

TRAINERS JOURNAL

SECTION

THE NATIONAL ATHLETIC TRAINERS ASSOCIATION

JANUARY, 1942

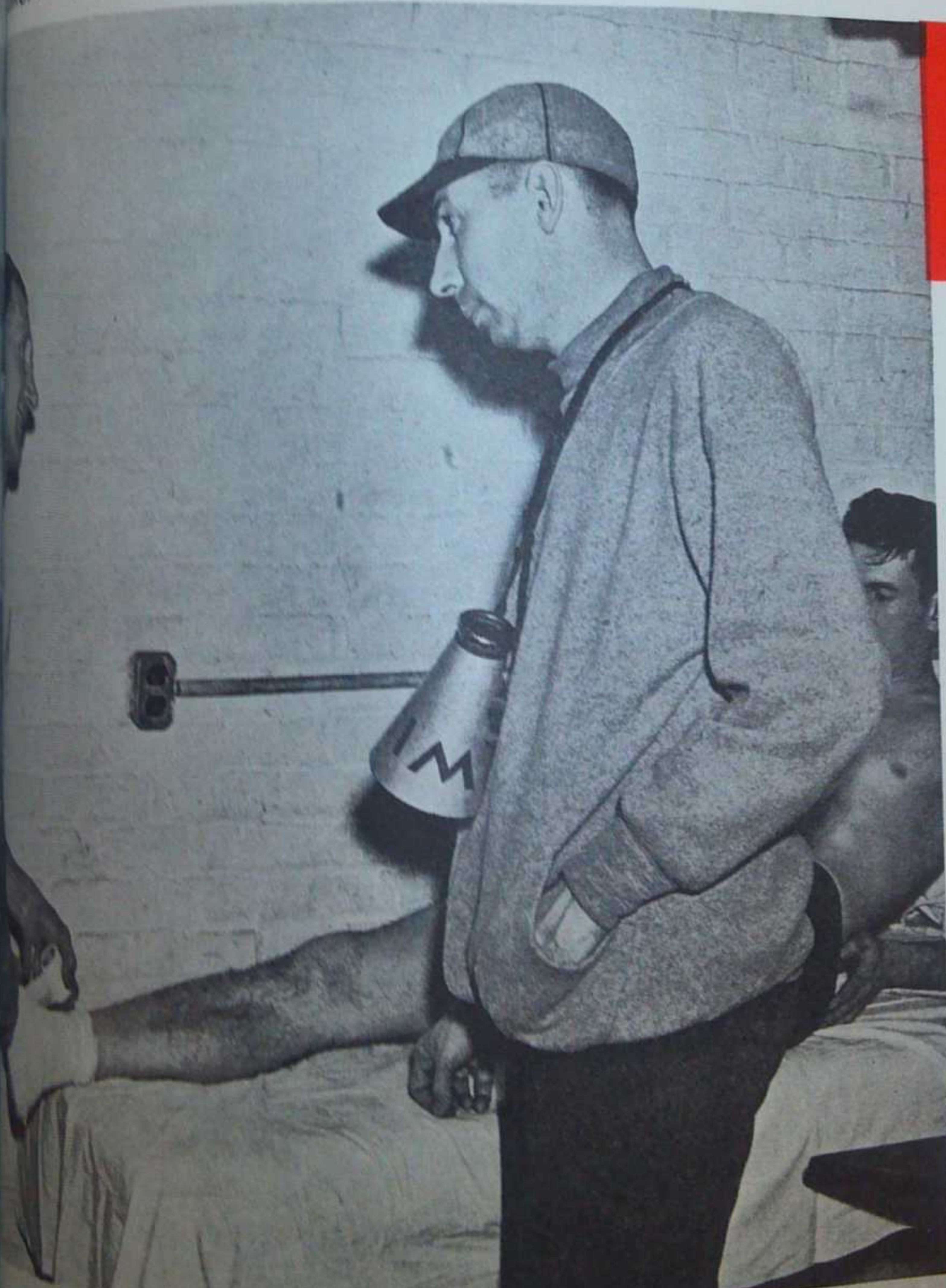
No. 6

Official Publication
Of the National Athletic
Trainers Association

Self-Massage and Special
Exercises for Home Treatment
Bill Frey

Suggested Hints for High
School Coaches in Handling
Athletic Injuries
R. E. "Bob", Shelton

Walter Bakke, Trainer
H. E. "Bud", Foster, Basketball Coach
University of Wisconsin



an inside riding-seat to the
-vault to the right; same to the
de.
n hang, swing. (Illustration 1.)
ving to bent arm; cross-rest.
ving to cross-rest; forward and
swing. Rear-vault.
m hand-swing to elbow rest and
per arm hang, on back and for-
ga.
ving to various mounts, seats,
ismounts.
m hang, to various mounts,
and dismounts.
unning start, do front-vaults,
s, etc. with various turns.
it to the right or left with quater-
walk.
the left or right.
walk.
hand and heel hang.
and lustep hang.
hang swing; spread the legs
bars on forward swing; swing
same with spreading legs
on backward swing.
cross-riding seat.
hand in front, swing up back-
forward to cross-riding seat on
gain, hands in front; same to
side; alternate from right to
ong the bar in different seat
combine any two.
cross-riding seat to the right;
outside cross-riding seat to the
vault to the right with a half
left; same to the opposite side.
unning start, rear-vault to the
half turn to the left; same to
side.
vault mount to a cross-riding
nt of hands; rear-vault; dis-
vault mount over the right bar
ding seat over both bars; turn
ards to the floor.
vault over the right bar and
en the bars to the floor.
nd straddle back over the right
ss-stand on the mat; same to
nd straddle over both bars to
right hand over the left bar.
a cross-rest facing out; swing
forward over both bars to the
ver the right bar to a cross-
on the left bar; rear-vault to
th a half turn left. Same to
side.
over the right bar to the out-
ding seat left; swing the legs
front-vault.
up to a cross-riding seat over
raddle forward to the floor.
s kip. Change the right hand
a front-rest on the left bar;
left hand and come to a cross-
ut; walk to the end of the bar
-vault off to the mat.
man's kip to an outside cross-
o the right; quarter turn right
fall backward and turn over
ard in a bent arm rest posi-
vl. Walk the length of the
arm cross-rest position, reach-
alternately with each arm.
ddle up over the right bar
ult left, to the floor.
ddle up over the right bar
ult left, quarter-turn to the
arm, swing; swing forward
peat on backward swings.
ning start, flank-vault right
bar on a backward swing.
several times on forward
t on backward swing.
cross-rest at center and for-
s right; front-vault.
cross-rest at center; swing
backward with backward
-vault to the right and left.
-stand to a cross-riding seat
s; rear-vault; dismount with
hang; forward swing to a
seat over both bars; quarter-
riding seat left; with the right
le to the left and dismount
er-turn right. Repeat to op-
ll. (Illustration 9.)
roll.
rcle both legs backward out-
bar to the floor.
legs to half lever; quarter-
ght to the same position, with
n the right bar; make another
facing out. Dismount to the
alance. (Illustration 10.)

THE ATHLETIC JOURNAL



The Allerton, Illinois, High School Student Trainers Team.

THE Allerton, Illinois, High School has a student trainer team of eight boys, four who were selected last September and four are being selected for the second semester. To us who know that the enrollment of that school is less than a hundred, this is remarkable. Congratulations to you, Mr. Brown, and to your principal Mr. P. F. Paul. Editor's Note.

(Reading from left to right) G. Compton, Victor Brown, Coach, H. Rice, G. Archer, M. Jones.

NEW YORK STATE PUBLIC HIGH SCHOOL ATHLETIC ASSOCIATION

Office of Secretary-Treasurer

Roslyn Heights, N. Y.
January 20, 1942

Mr. John L. Griffith, Editor
The Athletic Journal
6858 Glenwood Avenue
Chicago, Illinois

Dear Mr. Griffith:

I want to commend you and The Athletic Journal for putting between your covers the very fine section "The Trainers Journal."

As you probably know, I am conducting the New York State Athletic Protection Plan which has paid over \$16,000 for fall sports injuries in New York this year. In addition, I am acting as the statistician for the athletic injuries as reported by all of the states operating the protection plans, and in that capacity can see the national picture in regard to injuries. I am certain that the dissemination of knowledge coming out of the Trainers Journal in regard to better intelligent care of athletic injuries, particularly of the sprain, dislocation and concussion type, is going to make for better conditioned squads and will reduce immeasurably the more severe injuries which follow incomplete and hurried "healing."

Sincerely yours,

F. R. Wegner
Secretary-Treasurer

CONFERENCE CHAIRMEN

Big Six Conference	Beryl Taylor Iowa State College
Big Ten Conference	Leonard Mann Purdue University
Border Intercollegiate Athletic Conference	Tom Gibbings University of Arizona
Central Collegiate Conference	James A. MacDonald Western Michigan College
Central Intercollegiate Athletic Conference	Harry Evans St. Benedict's College
Eastern Collegiate Athletic Conference	A. M. Capozzi Gettysburg College
Connecticut Valley College Conference	H. K. McClernon Coast Guard Academy
Eastern Intercollegiate Track Meet	Norman C. Perkins Colby College
Far Western Conference	Robert L. Breeden College of the Pacific
Indiana Intercollegiate Conference	Robert E. Fulton Franklin College
Maine Intercollegiate Conference	Stanley M. Wallace University of Maine
Mason-Dixie Conference	James Benson Johns Hopkins University
Middle Atlantic Football Association	J. F. Tadley Ursinus College
Missouri Intercollegiate Athletic Conference	E. R. Stuber Southeast Mo. State Teachers College
North Carolina State Intercollegiate Conference	Charles D. Smith Guilford College
North Central Intercollegiate Conference	A. D. Dickinson Iowa State Teachers College
Ohio Athletic Conference	J. W. Begala Kent College
Pacific Coast Intercollegiate Athletic Conference	Dr. Wilbur Bohm Washington State College
Rocky Mountain and Big Seven Conference	R. E. Shelton Colorado University
Southern California Intercollegiate Athletic Conference	Jerry Isett Occidental College

THE TRAINERS JOURNAL SECTION

Official Publication National Athletic Trainers Association

No. 6

FEBRUARY, 1942

Officers National Athletic Trainers Association For 1941-1942

President, Lloyd Stein, University of Minnesota
 1st Vice-President, John Kelly, New York University
 2nd Vice-President, Henry Schmidt, Santa Clara University
 3rd Vice-President, Wilbur Bohm, Washington State College
 Executive Secretary and Editor of Trainers Journal, Bill Frey
 Office of Publication, Iowa City, Iowa

Your Conference Represented?

ON THE opposite page appear the names of newly appointed chairmen of several conferences. As previously announced the National Athletic Trainers Association has grown to such an extent that all business can not be conducted from the executive-secretary's office. These conference chairmen, therefore, will contact the trainers in the member institutions of the conferences. Their first job is to enroll every trainer as a member of the Association; they will arrange for meetings, and as has been suggested, a convenient time for the first meeting will be the conference track meets this spring. At these meetings the High School Student Trainers Plan will be explained in detail and every trainer in the Association will be ready to contact the high school coaches of his locality in starting the program. Your conference chairman has membership blanks in his possession. Contact him at once. If you do not find your conference and its chairman listed, write the home office. It is possible that no trainer from your conference was a member of the National Athletic Trainers Association at the time the appointments were made. Every conference should be represented, and it is our intention to have all represented. Coaches, athletic directors, doctors, and student trainers are urged to become members of the National Athletic Trainers Association. There is a special membership for each.

Trainers! Here Is a Compliment

AFTER reading the letter from F. H. Wegner, Executive Secretary-Treasurer of the New York High School Athletic Association, will those of you who are this fall assisted in the educational program of the National Athletic Trainers Association, both by contributing articles and by your educational and promotional work in your localities, feel that you have been contributors to a worth-while cause. Those of you who have not yet wakened up to your responsibilities write the Editor.

UNDER THE SHOWERS



WE ARE very happy to have Lon Mann represent the association as chairman of the Big Ten Conference. Lon is an old hand in the training profession and is well liked by his brother trainers in every part of the country. His teams have played a very interesting schedule these past twenty years and Lon has been with them most of the time. He has several very fine trainers as assistants at Purdue University who have been members of the N. A. T. A. since its founding.



NOW that things have settled down, writes Robert Chambers, head trainer of the famous Duke teams these many years, I will try to write you more often. But with the new duties Chambers has, acting as chairman of the Southern Conference, I fear his letter writing will suffer more than ever. Those Dukes surely kept Robert busy last January first. Hard luck, fellow, more bowls are coming. But Chambers has still another job at Duke, he is the head track coach and his teams held the conference championship in 1941. Maybe it takes a trainer to be a good track coach or a good track coach to be a trainer.



FROM out of the great Southwest comes this big fellow to lead his group of trainers and act as chairman of the Border Intercollegiate Athletic Conference. I know the whole state of Arizona is proud of Tom Gibbings, head trainer at the University of Arizona. Tom reacts like all the other western men whom we have contacted; the job we ask them to do is not too large, nor the time spent doing it wasted. Besides holding down the head trainer's position Tom coaches cross country and track, and the records show that Arizona has been the conference champion every year since 1932. At a future date we are going to ask Gibbings how he does it.



DOESN'T "Mickey" look grand in that bright new uniform. He was recently appointed chairman of the Connecticut Valley Conference. His official name at the United States Coast Guard Academy, located at New London, Connecticut, is H. K. McClernon and, as I understand it, he holds the rating of Chief Pharmacist besides being trainer for the very fine athletic teams the Academy turns out every year. "Mickey" is also the boxing coach at the Academy.

(Continued on page 34)

Self-Massage and Special Exercises for Home Treatment

By Bill Frey

Secretary-Treasurer National Athletic Trainers Association

VERY few athletes of the total number of our boys in athletics have the benefit of the regular services of a trained masseur or enjoy the advantage of the constant advice of a first-class trainer or coach, skilled in the means and ways of massage. Massage plays a very important part in the conditioning of athletes and, therefore, should be used often. We know that it is possible for a person to massage himself, if he knows the various parts of the body that need it most, and the technique to use. If the athlete cannot get professional massage, he should, at least, enhance his own chances of success by mastering the art of self-massage. In the same way every athlete should make himself acquainted with those exercises which also contribute to his success and know how to care for himself in different weather conditions. This last statement applies to track and baseball.

It is important that the athlete warm up with a few free movements before starting the massage. Then he should apply an ointment or rubbing mixture to the hands to reduce friction.

Massage of the Feet

Place the foot on a chair or stool and commence rubbing downwards with the palm of the hands, working on each side of the foot from the ankle to the toes. The movement should be finished by drawing the thumbs under the ankle bone and up to the Achilles tendon, the movement being quickened until friction is obtained and real warmth created. Next, rotate the toes, flexing them forward and backward and then cushioning them between the hands. Finally, massage the sole of the foot and the ball of the big toe with the tips of the fingers.

A short exercise should follow in which the athlete, standing erect upon one leg, holds the other leg out firmly and rotates the foot in alternate circles, left to right, then right to left, with a pushing movement of the toes outward as a finishing movement of the exercise.

Massage of the Calf

Place the foot on a chair or stool and bend well forward. The fingers should make contact with the calf at the ankle bone and should be drawn firmly upwards, care being taken that constant contact is maintained. In the next movement

High School Trainers Lesson No. 6

(assuming that the right leg is being massaged) place the left hand under the calf with the fingers just above the outer ankle bone and draw the hand up to the inside of the knee. Next, place the right hand under the calf with the fingers just above the inner ankle bone and draw the hand up and across the calf to the outer side of the right knee. Place the fingers on the side of the calf muscle, using both hands, then roll and knead the muscle until it feels soft. Finish the lower leg by massaging the front or shin bones, using an upward movement.

This same massage may be used if cramps appear in the calf muscle. It is not often that athletes pull any muscles in the lower leg, but in case they do, it is important that the proper tape be applied before the boy is allowed to return to the contest. In some cases tape has been the difference between winning and not running at all. If you apply tape to the leg, always remember that you are applying a *tape muscle* and the tape should do the same job as the muscle did, not as efficiently, but in the same manner.

Massage of the Knee

Sit in a chair, with the leg to be mas-



saged in slightly bent position. With the palm of the hand, gently rotate the patella (knee cap) situated in front of the knee, in the tendon of the quadriceps extensor femoris muscle. Immediately after this, with both hands compress the knee in a squeezing action. Next, with the hands maintaining a firm pressure on either side of the knee, rotate them in opposite direction. When this has been done place the finger tips, pointing inwards, in the cavity under the knee and work in small circles in opposite directions, lightly but briskly, stroking upward the whole joint. Then flex and extend the leg several times.

These exercise and massage suggestions may also be used to great advantage on knees that have been hurt in football. The massage will help bring them back to normal and the exercise will make them strong again. Exercise on football knees should not begin too early after taping, but massage may be given as soon as the athlete can stand to have pressure applied.

Massage of the Thigh

From a sitting position begin the massage of the thigh with the thumb and fingers, using both hands, exerting a deep, upward pressure on either side of the thigh until real warmth is created. A rapid rolling of the muscle substance on each side of the thigh follows, and as each section or portion of a muscle is released another must be picked up, so that the whole movement may be made continuous.

The upper portion of the thigh needs special attention. Using the ball of the thumb, rotate deeply at the outer side. The fingers give a similar rotation on the inner side, but with far less degree of pressure. Place the heel on another chair, so that the thigh muscles may be fully relaxed, while the two hands roll the whole area and mass of muscle of the thigh, until it feels soft and loose around the thigh bone. In most of the strains that are common in the thigh, success of healing them seems to depend largely upon increasing the blood supply. Use, therefore, fomentations, infra-red, diathermy or hot packs along with light massage on the affected parts. If a muscle is ruptured in this area, great care must be taken before the athlete is allowed to return to the contest. Precaution should include tape for the duration of the athlete's year. Recurrence is worse than the original rupture or tear.

During the running of the 1938 Drake

Exercises

ly bent position. With the and, gently rotate the patella situated in front of the knee, of the quadriceps extensor. Immediately after this, compress the knee in a on. Next, with the hands firm pressure on either side state them in opposite direc- is has been done place the ating inwards, in the cavity e and work in small circles ections, lightly but briskly, rd the whole joint. Then the leg several times.

se and massage suggestions sed to great advantage on ve been hurt in football. will help bring them back he exercise will make them Exercise on football knees in too early after taping, ay be given as soon as the d to have pressure applied.

Massage of the Thigh

g position begin the mas- h with the thumb and fin- a hands, exerting a deep, e on either side of the warmth is created. A the muscle substance on thigh follows, and as each on of a muscle is released e picked up, so that the may be made continuous. rtion of the thigh needs . Using the ball of the eeply at the outer side. a similar rotation on the with far less degree of the heel on another chair. h muscles may be fully he two hands roll the mass of muscle of the els soft and loose around

In most of the strains eems to depend largely the blood supply. Use, ntations, infra-red, dia- cks along with light mas- cted parts. If a muscle is area, great care must the athlete is allowed to atest. Precaution should the duration of the ath- rrence is worse than the or tear.



Fred Wolcott, the great hurdler tape bandage on the thigh muscles a recurrence of a muscle rup- that he had received in the Kansas a short time before the Drake He not only won the race but set a world record. This could never been done, if he had not had a tape bandage applied before the Most of these muscle ruptures or come about in sprinters. They will full speed down the track and they will pull up and stop, or eases fall face down. Great pain enced in the thigh muscles and power comes on immediately. of these men cannot continue to of the track because of the pain. e theories have been exploded as e cause of this condition, but my e theory is based on the following: e will trace the runner's athletic e, you will find that he has either e case of muscle tear or rupture e more times before the final one has e place and he should never have e allowed to run without protection; e has failed to warm up properly, e to massage his muscles a little be- e contest; or has had too much e and is completely exhausted be- e contest. It is also possible that e salt intake has not been enough to e the muscles with the amount of e to make them operate properly. e salt intake may cause some of e conditions. It is hardly possible e fault is lack of running or prac- e track conditions, but pulled mus- e happened on the finest tracks e world. Others claim wood tracks e pulled or ruptured muscles e trainers who feel that flat in- e contribute many muscle in- e. Before we pass on to another e exercise and massage, it is in or-

der to say that many good track men would not be injured, if they warm up carefully, massage themselves properly and notify the coach, in case they feel a pain or pull in any of their muscles.

Massage of the Back

Stand erect and place the thumbs on either side of the back, so that you can massage the muscles on the small of the back with a slow, steady, rotary move- ment. Bring your fingers from the op- posite side to the center of the back in deep, sweeping movements. In the next movement, let your thumbs steady your hands, so that the fingers may be used to give friction. Finally, partly close your hands so that there is a sort of cup be- tween the first finger and thumb, and with the cup on each hand, tap yourself



Examination Number 2

1. Why should great care be given to a knee that has been injured?
2. How long after a knee injury has been received should it receive at- tention?
3. What should you be doing and think- ing when you apply any tape ban- dage?
4. For what type of knee injury is the tape bandage shown in illustrations 1, 2, 3, 4, 5, 6 in lesson number 3 used?
5. Have you observed the popliteus muscle in an anatomy book?
6. Why does basketball require a differ- ent set of preparatory exercises from football?
7. How can you strengthen the hands and wrists?
8. How can you strengthen the waist line? Describe the exercise used.
9. Define several ways athletes may re- lax before a contest.
10. Have you read the article, "Relax- ation and Simple Living"?
11. Why do you think Bernie Bierman, Minnesota's great coach, always makes his men walk from the dress- ing room to the playing field?
12. Why do basketball players take a deep breath and let their shoulders drop just before shooting a free throw?
13. What is meant by "Simple Living"?
14. How much sleep does an athlete re- quire?
15. Why should we all eat slowly?
16. What is the first rule in all sports if one aspires to be good?
17. Name three uses for the infra-red lamp.
18. Are all infra-red lamps of the same voltage?
19. Why are bicycles better for athletes than motor cars?
20. How many hours before a game should the game meal be eaten?

smartly all over the region of the small of the back.

To exercise the back muscles stand erect with hands over the head; start by swinging your arms to the left in a down- ward movement, coming as closely as possible to touching the toes; continue upward to your right until your hands are directly over the head once more. Starting from this same position, bend backwards as far as possible, then con- tinue the sweep straight forward until the toes are touched, returning to the starting position.

Many trainers have their own pet ideas on exercise and massage. Most of them agree, however, that the two are very im- portant in conditioning athletes. Both can be overdone.

Massage for Nervousness

Massage is one of the best means for overcoming nervousness. It is not in the book for a trainer or coach to merely tell a boy to stop the jitters, he must do some- thing about this particular case. Light massage will do the trick. Many track men have asked me to rub them just be- fore a big meet. I did, but I used plenty of good common sense in how much to massage them. Some of them won, some of them did not, but it would be im- possible to give positive indications that the massage did or did not do the trick. I have always welcomed high strung ath- letes in my camps, but have found that they must receive special attention. Who in the athletic world has not run up against a tough problem, and who in the same world would trade the tough ones, with plenty of power under their skins, for the mild easy type of athlete. Give me the athlete that runs a temperature and is jittery, and I will show you a box office attraction. Hard, deep massage is not needed to bring about desired results. Light, smooth massage is much better.

Suggested Hints for High School Coaches in Handling Athletic Injuries

By R. E. Bob Shelton
Head Trainer, University of Colorado

IT is hard to imagine an interesting and worth-while program of sports which would not involve the risk of some injuries to the participants. To insure against all possible injuries would entail the elimination of all sports involving running, jumping, twisting, throwing, batting, climbing, vaulting, dodging, sliding, and personal contact. Quite a picture!

Football, boxing and wrestling are most commonly regarded as particularly dangerous games, but investigation would probably show that there are in the course of a year more injuries in baseball than in all these three combined. To offset this, I must say that a great many more people play baseball, yet when we consider the hundreds of thousands of accidental injuries which occur during a year in the ordinary activities of life, the number of injuries incurred through sports becomes much less appalling than at first casual glance. Even the angler who goes for a quiet evening in the woods may contact blood poisoning from the blistered heel, or from accidentally piercing his finger with a hook.

With the long array of accidents incurred (according to life insurance company data), as a result of falls while performing such simple tasks as hanging of a picture, or as a result of such very simple acts as getting out of a bathtub, we can almost be justified in regarding

the athletic field as a haven of safety,—and that without resorting to the sophistry of Mark Twain, who considered being at home in bed as extremely dangerous, because more people die in bed than in any other place.

I could hardly subscribe to the idea of abolishing sports, because of their element of danger, for every injury in sports is a matter of concern, especially when we know that most of these injuries may well have been avoided.

In the first place, those who are engaged as coaches, instructors, or directors of sports ought, at all times, keep in mind their responsibility for the safety of the athletes in the prevention of accidents. It is no imposition to expect this from those officials, and it is almost criminal for them to shirk this duty.

The contestant, too, has his responsibility, even to the extent of such simple acts as attention to equipment and the humble little contrivance, the shoe lace. That, however, does not mitigate the responsibility of the coaches and instructors in the teaching of techniques, such as to render them less hazardous, both as to type of activity and manner of executing them. This includes, also, such situations as unevenly matched contestants or teams. In these cases the matches should not be permitted to go on and the contest should be forfeited.

As to the nature of the injuries incurred on the athletic field or during the physical education period, they may be classified as cuts and scratches, sprains, pulled tendons or strained muscles, dislocations, broken bones, and concussion of the brain.

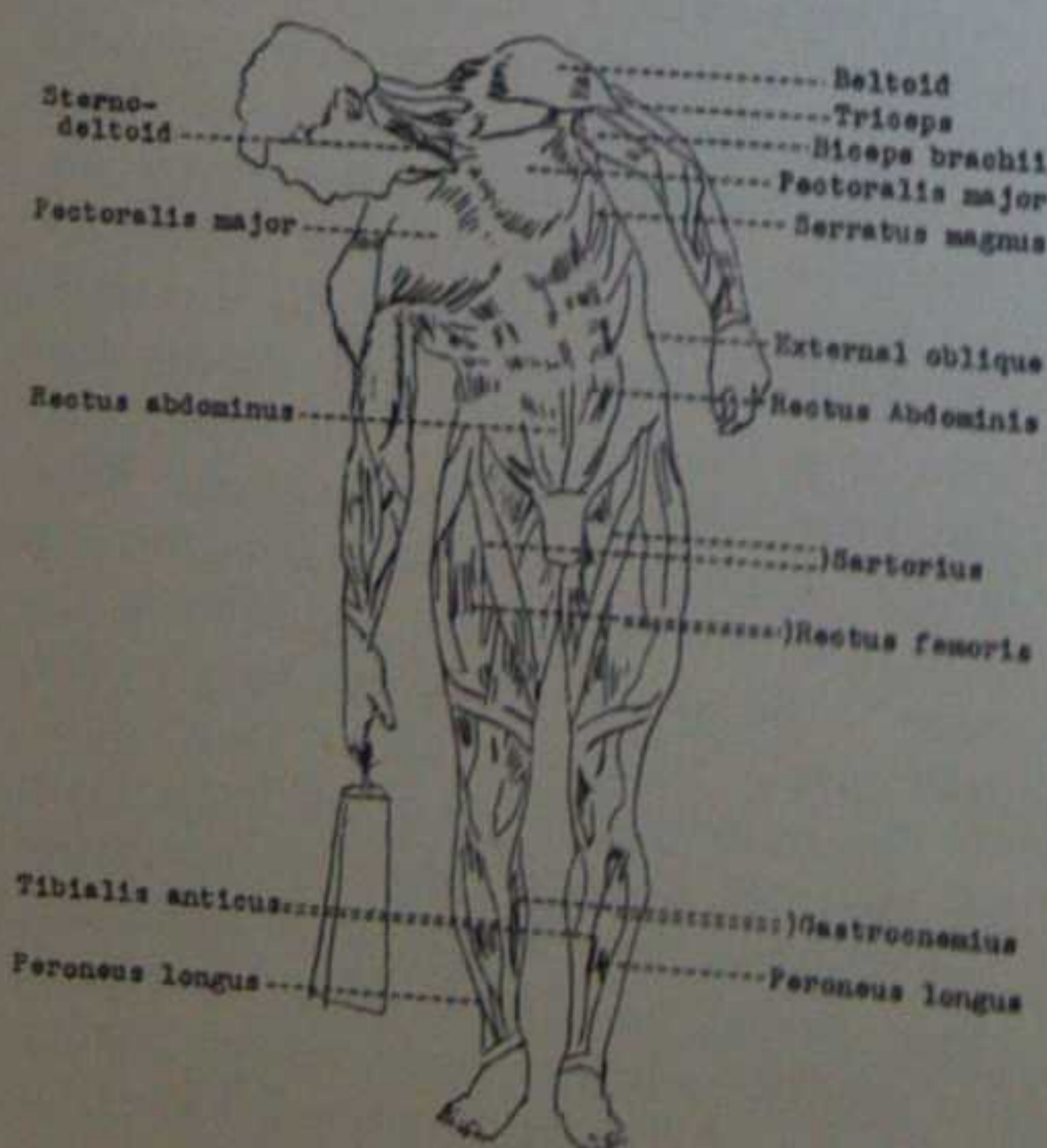
Sprains: Any weight or force which causes movement in the joint beyond its natural limitations may stretch, tear, or pull loose the tissues (ligaments) which surround the ends of two bones and hold them together. Sprains are more common in the ankle joint, because of its function in supporting the body and its vulnerability during activity.

Sprains may be avoided, if athletes would cultivate skill in the use of the body and limbs, if they would learn to fall properly, and if they use only properly fitting equipment. This is especially true of shoes. As soon as a sprain occurs,

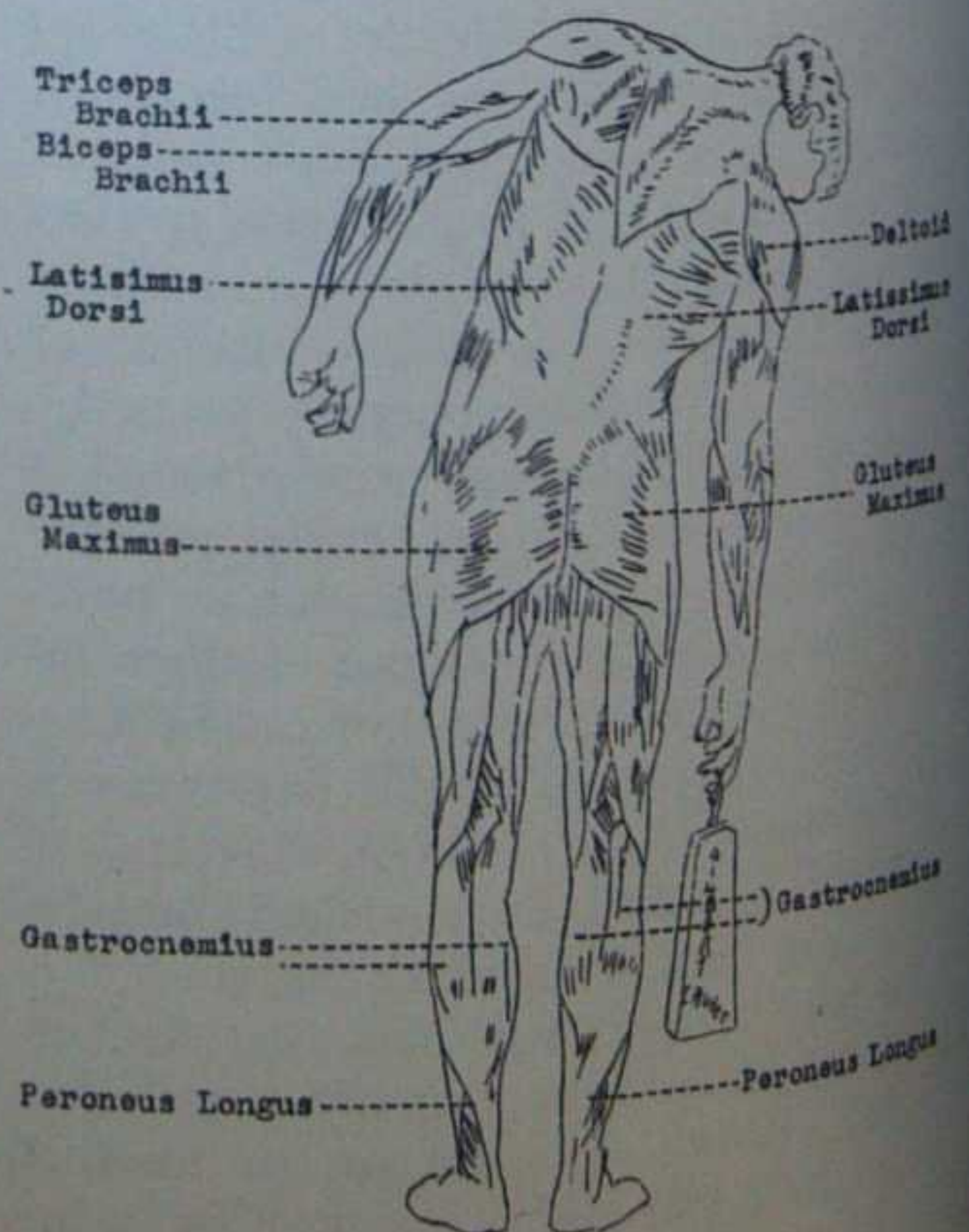
however, as in the ankle, remove the shoes and allow as much bleeding in the areas as possible, and of course the resultant swelling. The ankle should be soaked as early as possible in *ice water*. Sprains, one must remember, are always associated with a tearing. If they are severe, hemorrhage occurs in the surrounding tissue and an immediate puffy swelling results. Cold is suggested rather than heat, because cold causes a reflex contraction of the vessels and reduces the bleeding. Hemorrhage due to the sprains of the ankle are checked by swelling and the resultant pressure they themselves produce.

In case the sprain is severe with much swelling, the patient should be put to bed with the injured ankle somewhat elevated and wrapped lightly with towels, soaked in a cold solution such as boric-alcohol and saturated solution of boric acid or plain salt. Over this wrapping an ice bag should be placed. Next, after the ankle has ceased swelling, heat gently and massage around the seat of the injury—*not over it*. Massaging sooner than twenty-four hours after the injury may reopen the torn vessels and increase the swelling. With each additional day, increase the length and pressure of the massage, with more passive than active

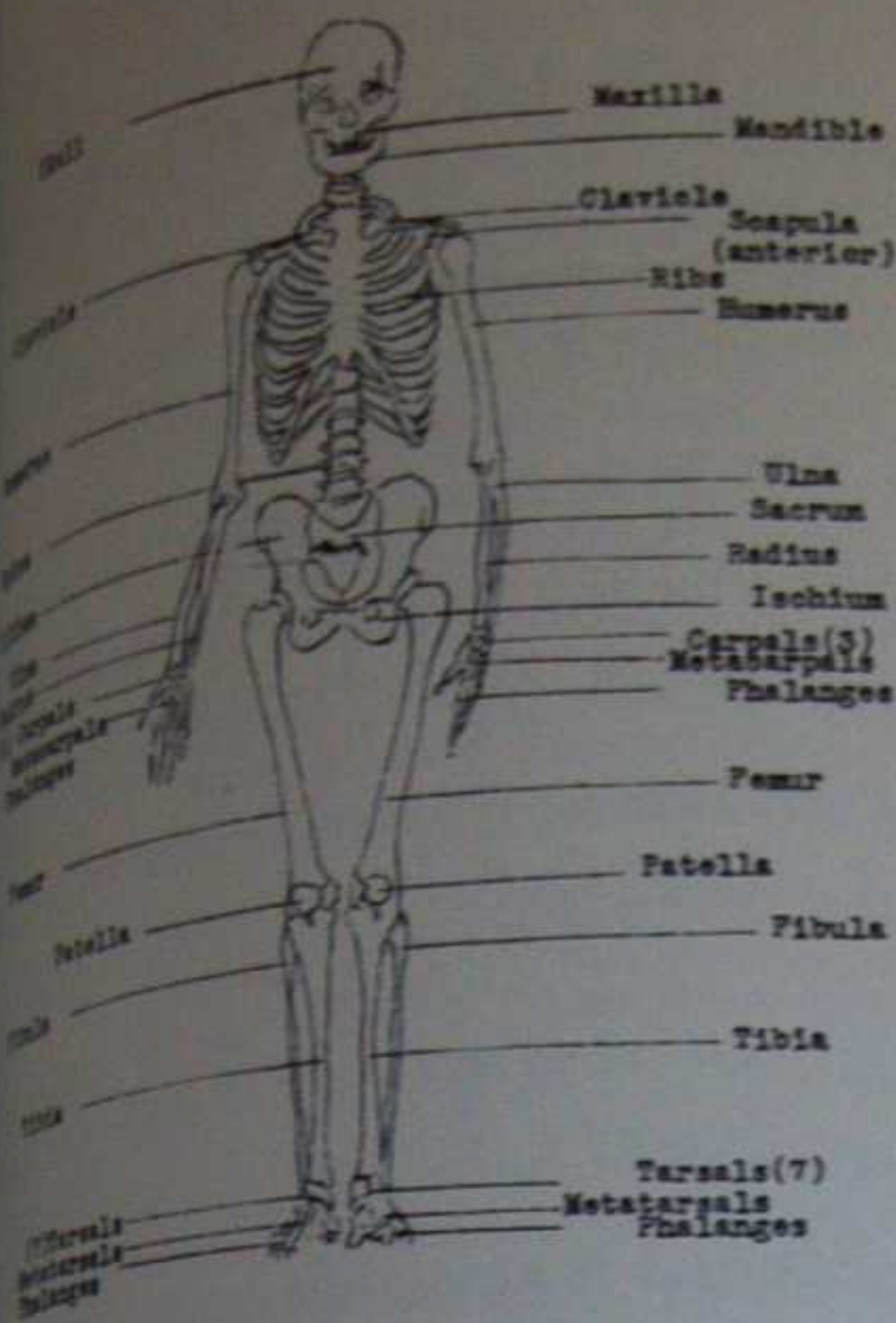
MUSCULAR SYSTEM
(Front View)



MUSCULAR SYSTEM
(Back view)

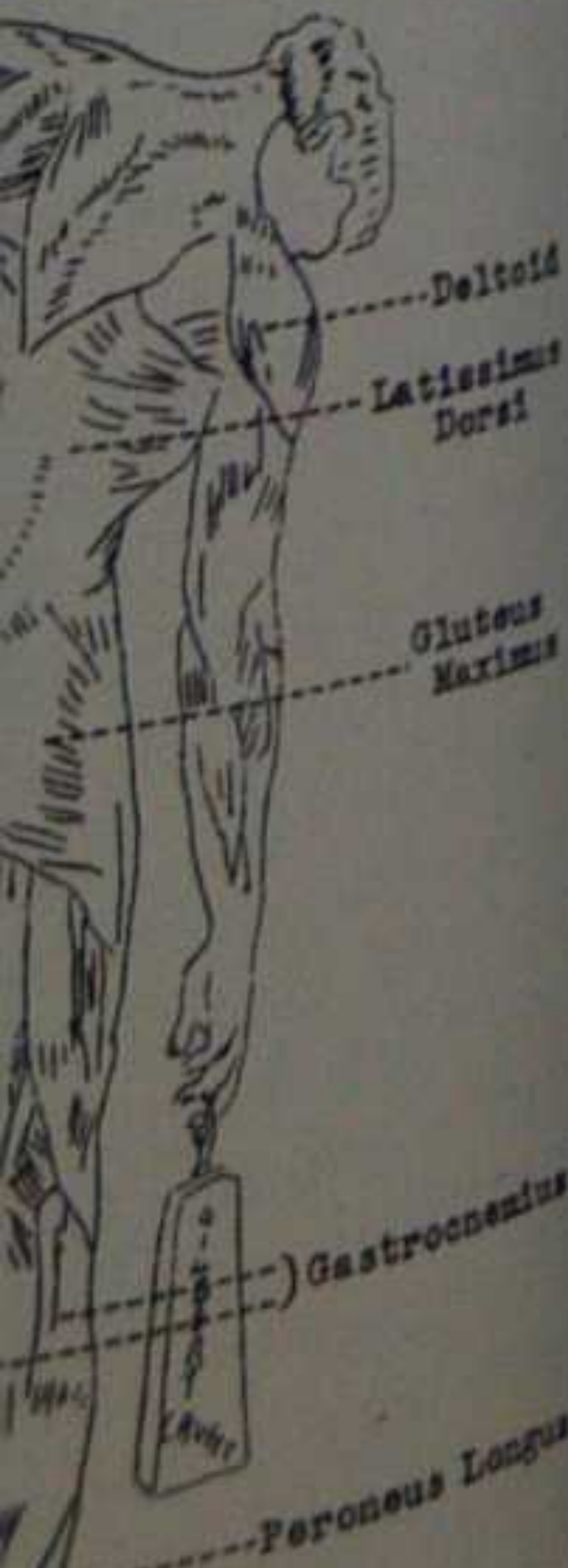


movements of the
under the rays of
ways in the direc
When the swell
ankle have begun
ankle can functio
the ankle ca
bandage. This ba
the swelling le
ankle in alcohol
age has been
ether will help to
description of th
page 35 October
Section.
Bruises are so
and disabling be
tissue cells, brea
generates the ner
line effects from
infiltration of blo
the broken blood
bruises ordinarily
except rest and p
Blister: For
solution of tanni
per cent solution
Thin this with a
thick. Paint the
cover with powde
twice a day for th
Athlete's Foot:
and will breed on
side favorable co
darkness, and r
Use 15 per cent
with cotton and a
cover the foot wi
salve.
Three types of
(2) blood, (3) pu
Water Blister:
blister with a ster
clear, do not ren
the skin with a t
with a thin pad.
Pus Blister: If
the skin and use a
of witch hazel,
for FEBRUARY.



ankle, remove the
ch bleeding in the
of course the re-
ankle should be
ossible in ice water.
ember, are always
ring. If they are
ccurs in the sur-
n immediate puff
is suggested rather
ld causes a reflex
els and reduces the
due to the sprains
ed by swelling and
they themselves

severe with much
ould be put to bed
somewhat elevated
with towels, soaked
as boric-alcohol
of boric acid or
wrapping an ice
Next, after the
ng, heat gently and
at of the injury—
ging sooner than
er the injury may
s and increase the
additional day, in-
l pressure of the
assive than active



movements of the ankle. Rub the ankle
under the rays of a therapeutic light, al-
ways in the direction of the knee.

When the swelling and soreness of the
ankle have begun to abate, so that the
ankle can function in voluntary motions,
sprain the ankle carefully, using the Gibney
bandage. This bandage will become loose
as the swelling leaves the ankle; soak the
ankle in alcohol or hot water after the
bandage has been removed. Gasoline or
kerosene will help to remove the tape. For
description of the Gibney bandage see
page 35 October issue of the Trainers
Journal.

Bruises are sometimes severe, painful,
and disabling because the blow injures
tissue cells, breaks the capillaries, and
irritates the nerve fiber. The black and
blue effects from a bruise are due to the
filtration of blood into the tissue from
the broken blood vessels. Even severe
bruises ordinarily need little treatment
except rest and protection.

Blisters: For their prevention use a
solution of tannic acid, pickle brine, 10
per cent solution of benzoin compound.
Rub this with alcohol if it becomes too
thick. Paint the foot thoroughly, let dry,
cover with powder (zinc stearate). Paint
once a day for the first week of practice.

Athlete's Foot: This is a fungus growth
and will breed on anything. The feet pro-
vide favorable conditions for its growth
(darkness, and moisture). Prevention:
Use 15 per cent of salicylic acid. Scrub
with cotton and apply this solution. Then
cover the foot with vaseline or some soft
cream.

Three types of blisters are: (1) water,
(2) blood, (3) pus.

Water Blister: Make a hole under the
blister with a sterile needle. If the water
is clear, do not remove the skin, but paint
the skin with a tested remedy and cover
with a thin pad.

Pus Blister: If this type occurs, dissect
the skin and use a wet dressing composed
of witch hazel, glycerine and alcohol,

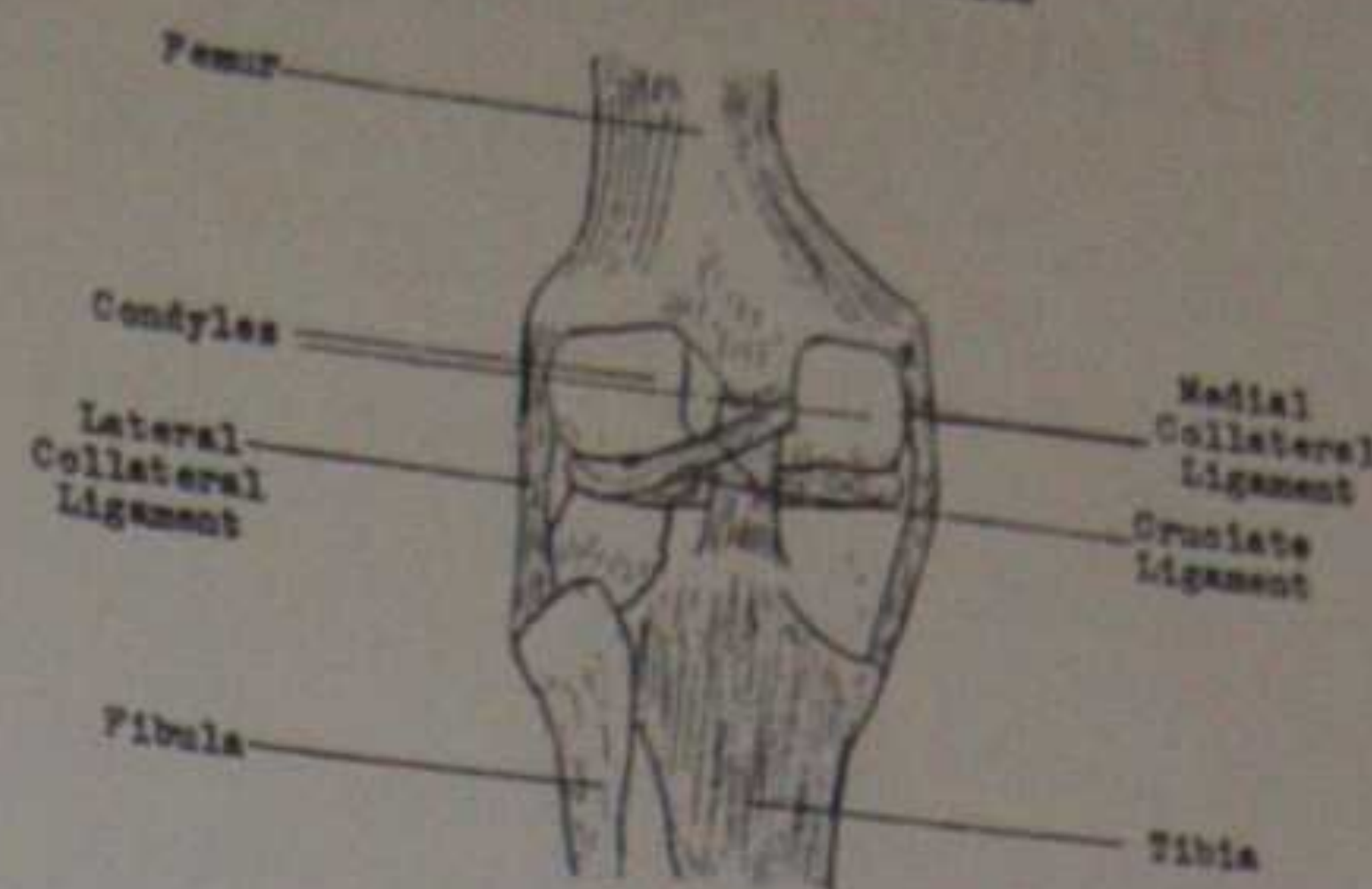
THE charts accompanying this article
are necessarily reduced because of
limited space. They, however, suggest
the importance to trainers, to coaches
who are entrusted with the training of
athletes in addition to coaching tech-
niques, and to the student trainers, of
knowing the muscle and skeletal sys-
tems if they are to do their training
jobs scientifically. In connection with
the charts, may we call your attention
to an excellent muscle chart furnished
by Absorbine, Jr. as announced on
page 38 of this issue of the ATH-
LETIC JOURNAL.

The accompanying selected list of
muscles most commonly injured in
athletics, as furnished by Mr. Shelton,
should be studied carefully by readers
of this publication.—Editor's Note.

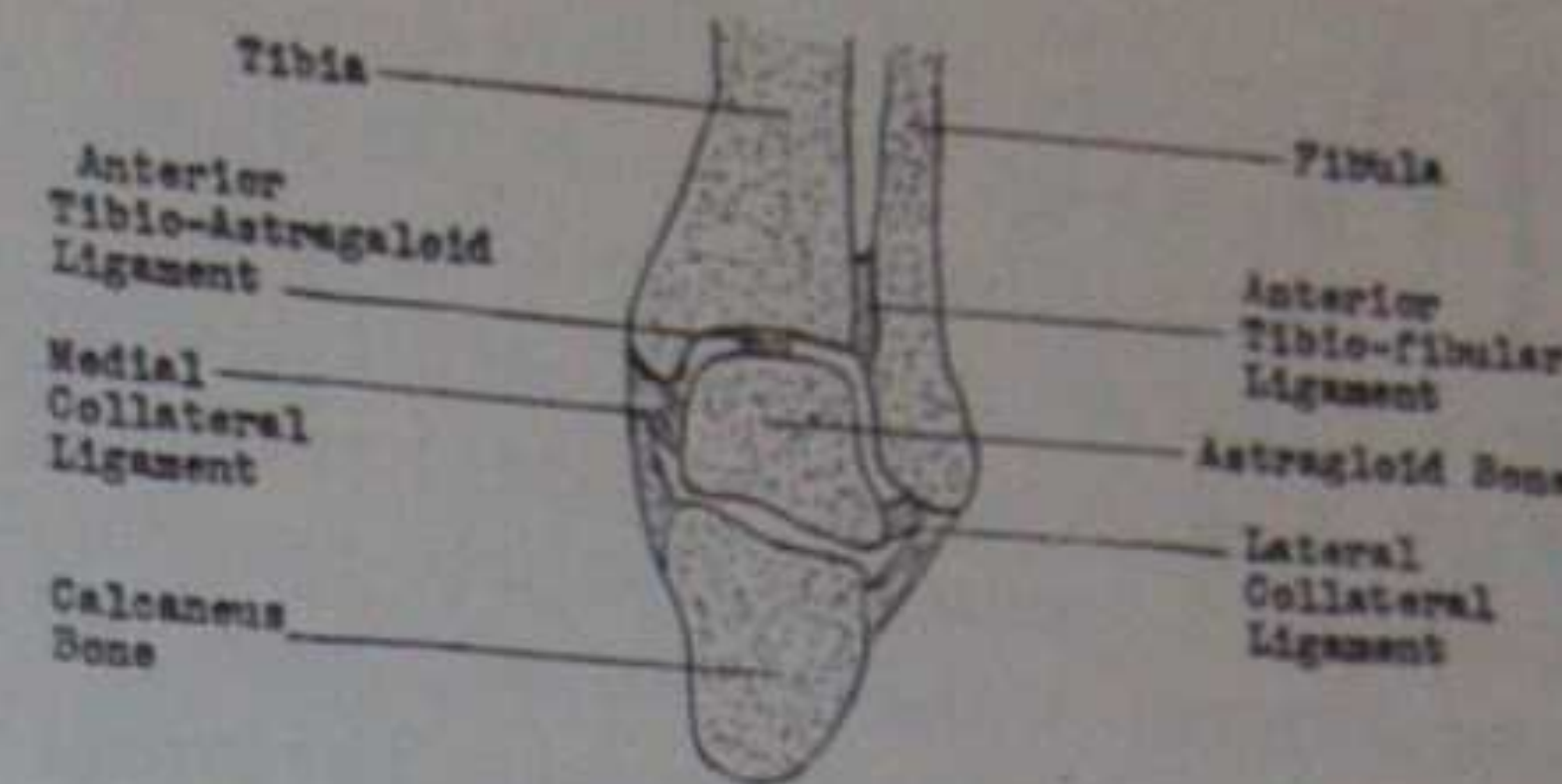
MUSCLES MOST COMMONLY IN- JURED IN ATHLETICS AND ACTION INVOLVED

1. Trapezius
Movement of Scapula; Erection of
Head.
2. Latissimus Dorsi
Extension, adduction and inward ro-
tation of humerus.
3. Pectoralis major
Extension, adduction and inward ro-
tation of arm.
4. Biceps brachii
Flexor of arm and forearm.
5. Triceps brachii
Extension of arm and forearm.
6. Gluteus maximus
Extension and outward rotation of
thigh.
7. Sartorius
Flexion and outward rotation of
thigh.
8. Quadriceps femoris
Extensor of leg.
9. Adductor magnus
Adduction, flexion and inward rota-
tion of thigh.
10. Tibialis anterior
Dorsal flexion of foot and elevation
of its medial border.
11. Gastrocnemius
Plantar flexion of foot and flexion
of leg.
12. Peroneus longus
Plantar flexion and aversion of foot.
13. Sternocleidomastoid
Flexes head.
14. Serratus magnus
15. Deltoid
Adductor of head.
16. Exterior oblique
Compression of abdomen cavity;
flexion of trunk.
17. Rectus abdominus
Compression of abdominal cavity
and flexion of trunk.

LIGAMENTS OF KNEE AND ANKLE MOST
COMMONLY SPRAINED IN ATHLETICS



Ligaments of a normal left knee
(Posterior view)



Ligaments of a normal left ankle

or use S.T. 37, which is very good.
The main object of this treatment is to
heal the pus blister from the bottom to
the top.

Blood Blister: This third type is the
most severe of the three and requires
much more attention. Clean off; apply
wet dressing or ichthyol enough to cover
the area and tape on. If the area be-
comes red, look out, this is dangerous.
By the use of ice packs the local infec-
tion will be held in one area. By the use
of Epsom salts (MgSO₄), the infection
may be prevented from spreading. If the
infection is severe, call a doctor.

The types of wounds are: (1) incision,
(2) abrasion, (3) laceration, (4) punc-
ture wounds.

Incision: An incision is a clean cut hole
like that made with a spike, shoe, or a
knife. This is not so severe, and pulling
together the skin or stitching it will do
the job well. Use wet dressing as indi-
cated before.

Abrasion: Better known as "straw-
berry," this wound is incurred if an ath-
lete slides on some surface. Cut a dough-
nut large enough to completely circle the
skinned area, apply wet dressing. Foam
rubber is satisfactory to cover the area.

Laceration: This type most generally
occurs over the Tibia bone and is the
most difficult type to cure. Lacerations
are caused by a person whipping his legs
along the shin bone of another player.
There is a tear of the skin and good
medical attention is needed. Sunlight and
hydrogen peroxide (H₂O₂) are good ster-
ilizers.

Puncture wounds: Do not suture. Be-
ware of serious infection.

Disinfection for dressing room, hypo-
chlorite (HoCl₂), 2 per cent is a good
solution; creosoted glass to a bucket of
water is good with which to mop the floor
of the dressing room and shower.

The National Athletic Trainers Association Insignia



FOR some time we have been working on an insignia for the association that may be worn by its members. This will be made up as a key or as a pin, gold for senior members; silver for junior and bronze for associate members and student trainers. In all keys and pins, the insignia is the same. The prices are as follows:

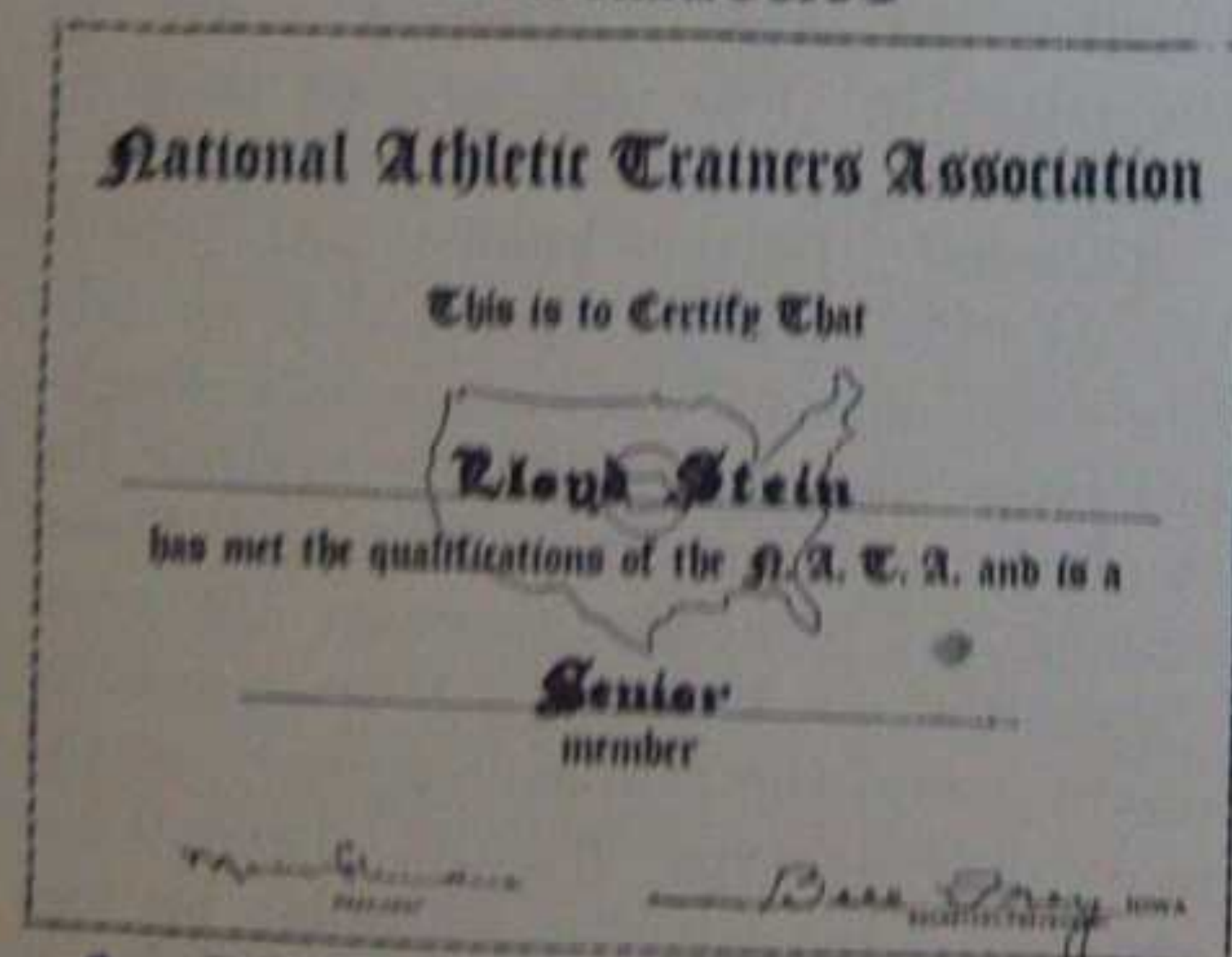
	Key	Pin
1/10 rolled gold plate (Senior)	\$4.00	\$2.50
Gold plated on sterling (Senior)	3.00	1.75
Sterling (Junior)	2.50	1.75
Bronze (Associate and Student Trainers)	2.00	1.50

If engraving is desired, the cost will be three cents per letter.

Orders should include the full amount of the key or pin and ten per cent for retail sales tax and shipping charges. Purchases must be made through the home office of the National Athletic Trainers Association, Iowa City, Iowa.

—BILL FREY, Secretary.

The National Athletic Trainers Association Certificate



ABOVE is pictured in reduced size the certificate issued by the National Athletic Trainers Association. This certificate, in a size suitable for framing, is issued to Senior, Junior and Associate members. Student trainers, upon completion of the four-year training course as outlined by the Trainers Association will receive a certificate. All inquiries regarding the certificates should be addressed to

—BILL FREY, Iowa City, Iowa.

Under the Showers

(Continued from page 29)

On the cover of the Trainers Journal we give you Bud Foster and his trainer Walter Bakke of Wisconsin University. This picture brings back memories to your editor as I trained Bud his last year of college basketball. Last year when his team won the National Collegiate Championship, Bud proved that he has had plenty of experience with champions, the last team with which he played in college won the championship of the Big Ten. The date 1929.

Trainers who attend the Drake Relays will have a chance to view some of Lloyd Stein's work. He has a set of motion pictures that he has made of various injuries which have popped up in the training rooms of the Minnesota football team. Stein has held the office of president of the National Athletic Trainers Association for the past two years.

Beryl Taylor, trainer at Iowa State College writes that the new defense plan is keeping him plenty busy. He is an instructor of first aid, both at the school and also in the territory where he lives. Trainers, why not offer your services to the home defense program; your background is perfect for that type of work and you will be doing your country a great service.

J. W. Begala of Kent State University has the right idea. When notified that he had been appointed chairman of the Ohio Athletic Conference he said he would like to make a trip around the state and meet the other trainers personally. Nothing is better than personal contact. When your teams are visiting other schools, make it a point to get in touch with the trainer of the school. Friendships cannot be bought, but they may be promoted.

Tape Topics

Tape Topics is a column to which coaches and trainers are invited to contribute either in the way of questions or worthwhile suggestions that would help others.

Question: Every year one or more of my basketball boys is afflicted with boils. What are the preventatives and treatments.

Answer: Every training room has the uninvited visitor. Boils, every year! They are common with basketball players, occasionally found on football squads and rarely in baseball clubs. Friction and excessive perspiration are the probable causes. Plenty of good soap in the showers and clean playing equipment are the best preventatives. Some of the practice outfits I have seen used by athletes are so dirty that most any disease may show up. In treating the boil, use plenty of hot packs of saturated boric acid solutions, under an infra-red lamp. The heat from

Annual Meeting National Athletic Trainers Assoc.

The annual meeting will be held for the first time this year in two sections. Eastern division meeting at the time of the Penn Relays, Western division meeting at the Drake Relays.

Open meetings for all interested in training problems. High school coaches are urged to attend the lectures and demonstrations. Closed meeting for election of officers.

All trainers are urged to notify the home office of their intention to be present so that arrangements for the programs may be made.

Programs and meeting places to be announced in March issue.

ROLL AWAY YOUR FOOT TROUBLES

LANG FOOT AND ARCH NORMALIZER

For use after a foot or ankle injury, when proper time arrives for exercise. Now adopted for training room equipment by Universities of: Alabama, Georgia, Mississippi, Detroit, Kansas, Texas, Pennsylvania, Toledo, Mercer, Harvard, Ohio State, Oklahoma, Georgia Tech, San Jose, St. Benedicts, U. S. Military Academy, L. S. U., State College of Washington, Rensselaer Poly. Inst., Nott Terrace High School, Edinburg High School, Washington Redskins Pro. Football Club. Price, Ten Dollars. Mail order or send for free circular literature to:

TRAINER'S JOURNAL
Iowa City, Iowa

ual Meeting
 nal Athletic
 ners Assoc.

meeting will be held for the
 ar in two sections. East-
 eting at the time of the
 estern division meeting at
 s for all interested in
 s. High school coaches
 nd the lectures and dem-
 sed meeting for election
 urged to notify the home
 tention to be present so
 ts for the programs may
 meeting places to be an-
 h issue.

AWAY YOUR
 TROUBLES

FOOT AND
 ORMALIZER

er a foot or ankle in-
 proper time arrives
 e. Now adopted for
 oom equipment by
 s of: Alabama, Geor-
 sippi, Detroit, Kan-
 Pennsylvania, To-
 cer, Harvard, Ohio
 homa, Georgia Tech,
 St. Benedicts, U. S.
 cademy, L. S. U.,
 ege of Washington,
 Poly. Inst., Nott Ter-
 School, Edinburg
 ol, Washington Red-
 Football Club. Price,
 s. Mail order or send
 ircular literature to:

ER'S JOURNAL
 a City, Iowa

ATHLETIC JOURNAL

will give you a hot pack for
 A frequent moistening of the towel
 over the area of the boil with the
 acid solution will protect the area
 becoming burned. This procedure
 bring the boil to a head rapidly and
 allow you to remove the core. Before
 the boil opens, shave the surrounding area,
 apply tincture of iodine. Many times
 may be brought to a head with a
 There should be great precau-
 in wiping off all drainage of pus
 the boil area. It is advisable
 an ichthyol dressing to keep the boil
 so that it may drain for several days.
 the dressing each day until the
 wound looks free from pus. Too
 times the wound is allowed to close
 all the infection is out.

Question: I have often heard that
 athletes should have much more to eat
 than an average working man. Have you
 information on this subject.

Answer: The subject is well worth
 writing about but would require too much
 space for this column. We will have some
 articles on this subject before the end of
 the year. Athletes do not need so much
 food but food of a higher caloric con-
 tent, a diet balanced and loaded with
 back energy food. It has been claimed
 that athletes who are practicing every day
 for two hours should have a total count
 of five thousand calories each day. That
 does not mean that you should pick out
 the food with the highest caloric count

and use that one exclusively. Every diet
 should contain the following list of foods.
 Two eggs; four vegetables, one of which
 should be raw; two servings of meat; one
 glass of milk; three slices of white bread;
 one and a half pats of butter. To assure the
 proper nourishment of the body, wheth-
 er to put on weight, or improve the general
 physical condition, the body must be prop-
 erly nourished. The diet must be ade-
 quate in all respects, the proper amount
 of calories and the proper distribution of
 protein, calcium phosphorus, iron, copper
 and vitamins. Caloric requirements for
 hard exercise may be determined by using
 twenty-three calories times the number of
 pounds the athlete weighs. Example: If
 the athlete weighs 200 pounds, 200 times
 23 or 4600.

Question: The track season is about
 to begin down here. During the regular
 season one or more of my boys receive
 spike wounds. How should they be treat-
 ed?

Answer: Spike wounds, no matter if
 they happen during track or baseball,
 should have the immediate attention of a
 doctor. There have been hundreds of
 wounds of this type that have fully recov-
 ered without antitetanus serum injection,
 but I have always felt that the one case
 that did not receive this treatment would
 be the one that might result in lockjaw.
 Play safe on every one of these wounds
 and have them treated by a doctor.

Question: Our school is co-operating
 in the trainers course that was started this
 year. We have four boys who are learning
 to become trainers. Would you send us
 lessons on this work? We think it is a
 very fine project.

Answer: We are very happy to hear
 that so many high schools are using the
 High School Trainers Program, sponsored
 by the National Athletic Trainers Asso-
 ciation. To date, we have only the lessons
 that are published in the Trainers Journal
 for the student trainers. Later on we may
 mail each high school that is using the
 course a set of instructions in addition to
 the ones published each month. We had
 an idea that the two or three articles
 printed in each issue of the Trainers Jour-
 nal this year would be sufficient material
 for the student trainers their first year.
 Since the course will be continuous over
 four years, here is a good time to suggest
 that students taking the course this year
 should preserve their copies, possibly re-
 move the Trainers Section from the maga-
 zine at the end of this year, so that the
 four-year course may be bound in one
 complete volume at the end of the course.
 My suggestion now is that if any copies of
 this year are missing, you communicate
 with me at once, so that missing numbers
 may be supplied. Going back to your re-
 quest for more material, we are certainly
 interested that your boys are eager for ma-
 terial.

—BILL FREY.



Right off the Ice!

• In as hard a game as hockey—disabling bruises
 are inevitable. So are pulled tendons, sprains,
 strains and abrasions. It's for these common in-
 juries that ANTIPHLOGISTINE is so helpful. The
 prompt use of ANTIPHLOGISTINE packs brings
 effective relief, helps promote healing, and speeds
 up your boy's return to the game!

Countless well-known trainers and coaches have
 had long experience with ANTIPHLOGISTINE and
 would not go through a season without it! Make
 sure your boys are getting the benefits this fine
 medicated dressing can give. ANTIPHLOGISTINE
 can be bought in the handy new tube or the
 economical large-sized can.

Antiphlogistine

(pronounced anti-flo-jis'-teen)

The Denver Chemical Mfg. Co., New York, N. Y.

Now Also in Tubes



Warming-Up

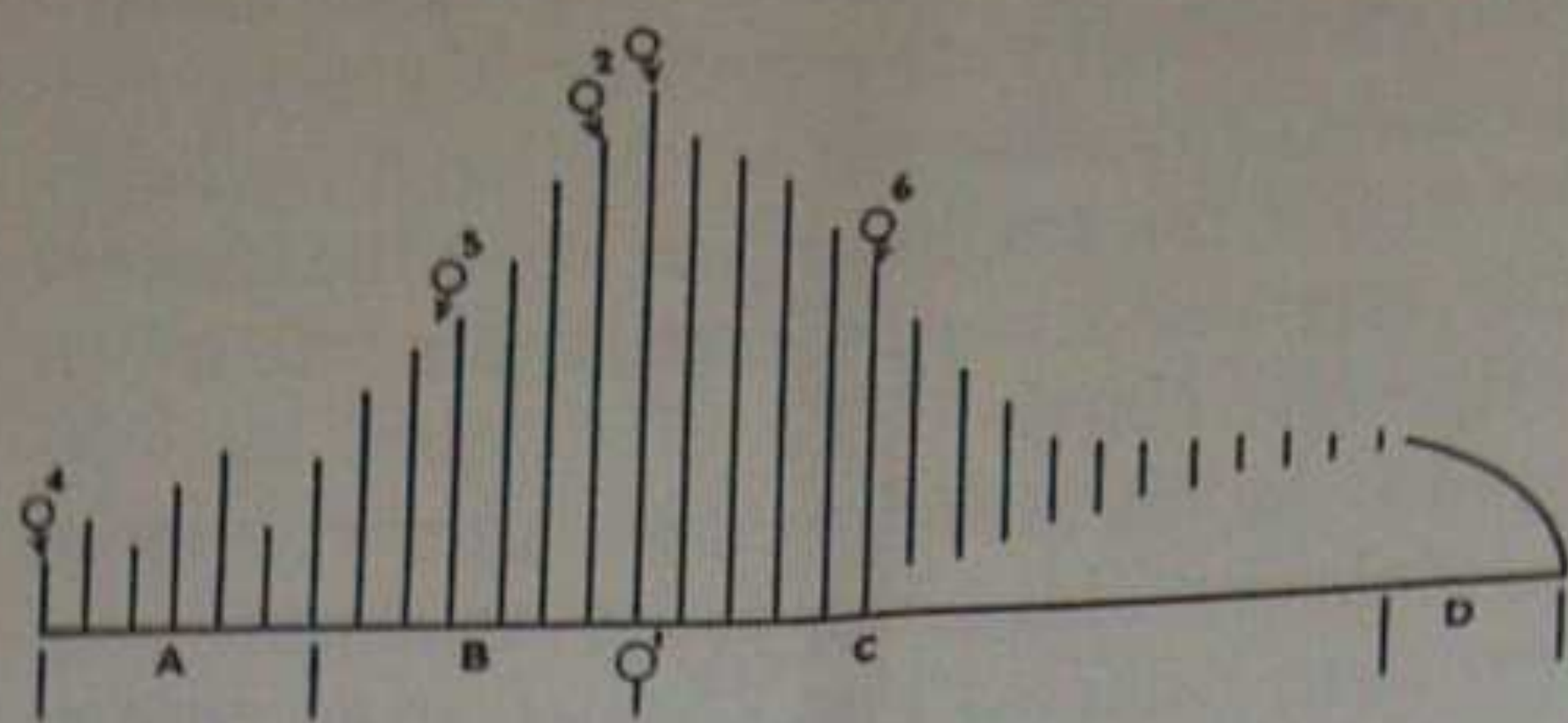
(Continued from page 18)

amount of energy expended by the muscle, in maintaining its contraction, will be relatively too large, and again the efficiency will be low. The optimum rate is somewhere between as fast as a muscle can contract and as slowly as it can contract.

In Zoethout and Tuttle's⁴ *Revised Physiology* much space is given over to "treppe," and to the effect that exercise will have on treppe. Treppe is the result of a few contractions of a muscle which has had repeated stimuli. At first the contractions and the relaxing phases are uneven. These uneven contractions are due to the great amount of internal resistance which antagonizes and diminishes the outcome of the muscle machine. These contractions tend to increase more evenly in length "B" until they reach maximum contraction (0-0'). Following this profile there is a setting in of fatigue which is due to the fact that the muscle is stimulated before it has time to relax; consequently, the contracture produces effect "C" which is followed by complete fatigue that sets in at "0." Chemically, fatigue is the result of the accumulation of lactic acid. In warming up before an event such as the standing broad jump, shot put, etc. where one explosive force is to be used, an individual should warm up to 0². Theoretically, his next contraction would be his best, but if an individual desires to extend his energies over a longer period (two-mile run), and if he desires to do his best, his warm-up will consist of period 0⁴ to 0⁵. This fact would permit the individual to get in profile 0⁵ to 0⁶ which is the period of optimum rate for the required time. As treppe increases, circulation improves; viscous fluids of the muscles become thinner; the tissues become more permeable; the body temperature rises, and irritability increases within limits.

There is no known criteria for determining the amount of warming-up. Individuals must determine this themselves. A consideration, however, must be made of the known factors which were set forth by the writer earlier in this article.

The extent of warming-up depends upon the intensity of the exercise which is to follow, and upon the physical condition of the individual. Intensity and duration of exercise are the essential factors in increasing the pulse rate. In performances of short duration, the pulse rate does not reach its maximum. The pulse rate does not rise immediately to its maximum, but after an initial rise, the change proceeds more slowly. The severity of the exercise will make all the difference in the world. The increase in the



initial pulse rate may be brought about by merely mentioning exercise.

"There can be no doubt that an accelerated pulse rate favorably influences the performance. The varied performances in an individual's career may explain the high correlation of exercise with pulse acceleration. This acceleration seems to be a conditioned reflex which, like other functional changes, sets in at the beginning of exercise."⁵

During exercise, the volume flow of blood is in some degree constant, but there must be an increase of the amount of blood which flows during exercise over that amount which flows during rest. The flow during exercise is in proportion to the extent of the strenuousness of the exercise. It has been shown that minute volume increases considerably during the first few moments of exercise. This observation is easily understood because the pulse rate also increases immediately. At the beginning of exercise there is a slight enlargement of the heart, but this enlargement disappears after a brief period. There is a considerable increase in blood pressure at the onset of exercise. This increase in blood pressure is in proportion to the type of activity.⁶

Grollman⁷ indicates that active muscular movements result in a much greater increase of the cardiac output than do static or slow movements. This action, he explains, is due to the greater pumping action of the muscles in the former exercise, an act which causes a greater return of venous blood to the heart. He indicates a number of important changes which occur in mild exercise. Of this number, the most important ones are dilation, opening of capillaries, and increase of venous return.

"We must conclude that the cardiac output and the cardio-vascular response to muscular activity in general are independent of the oxygen consumption when different groups of muscles are involved."⁸

It has been known for some time that

5. Herxheimer, Herbert, *The Effects of Exercise on Organs and Functions*, 1933. Translated by Baumgartner, Albert J., Master's Thesis, University of Iowa, 1936, p. 5.

6. *Ibid.*

7. Grollman, Arthur, "The Effect of Mild Muscular Exercise on the Cardiac Output," *Am. Jour. of Physiol.*, Jan., 1931, 96, 8-15.

8. *Ibid.*, p. 11.

9. *Ibid.*, p. 13.

the cardiac output will be great or small according to the "training" of the individual.

"The better co-ordination of movements which results from training leads to an economy of movement and a lesser return of blood to the heart for a given amount of work."⁹

In moderate exercise the properties of arterial blood differ in no important respect from those of resting blood. Hemoglobin concentration in blood and concentration of protein in serum increase five or ten per cent in mild exercise. Evidently, exercise, especially under emotional stress, calls forth reserve hemoglobin from the spleen under some conditions. The properties of arterial blood will vary with the intensity of the exercise.

Working muscles contain more water than resting muscles. The greater the activity, the greater the water content of the muscles, according to Barcroft and Koto.¹⁰ As the warm-up period becomes intensified, the blood concentration increases, a process which is due to the loss of water through perspiration from the circulating blood. There is a direct proportion of the water lost by perspiration to the increased number of red corpuscles and to the per cent of increase of hemoglobin. The rise of temperature accompanying muscular activity works to an advantage because it leads to a concentration of the blood and increases the oxygen capacity of this fluid. The secretion of urine is slowed down as the activity gains in intensity.

There is no doubt that the H. ion concentration of the blood is one means by which the supply of oxygen to the muscles is brought into reaction with their needs during exercise. But the greater C_H of the blood produces this effect mainly through its direct action on the tonus of the arterioles and of the capillaries, and on the rate of dissonation of oxyhemoglobin, but only to a limited extent through the intermediation of the central nervous system. An adequate increase in the local H. ion concentration of the blood flowing through the active muscles simultaneously lessens the tone of their arterioles and of their capillaries; moreover, it increases the rate at which the blood gives up its oxygen to the muscles. Sufficient rise in the C_H of the arterial blood stimulates the vaso-motor center and tends to raise the mean arterial pressure. These processes bring about a larger flow of blood through the active muscles, thereby enabling them by their mechanical action to increase still more the venous inflow to the heart and its out-

10. Barcroft, J., and Koto, T., "Effects of Functional Activity in Striated Muscles and the Submaxillary Gland," *Phil. Trans., Roy. Soc., London*, 1916, B. 207, p. 149.