 by Willy Plant. Larry's time also bettered the old Championship record set by Canadian George Goulding at 13:37 back in 1916. This was the first time the Indoor championship had been contested at 2 miles since 1919.

The early leader in the race was Rob Henderson but after a quarter mile or so he was replaced by Todd Scully. Walker eventually took over and led going into the last lap with Dave Rosansky, Todd Scully, and Ron Daniel close at hand. Rosansky moved ahead by about 15 yards and crossed the line in 13:20.4 but had been called out much earlier in the race, a fact that had apparently never been adequately communicated to him. In any case, as Walker edged out Scully at the line, he was the real winner. Daniel was just another couple of strides back, but was also bunted, moving comebacking Don Delion into third. John Knifton also finished ahead of Don, but Mike Rosansky, was cut early. John apparently realized this, but also was aware that Rosansky was cut and would not leave the track as long as Dave was still walking. The unfortunate part is that the other contestants in this highly competitive race did not realize that these two were actually out of the race. However, since Walker and Scully were well clear of the other legal walkers (continued on next page).
Bill Ranney turns the walking over to Todd Scully, and his Hush Puppies, for the final leg of last fall’s Airollo-Chiasso relay in Switzerland. Bob Henderson gives encouragement from the sidelines.

RESULTS
(Starting with the Indoor miling madness)


Bob DeNoon gives encouragement from the sidelines.

February 1974
the start although he has been going out with the others and been getting

W2641 1 MILE AROUND

HELP — In supplying back issues of the ORM to fill a recent request I suddenly found I am completing missing the issues of May and June 1969. I should have a complete file of my own paper and thought I did. I know I did not. Anyway, anyone who does have these issues, would be most kind to let me have them to copy. Drop me a note first. In case there are several of you I can then choose one and not get stuck with too much return postage.

It did, however, affect reporting of the race. The official times were timing only the first six, and three of these turned out to be DQs. Thus there were official times only on the first three. Other times are estimates from watches in the stands or are nonexistent. In addition there was one foul-up on lap counting. Estaban Valle was originally placed fourth but apparently had a lap to go and when he himself stated that he had never passed Don Kulik and Dan O'Connor, these two were moved ahead of him. Bob Henderson also felt that he finished ahead of Valle but this was never verified.

The judges were busy. One additional disqualification was for the Women's final in the Soviet Union on March 26. Larry Walker had to decline the trip because of his teaching commitments. This moves Don Deleon on to the team where he can continue to coach his Blue Angels half-mile phenom, Mary Becker, who is on the women's team. Results of the two races are:


RACING SCHEDULE

Sat. March 2 — 3 Mile, Newton, Ia., 2 p.m. (A)
Sun. March 3 — SPAU 25 K, Echo Park, Los Angeles (B)
Sat. March 9 — 2 or 3 Mile, Los Angeles (B)

- FIM AAU 20 K, Snohomish, Wash. (C)
- 3 Mile, Hickman Track, Columbia, Mo., 9 a.m. (D)
- 10 Mile, Rochester, Ia., 10 a.m. (A)
- Canadian Nat. Indoor 3 K, Quebec City (E)

Sun. March 10 — AAU Indoor 15 K, New York (F)
- 20 K, Long Branch, N.J., 1 p.m. (H)
- Comm. 2 Mile Open 5 K, New Haven, 12 noon (I)

Sun. March 12 — AAU Indoor 2 Mile, Boulder, Colorado (F)

Sun. March 13 — AAU AAU 35 K, Alaska (G)
- 2 Mile, 6 Mile walk-run, Columbia, Mo., 2 p.m. (D)

Sun. March 14 — AAU AAU 12 K, Denver, Colo. (H)

Sun. March 15 — AAU AAU 25 K, Seattle, Wash. (C)
- 2 Mile, 6 Mile walk-run relay, Columbia, Mo., 2 p.m. (D)

Sun. March 16 — AAU AAU 10 K, Iowa AAU (G)

Sun. March 17 — AAU AAU 10 K, Iowa AAU (G)

Sun. March 18 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. March 19 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. March 20 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. March 21 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. March 22 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. March 23 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. March 24 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. March 25 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. March 26 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. March 27 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. March 28 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. March 29 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. March 30 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. March 31 — AAU AAU 25 K, Seattle, Wash. (C)

Sat. April 6 — AAU 1 Hour, Grand Rapids, Colo. (H)

- 10 Mile, Grand Rapids, Colo. (H)

- 20 Miles, Grand Rapids, Colo. (H)

- 2 Mile, 6 Mile walk-run, Columbia, Mo., 2 p.m. (D)

Sun. April 7 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. April 8 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. April 9 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. April 10 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. April 11 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. April 12 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. April 13 — AAU AAU 25 K, Seattle, Wash. (C)

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Sun. April 29 — AAU AAU 25 K, Seattle, Wash. (C)

Sun. April 30 — AAU AAU 25 K, Seattle, Wash. (C)

Contact for the above races:

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C — Dean McGee, 507 Gobb Building, Seattle, Wa., 98101
D — Joe Duncan, 405 6th Ave., Columbia, Mo., 65201
E — Doug Walker, 29 Alhambra Ave., Toronto 3, Ontario, Canada
F — Jim Bentley, P.O. Box 666, Santa Barbara, Ca., 93106
G — Elliott Dorman, 28 N. Locust, Long Branch, N.J.
H — Lloyd Godwin, 935 Ash St., Broomfield, Co 80020
I — Mike Segal, 117 Frederick St., New Haven, Conn 06515

J — Butch Hamner, R.R. 1, Carlisle, Ia.
K — Don Jacobs, Box 231, Lincoln, Ne., 68501

L — Al Shumway, 523 W. 16th St., Spokane, Wa., 99203
M — Jim Bentley, P.O. Box 666, Santa Barbara, Ca., 93106
N — Bob Bowden, 1961 Windsor, Palma, Ca., 91767
O — Dave Eddleman, Richland, Ia., 52255
P — Doug Walker, 29 Alhamra Ave., Toronto 3, Ontario, Canada
Q — Elliott Dorman, 28 N. Locust, Long Branch, N.J.
R — Lloyd Godwin, 935 Ash St., Broomfield, Co 80020
S — Mike Segal, 117 Frederick St., New Haven, Conn 06515
T — Butch Hamner, R.R. 1, Carlisle, Ia.
Race Walking

by Rudolf Toomast - Estonia

The IAAF rules define race walking as progression by steps taken at an unbroken contact with the ground that is maintained. The swinging leg is in body contact with the ground before the rear foot leaves the ground. During the period of each step, in which a foot is on the ground, the leg shall be straightened (i.e., not bent at the knee) at least for one moment.

It has been observed that ordinary walking, wherein the length of a step is about 32 inches (82 cm), is the number of steps to 160 in a minute (i.e., more than three steps in a second) inevitably results in running. To avoid running, a different walking style has been introduced, whereby the frequency of the steps has increased even to 220 in a minute (i.e., about 4 steps in a second). At the same time the length of the steps has increased to 47-51 inches (120-150 cm), and results have been reached that seem to be superhuman for an ordinary walker. One must walk briskly to cover one kilometer within 10 minutes, but the Swede, V. Hjalmar, the owner of the 3000 meter world's record of 11:51.8, did it in 12:53.2.

Walking is a process of pushing the body out of balance, while it is supported over one leg and then bringing the swinging (driving) leg forward in time to prevent the body from falling. This process is repeated with every step by an increasing force until the desired walking speed is achieved. One must remember that forward propulsion is due only to the fact that the extensor muscle forces of the leg apply at the ground in an oblique direction and not in a strictly vertical direction only. (Fig. 1)

For analyzing walking movements it is sufficient to remember that one might divide the action of legs into three phases: 1) the swinging phase, 2) the supporting phase, and 3) the double supporting phase.

THE SWINGING PHASE. In the swinging phase the forward pendulum movement of the leg is facilitated by the great mobility of hip joint and occurs largely under the influence of gravity. It is also essential that the limb be slightly flexed, shortening the leg almost one-ninth of its entire length to prevent the toes from touching the ground.

The swinging phase starts at the moment the toes get off the ground, and at the end of this phase the foot is on the ground. The duration of this phase is 0.416 (assuming that the duration of the double step, i.e., the entire period in which the limb covers the swinging and supporting phases is one second).

During the swinging phase the muscles of the leg are held relaxed, to get ready for the next phase which is following in the same way, as when they are being used first as restrainers, then as propelling forces.

The swinging phase might be divided into (a) posterior period, in which the limb is moving from the ground to the vertical line of the center of gravity of the body, and (b) anterior period, in which the swing starts from the vertical line to the point of landing.

THE SUPPORTING PHASE. The moment when the heel touches the ground marks the beginning of the supporting or propulsive phase, which ends at the take-off moment, when the ground no longer supports the leg. As long as the supporting leg assumes a position ahead of the vertical line of the center of gravity of the body, the limb acts as a restraining force (not as a propulsive force), and this interval might be called the anterior or braking period.

After that moment, when the hip assumes a position in front of the heel, the posterior or propulsive period starts, as the propulsive and forward pushing action of the supporting leg comes into effect.

The time of the supporting phase (0.675 sec.) is always longer than the swinging phase (0.416 sec.), being increased by slower walking, and decreased by faster walking. As the walking speed increases, the closer these times come to each other. However, the supporting phase never becomes shorter than the swinging phase. Here lies the fundamental difference between the walking and running: in running the swinging phase is always longer than in slow motion walking.

THE DOUBLE SUPPORTING PHASE. Between the above described phases exists a transitional phase of double supporting phase. This is a space of time of 0.681 sec., when both legs are in contact with the ground. This phase almost disappears when walking is performed with the utmost velocity. As the walking speed is increased, the phase is shortened, until at the take-off both legs leave the ground. As we increase the walking speed to the maximum limit, we are confronted with the shortcomings of ordinary walking. We might observe that the basic difference between the slow and the fast walk lies in the height which the two heads of the femur are carried above the ground. The higher they are, the shorter must be a single step, since the leg can no longer move itself only slightly from the vertical position. When they are in a lower position (Fig. 2, a), then the pendulum from forward to backward has a larger amplitude. This coincides with the length of the step. But we know that this is associated with bending the knees joints to a greater degree, and that such a low position of hip joints produces a great and tedious burden on the thighs muscles. And now, to reduce that troublesome muscular effort, and at the same time to increase the efficiency of the supporting leg in a low position, the head of the femur of the swinging leg is brought downward and forward by a circular movement, with respect to the head of the femur of the supporting leg (Fig. 2, b, c). The pelvic bones in the hip girdle can do this, with a very slight movement of the spine. Such a downward-forward rotating movement of the hip joint guarantees an extensive movement for the swinging leg. When executing the hip movement correctly, the walker will feel that he is "walking with the hips", and using his legs as extensions.

At the same time the up and down oscillation of the head and trunk disappears, as the support leg remains locked from the bone and the head and trunk are always kept at the same height, the constant center of gravity, and the extra burden of the thigh muscles becomes minimized.

Such a walking style is uncomfortable and unfamiliar when training is started, as the hip muscles generally tired. Such fatigue disappears after a few training sessions as the unfamiliar movement becomes familiar.

The feet should land with an almost straight inner side as this gives the advantage of correct balance through the toes. The heel is the first part of the foot that makes contact with the ground. The take-off occurs over the great toe. As the forepart of the toes is pointed outward for a few degrees.

The length of the step is highly personal, depending mainly upon the height of the body and legs, and the swing of the hip girdle, and the take-off force. For example, the famous Latvian walkers, P. Zeltins and A. Rauksulins had the same length of the steps, in spite of a great difference in their heights (5'6" (168 cm.) and 5'11" (180 cm.). But Zeltins possessed very loose moving hips, which gave him added stride-length.

The average stride-length, with a flat swing and stride-width, results in 2.6 to 2.9 and 1.8 to 2.2 meters, respectively for men. The gradual development of a side-swinging motion when the feet are raised over the hip line for the time of the opposite shoulder. The arms are held bent at the elbows at approximately 90 degrees, and as each foot reaches its highest point, the other drops back in rear of the hip.

For learning and perfecting his walking style, one should stress certain items, one by one.

1. To develop the relaxed movements of legs and shoulders, the walker should walk slowly about 30-30 minutes.

2. To develop the taking-off, it is recommendable that the hand be kept down by the sides.

3. To keep hands to side position when seeking perfect rotary movements of the hip girdle and landings, heel first.

4. To improve shoulder action, place a 3-foot length of wooden pole, one inch diameter, on the back, running perpendicular to the front of the hip, and walk with prolonged steps while stressing the swinging of shoulders. Keep the head and body upright at the end of each stride.

THE TYPICAL FAULTS OF WALKING TECHNIQUE. 1. Hands are carried in a too high position. Such a position is usually connected with a hip joint action, which brings the shoulder and upper parts of the body in a "jogging" (ground) movement, making the competitor's eligility for a "outdoor running", as the knees begin to lift high and contact with the ground is broken. In such a case, encourage a more directly forward drive with the arms.

2. General or partial muscular tension. One should perform stretching and loosening exercises, and long walks with relaxed muscles daily.

3. Exaggerated lateral movement of hips (correct is forward and downward). This is usually connected with a sideways inclination of the shoulders, and shortening of the hip swing. The correct position is to try to make the shoulders, arms, and hands equal to effective stride, and impose greater stress on the abdominal muscles.

4. Passive, hanging arms by sides. Arms should swing back and forth in the same rhythm as legs. Passive arms tend to produce lateral sway of the upper body and hamper forward-downward swinging movement of hips.

5. To avoid fatigue or of some other reason, inclines forward some 10-15 degrees. As a result, the hip girdles sink backward, strides become shorter, and by trying to keep a high walking velocity one might easily start running. In every workout one should control his body stance, by trying to keep his hip girdle in an erect position and keep the arms in action of stepping (a) When the forward pendulum movement the leg is overextended, or (b) when in the supporting phase the leg is forced to remain on the ground too long. This over-extending or over-stretching action is beyond the walker's capacity, and he exaggerates the turn of his toes outward, at the moment of take-off. Thus, the take-off becomes weaker, and very often, by trying to keep his walking velocity, springy steps are introduce which lead to running.

7. The swinging leg is brought forward through a movement which is too high. As a result, the supporting leg very often leaves the ground, before the swinging leg touches the ground. This fault is mostly due to an excessively high hip action in a forward direction. The knee lift, a vigorous drive of the supporting leg, would produce a lifting tendency in the trunk and consequent loss of contact with the ground. This condition demands a retarded supporting leg break, if possible contact is to be maintained.
Walking with bended knees. This is caused by (a) a feeble and defective take-off movement. The supporting leg must not break at the knee prior to the foot landing, as there is danger of general loss of contact, especially if any spring is also imparted through the calf at the same time. (b) the swinging leg is grounded before a full extension is reached from the knee, (c) the hip girdle is continuously held in a backward position. (d) just a moment before the landing of the swinging leg, the hip of the supporting leg is falling back from its erect position, and as a result the steps become short and the landing is performed on the sole, but not heel first, or (e) the total contractile force of the anterior part of the leg muscles (the extensors) is too feeble for the extension of the knee joint, or the posterior muscles of the leg (the flexors) are too short and rigid and do not permit full extension which enables the knee joint to reach its natural extended position. The hurdler's exercise, by using both hands for pressure on the forward knee, will help to stretch thigh ligaments and muscles, and concentration on the supporting knee lock when walking will show an improvement.

The swinging leg is extended too early in the air before the landing. A delayed landing follows in a jerky manner which may injure the heel. While the landing is delayed, the supporting leg leaves the ground before the swinging leg touches the ground, and running movements are introduced. The swinging leg should be extended exactly at the time of landing, but not sooner or later.

In this position the pressure against the ground is divided between the vertical directions of "a" and "b" and the oblique (horizontal) directions of "a" and "b". The faster the speed of walking, the greater is the pressure against the ground, and the friction makes the supporting surface firm and body on point of application. (Without friction there would be no possibility of forward locomotion.)

The resultant force of "D", composed of the forces "a", "b", and "c", is equal to the propelling force of body (R). At the same time the resultant force "D1", composed of the forces "a1" and "b1", is equal to the restraining force of the body (R1). As the propelling force "D" is greater than "D1", the speed of the walking is dependent upon the strength of the take-offs, and from the angle of the take-off being greater when the application time (duration) of the restraining force "R1" is as short as possible.
February 1974

This is old stuff, but fills space. Your editor's impressions of the Tokyo Olympics as they appeared in Columbus Appliance Lines, December, a Westinghouse employee publication. I worked there at that time.

Many thousands of words have been written about the outstanding athletes of the 1964 Olympics. But the most outstanding performer was the Japanese. The provided excellent dressing and warm-up areas, field event facilities were as good as any. Among the ones free to all Olympics was the preparation for handling 7,000 athletes and officials. Everything was ready as each team arrived.

Housing in the Olympic Village was excellent. Food was well-prepared, fitted to each country's customs, and meals were available at all hours from seven in the morning until midnight.

A second feature of the tremendous job done by the Japanese was that it was free to all Olympians. Within the Village itself, the Japanese had provided 700 bicycles for the use of athletes, and these were in constant use.

Public transportation throughout Japan was free to all Olympians. Within the Village itself, the Japanese had provided 700 bicycles for the use of athletes, and these were in constant use.

The Village was complete with a shopping center, laundry, barber shop, movies, and recreational center.
There were many planned tours available, both in and out of Tokyo. In short, anything the athlete might ask for had already been thought of and provided. However, preparation for the influx of foreigners did not stop with the athlete.

For spectators, buses were constantly running between several major hotels and all sports sites. At the Stadium, plastic seat covers were given to all spectators. The programs included not only a complete list of entries and lane assignments for the day, but complete results of the previous day's events.

The conduct and presentation of the events themselves were outstanding, and again indicated the great amount of planning that had gone before. The most minute of details had been thought of. (It was interesting at the track to watch the efficient manner by which officials marched in and out, in line and in step, before and after each event.)

The contrast between opening and closing ceremonies again showed the thought and preparation of the Japanese. The opening parade was dignified and carefully organized, with each nation marching separately. And as such, it was very impressive and quite inspiring.

By the time of the closing ceremony, though, the athletes were well acquainted and were in a much more festive mood, with the competition behind them. A stodgy ceremony at this point would have been most unwelcome.

The Japanese had foreseen this and planned a most informal parade with the nations completely intermingled. This resulted in many spontaneous gestures of friendship, both toward the crowd and other athletes, and another very inspiring ceremony.

Throughout the Games, the Japanese people were sincerely friendly and completely accommodating in their attitude toward...