Osteopathic Strap Technic

—*BY*—

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PREFACE

The use of straps in giving osteopathic treatments proved to be so agreeable to patients, so effective in operation and such a saving of energy to the operator that it seemed worth while to the author to pass the method on to other osteopaths. Strap technic is not a complete system nor is it expected to revolutionize osteopathic methods of treatment; yet it is an aid of inestimable value to the osteopathic profession.

The continued favor with which Osteopathic Strap Technic has been received has given opportunity for a second edition. This enables the addition of important new matter. Foot troubles and their correction have attracted the attention of the general practitioner increasingly since the issue of Osteopathic Strap Technic. A large section of the revised edition is devoted to the diagnosis of foot ailments and the proper specific treatment with the use of a specially constructed strap which aids very materially in the work of adjustment.

Inasmuch as foot troubles are so often associated with lack of tone or development of muscles of the foot and leg, a chapter has been devoted to physical exercises.

In addition, the revised edition contains descriptions of the spine and rib fixer and a spinal brace both of which are valuable adjuncts in the correction of a distorted spinal column.

The text has been revised throughout and a number of new diagrams and cuts have been added.

EQUIPMENT FOR OSTEOPATHIC STRAP TECHNIC.

The necessary equipment for osteopathic strap technic is five handles, four straps, with two short straps attached to one of the four, and one harness snap, in addition to one ordinary treatment table and a pillow.

The five handles can be secured at any good hardware store. They are the kind used on screen doors or for raising heavy windows.

One handle should be placed at the front of the table. For convenience, this should be placed on the center and at the highest available point on the front end of the table. (Not on top.)

On either side of the table there should be two handles; one about fifteen inches and the other about thirty, from the head end.

It is advisable to use one leather strap about eight feet long, one and one-quarter inches wide, made of thick leather. This strap will do for all the heavy work and will last years. A weaker strap will soon be torn to pieces.

The webbing straps needed are the following: One, one and one-half inches wide, eight feet long. One, one inch wide, fourteen feet long. Each of these webbing

straps should have a buckle at one end and a tip piece at the other.

On the fourteen-foot strap, about four feet from the buckle, fasten, at right angles, a webbing strap six inches long with a buckle on its free end. About seven feet from the buckle end of this fourteen-foot strap, fasten, at right angles, a webbing strap forty inches long, with a metal tip piece on the free end of it.

There should be one strap, one inch wide by four and one-half feet long. About four inches from the buckle attach a five and one-half inch strap with a loop at the other end for the strap to pass through. This strap is for treating the foot.

A pad for giving foot treatments is also required. It should be about one inch by three-fourths of an inch square.

The harness snap should be put on the fourteen-foot strap; then the ends of the strap should be buckled together. The snap is for hooking into the handle at the end of the table, while the strap is put over the patient's shoulders, as shown in Figures 16 and 17.

OSTEOPATHIC STRAP TECHNIC.

Fig. 1—TECHNIC FOR CORRECTING A POSTERIOR INNOMINATE LESION

Note, in Figure 1, that the strap is buckled short enough to flex slightly the patient's knee; and, that it passes across the patient's hip just below the crest of the ilium on the lesioned side and just above the crest of the ilium on the normal side.

Instruct the patient to push hard with his

foot against the strap. The strap pulls the crest of the ilium forward and the head of the femur pushes the acetabulum backward, thus correcting the lesion.

If the patient is a child or an adult too feeble to push hard against the strap, the operator should press downward on the patient's knee to straighten the leg. That will do the work just as well as when the patient does the pushing. This operation should be painless and agreeable to the patient.

By this strap method, innominate lesions can be corrected for women while they are fully dressed for the street.

It is just as easy to correct a big man's innominate lesion as it is to correct one for a little patient; the patient does the work.

An anterior lesion can be set in the same manner by moving the strap down, from the crest of the ilium to the ischium, and having the patient push as before.

Fig. 2—TECHNIC FOR CORRECTING ANTERIOR INNOMINATE LESIONS

FIG. 2—TECHNIC FOR CORRECTING ANTERIOR INNOMINATE LESIONS.

As shown in Figure 2, the strap is put through the handle at the front end of the table and looped over the patient's knee. The strap should be buckled up to the proper length to reach over the knee when the thigh is perpendicular. Then instruct the patient to push with his knee, as hard as he can against the strap. By so doing he corrects the lesion. The hamstring muscles draw the ischium anteriorly and the gluteus maximus opens the sacro-iliac articulation, while the head of the femur pushes the acetabulum posteriorly, thus correcting the lesion.

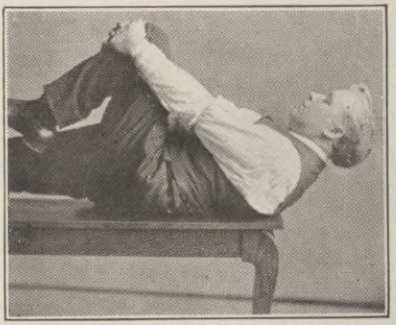

Fig. 3—TECHNIC FOR CORRECTING AN ANTERIOR INNOMINATE LESION WITHOUT USING A STRAP

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The patient interlocks the fingers of his hands and puts them over the knee to take the place of the strap. The patient should pull with both hands and push with his knee, with all his strength. He should not bend his elbows, as by doing so he draws the knee too far forward. This method can be used when the operator has no strap to work with. If he has a strap, it is best to use it, as the patient will push harder on the strap than he will on his hands.

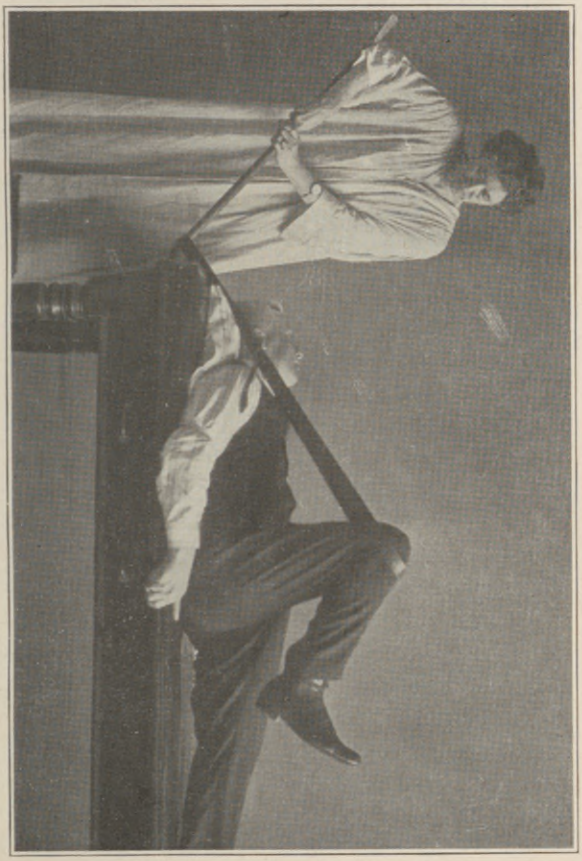

Fig. 4—TECHNIC FOR CORRECTING AN ANTERIOR INNOMINATE LESION ON A BED OR SOFA

FIG. 4—TECHNIC FOR CORRECTING AN ANTERIOR INNOMINATE LESION ON A BED OR SOFA.

Sometimes a treatment is given at the patient's home, with the patient on a bed or sofa. In such cases, there may be nothing to fasten a strap to. A broom handle, or any old stick, can be used as shown in this Figure. I usually put the strap over my wrist and grasp the head of the sofa or bed with my hand and let the patient push with all his might. Since I should consider that method dangerous for an operator who has an arm smaller than mine, I am advising the use of a stick, as shown in Figure 4.

Fig. 5—TECHNIC FOR CORRECTING AN ANTERIOR INNOMINATE LESION WHEN THE PATIENT HAS A SORE KNEE

FIG. 5—TECHNIC FOR CORRECTING AN ANTERIOR INNOMINATE LESION, WHEN THE PATIENT HAS A SORE KNEE.

Synovitis of a knee joint is a common result of an innominate lesion; therefore, it is quite common to find a sore knee associated with this lesion. On account of the soreness, place the strap on the thigh just above the knee. It is usually necessary to put a small pillow between the patient's thigh and the strap, as the pressure against the strap may cause pain.

Sometimes a patient will complain of pain between the sacrum and the posterior superior spine of the ilium. This can be removed by hooking the strap over the front corner of the table, opposite the affected side and over the patient's knee while he lies, in the dorsal position on the table. Then let the patient push, as he would for correcting an anterior innominate lesion. By this method, the pull will be in proper direction for opening the joint at the point of pain and for removing the cause of the pain.

No preparatory treatments are necessary before making innominate correction. Correct the lesion, and then, if desirable, treat the muscles.

The innominate lesion is very common. Some osteopaths say that eighty per cent of their chronic cases have innominate lesions. I do not keep case records, but I should judge that eighty per cent is not far out of the way. Every one of these lesions causes trouble—trouble that an osteopath can remove by correcting them. If he successfully treats every innominate lesion that comes to him, he will make a sufficient number of cures to build a reputation for successful practice.

It will not be necessary to enumerate the various diseases and ailments that have been cured by correcting innominate lesions; but, in a general way, it is well to know that such lesions cause congestion and pain anywhere in the legs, feet, pelvis or lower abdominal region. They also interfere with the circulation of the blood in all the parts just mentioned, and gradually or suddenly, develop trouble of various natures, from varicose veins to neoplasms.

A double innominate lesion often exists, that is, a lesion of both innominate bones. In such cases, the legs are of equal length. If there is pelvic trouble or trouble anywhere in the legs, feet or lower abdominal region, not otherwise accounted for, it is well to suspect a double innominate lesion. To test for such a lesion, give treatment for an anterior in-

nominate lesion, and then measure the legs. If the leg so treated is shorter than the other, there was a double lesion. Treat the other lesion in the same manner and measure again. The legs will again be of equal length. Don't be afraid to make this test; there is no danger of producing an innominate lesion by this treatment. Theoretically, one might fear that such treatment of a normal articulation would lesion it; but, experience of over five years has proven that there is no danger of so producing a lesion.

Instead of calling this a double lesion, some osteopaths may argue that it is a slipped sacrum. If so, let them call it that. It makes no difference in the treatment and no difference in the results.

Why do patients travel many miles to get their innominate lesions corrected by the strap method? To answer this question, it is necessary only to hear them relate their experiences with osteopaths trying to correct such lesions by the old methods. It is difficult to understand why any osteopath should stick to his old methods of manipulation, when he knows that such methods are often unsuccessful and usually very unpleasant to the patient. The old methods lose business; the strap method gets it, always making the corrections and producing good results.

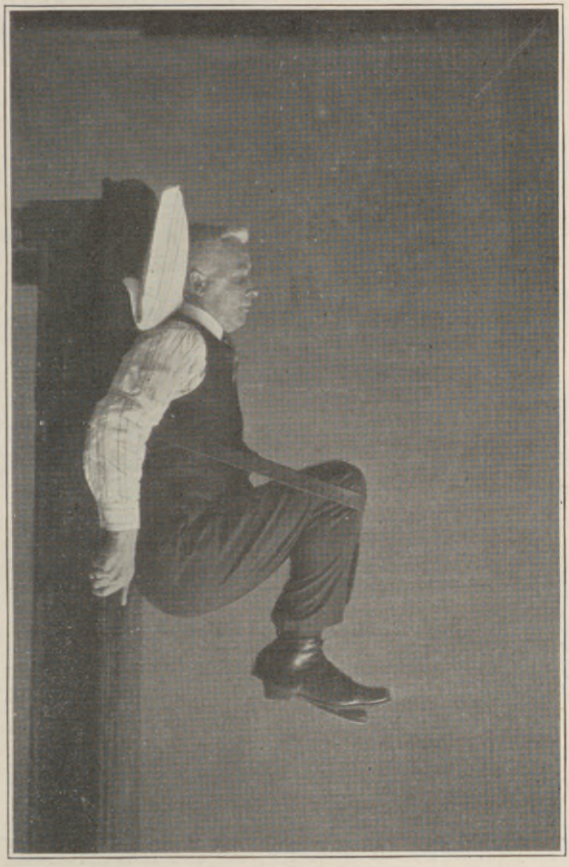

Fig. 6—TECHNIC FOR CORRECTING A LUMBAR LORDOSIS, OR FOR TREATING A RIGID LUMBAR

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In this process, there is but one strap used. It passes around the table, through one handle at the side of the table and over the patient's knees. When the patient pushes with his knees against the strap, it places a strain on the erector spinae muscles. For each pound of pressure exerted by the knees there is about seven pounds strain put on the erector spinae and quadratus lumborum muscles. Most of it is put on the erector spinae muscles. Any average man can easily in this position raise three or four hundred pounds on his knees. That would mean a strain of 2,100 to 2,800 pounds on the erector spinae muscles. The treatment stretches these muscles; hence, it is especially good for correcting lumbar lordosis. Such a spine throws extra weight on the anterior portion of the base of the sacrum and tilts the pelvic girdle. This abnormally tilted condition interferes with the circulation of blood through the pelvic basin and impedes circulation of blood and lymph throughout the legs and feet.

By this treatment, I have cured varicose veins of both legs after they were bad enough to necessitate the patient's wearing rubber bandages to prevent the veins from breaking out.

For years I sought for a successful treatment of lumbar lordosis, but I did not find it until I learned the technic shown in Figure 6. When I was in college, I was shown how to treat such cases by laying the patient on his side, flexing his knees and pressing them with my chest while I reached over the patient's side and pulled on the erector spinae muscles. That was hard work for me; but it was easy on the erector spinae muscles. The treatment was practically worthless. The erector spinae muscles are probably the most powerful in the human body and it requires great force to affect them.

Next to the correction of innominate lesions to normalize the blood circulation in the pelvis and legs, the most important thing is the correction of a lumbar lordosis.

These cases of lumbar lordosis are very common, as they are found in most portly people and in many slim ones. They are productive of much trouble. It is very necessary that this condition should be corrected.

If the patient's hips do not rise from the

table when he pushes on the strap, the strap should be slipped from his knees and he should be asked to slide about three inches toward the foot of the table. Put the strap over his knees and let him push again. The further the patient moves toward the foot of the table, the higher the strain will be on his back when he pushes on the strap. Don't allow the patient to push against his knees with his hands, for that does the spinal muscles no good.

This treatment can be used very successfully to loosen up a stiffened lumbar spine, but I would not recommend it for use on a posterior condition of the lumbar spine, because, in such cases, it is detrimental.

Don't try this treatment with a weak strap, for, if you do, the strap will break and the erector spinae muscles will receive no benefit.

Since the time required for correcting a lumbar lordosis is often more than the patient feels he can devote to it if it requires two or more visits to the physician's office each week, it encourages him to know that he can do part of the work himself at home. Instruct him as to the method of helping himself by this exercise. He can use a strongly built kitchen table or a wide board across a couple of stools. His shoulders must rest on the board above one of the stools and the strap must pass under the seat of the same stool; otherwise the strain will split the board when he pushes on the strap. This daily exercise will do much to aid the physican's work of correction.

Fig. 7—TECHNIC FOR TREATING HEMORRHOIDS OR REPLACING FALLEN PELVIC ORGANS

FIG. 7—TECHNIC FOR TREATING HEMORRHOIDS OR FOR REPLACING FALLEN PELVIC ORGANS.

No strap is used in this treatment. The patient is lying on two pillows, so that her body can be rocked back and forth longitudinally with ease. The operator pushes on the patient's feet to rock her body toward the head of the table; then he pulls and pushes again to get it under good motion. After pushing the second time, the operator holds back on the feet to stop suddenly the forward movement of the body. As he makes this sudden stop, the momentum carries the abdominal and pelvic contents upward.

This treatment requires a little practice, but after the operator becomes familiar with it, he can do great good with it.

Whenever I have told osteopaths that this treatment would cure hemorrhoids in from one to five treatments, they looked at me doubtfully. Years of experience, however, have led me to believe that this treatment will cure ninety-five per cent of hemorrhoid cases in from one to five treatments. In some cases of hemorrhoids, there is an accumulation of dried blood in the tumor. This treatment cannot remove that dried blood.

Long standing cases are not necessarily difficult to cure. I cured one case of hemorrhoids of nineteen years' standing in a single treatment.

The question naturally arises, Why is this treatment so effective? It is because it removes the cause of hemorrhoids, folds in the bowel. The bowel becomes jammed and pressed down at the rectum, putting short folds in its walls. These short folds shut off the circulation of blood and the blood is held back, causing the veins to fill and enlarge. This enlargement is a hemorrhoid. Whenever the bowel is raised up by this treatment, the short folds are straightened out, and the blood is allowed to circulate freely. The hemorrhoid drains and disappears. This is a simple technic easily understood. The cures are just as easily made.

By this same treatment we can raise the fallen, flexed or verted uterus. If the uterus is tipped backward against the sacrum, the patient should be treated while she lies face downward. In that position gravitation aids the uterus in its replacement by drawing it away from the sacrum. When giving the treatment with the patient lying face downward, it will be necessary for her to keep the knees perfectly rigid. If the knees are

springy, the treatment will be useless, as the body must be stopped suddenly, for the momentum to carry the uterus upward to its normal position, and this cannot be done if the knees are not rigid.

The McManis table is convenient for this treatment, as the patient can be put on it with her head lower than her hips, making the treatment more effective.

Fig. 8—TECHNIC FOR TREATING LEUCORRHEA OF MENORRHAGIA

FIG. 8—TECHNIC FOR TREATING LEUCORRHEA OR MENORRHAGIA.

The strap is placed across the lower lumbar region. The operator raises the patient's knees as high as she will tolerate. The knees should be raised, in this manner, three times for a treatment.

The results thus obtained for leucorrhea are very satisfactory, and if continued, will cure most cases. One treatment will stop any normal menses, although more than one may be required for abnormal conditions. The treatment is quickly given, and is too valuable to be omitted when needed.

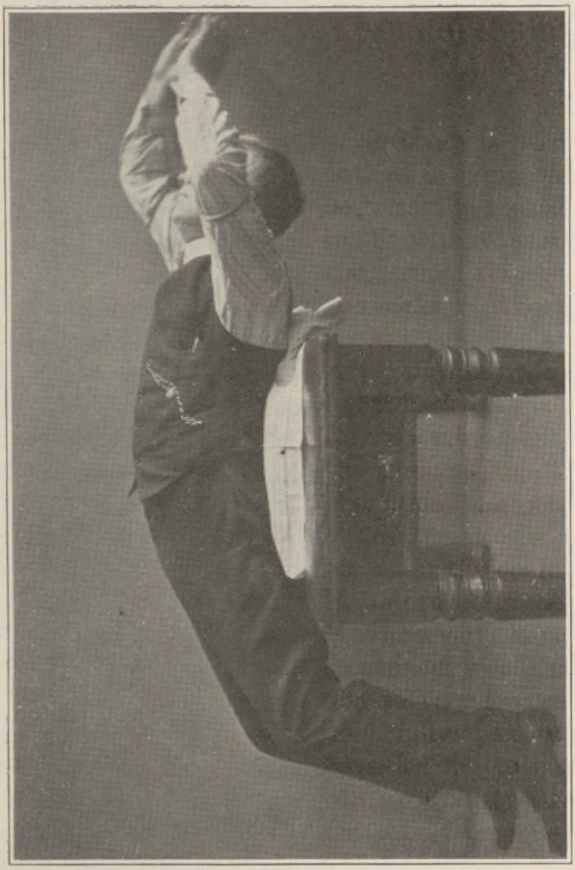

Fig. 9—TECHNIC FOR TREATING THE ANTERIOR ABDOMINAL AND CHEST WALLS

FIG. 9—TECHNIC FOR TREATING THE ANTERIOR ABDOMINAL AND CHEST WALLS.

No strap is used in this treatment. A pillow is laid at the center of the table. The patient lies across it as shown in this figure. His feet do not touch the floor.

The patient's arms are raised above the head to draw on the pectoralis muscles and raise the chest walls. After a patient has had this treatment several times, a weight can be held in his hands to make the stretch greater.

This treatment is especially good for cases of thoracic kyphosis. In such cases the ribs are slanted too far downward, anteriorly. The abdominal muscles are contracted and shortened. Contractured intercostal and abdominal muscles make it impossible to straighten the spinal column. They must be stretched and relaxed. This treatment will do the work.

Stooped shoulders, with their accompanying distorted chest, make a suitable place for a multitude of diseases, affecting especially the nervous system, heart, lungs, and bronchial tubes. This treatment shown in Figure 9 is good for a multitude of cases. It is not

hard on the operator. At first it is very severe on the patient. Later he can take it with pleasure.

The length of time a patient should lie across the table depends on his toleration. Some patients do not wish to lie there more than ten seconds. They often breathe heavily after this treatment, as though they had tried to lift a ton. Some patients can lie there a minute and repeat the exercise three or four times for a treatment. Some patients, after practice, can lie five minutes and hold a ten-pound weight in their hands. Each operator should try this treatment before he gives it to any of his patients; then he will know what to expect of the patient. Put a patient across the table as shown in Figure 9, palpate the muscles of the chest and abdomen and note how taut they are. You will decide that this is a powerful treatment.

These cases of thoracic kyphosis with their accompanying distorted chest are the outgrowth of many years of faulty position due to habit or spinal lesion. They necessarily require a considerable time for a proper restoration. The patient can well afford to take this treatment daily at home. The results will justify the efforts even though the treatments are continued for six months

or more. After one patient had used this treatment his friend slapped him on the back and said, "What has become of the hump on your back"? This patient was over forty years of age; yet, his spinal column and chest improved perceptibly in the eyes of the layman; also his health improved accordingly.

Fig. 10—TECHNIC TO PREVENT VOMITING OR TO STOP A STOMACH HEADACHE

FIG. 10—TECHNIC TO PREVENT VOMITING OR TO STOP A STOMACH HEADACHE.

When a patient complains of a headache that affects the eyes and forehead, place one finger on the right side of the spine, at the fourth thoracic nerve, to see if the spot is hypersensitive. If so, the stomach is the cause of the headache. Hold one finger on this spot to inhibit the nerve from one to three minutes and the headache will have cleared up. It is not necessary to count the vertebrae to locate this hypersensitive nerve. Guess at the spot and press. If that spot is not hypersensitive, try the one above or the one below. The patient will tell you when you hit the right spot.

If the stomach is in bad condition, this treatment may not give permanent relief. In practically all of these cases of stomach headache, there is too much acid in the stomach. This can be readily neutralized by letting the patient drink half a glass of water containing half a teaspoonful of common baking soda. No, this is not medicine. If your patient spilled hydrochloric acid on his hands, would you not apply anything you could get to neutralize the acid? Of course

you would. Then, why not neutralize the acid in the stomach, when it is burning up the lining of the stomach and causing the headache?

Inhibition of the same nerve will stop vomiting. If a patient gets sick while riding on the cars, this nerve will be hypersensitive before he is sick enough to vomit. Inhibit the nerve to stop the headache and to stop the vomiting.

Very often when a patient desires to vomit, it is best to let him do so, for that will clean out his stomach. Then give him some hot water to drink. Even if he throws it up, it will wash the stomach. Give him more hot water.

Sometimes, however, it is desirable to have the patient keep some food in his stomach. This can be done by inhibiting the fourth thoracic nerve on the right hand side. Hold one finger on the nerve, while the patient eats or drinks some liquid food. After the food has been in the stomach for a few minutes the disturbance calms to such a degree that it is no longer necessary to inhibit the nerve.

Fig. 11—TECHNIC FOR STOPPING HICCOUGHS

FIG. 11—TECHNIC FOR STOPPING HICCOUGHS.

Hiccoughs are due to spasms of the diaphragm, brought about by inflammation of the phrenic nerves. This inflammation often spreads from the stomach to the lower side of the diaphragm where the terminal branches of the phrenic nerves are numerous.

Figure 11 shows the thumb on the right phrenic nerve and the index finger on the left one. The thumb and finger are on each side of the trachea, but they do not touch the trachea. The thumb and finger, after pushing the sternocleido mastoid muscles laterally, press the phrenic nerves against the anterior side of the transverse processes of the vertebrae. A steady pressure on these nerves from thirty seconds to two minutes should stop any case of hiccoughs, unless it is due to continued use of morphine or hiccoughs denoting approaching death. Hiccoughs due to use of morphine can be stopped, though sometimes they are stubborn.

After the hiccoughs have been stopped in this manner, treatment should be given for the stomach trouble or other cause, to prevent their return.

Fig. 12—THE PROPER WAY FOR A PATIENT TO GET ASTRIDE THE TABLE

FIG. 12—THE PROPER WAY FOR A PATIENT TO GET ASTRIDE THE TABLE.

The patient should sit on the table as shown in Figure 12; then, raising the right foot, swing it across the table to the position shown in Figure 13. Sometimes the adductor muscles of the thigh are so contractured that it is difficult and uncomfortable for the patient to spread the knees as wide as the table. In such a case, place a stool under one heel to give support and relieve the muscles. If that is not sufficient to overcome the trouble, let the patient place both feet on the table. Sitting astride on the end of the treatment table is a comfortable position for most patients. It is also convenient for the operator as it allows him to stand erect while working on the patient, as shown in Figures 14 to 23.

Fig. 13—A CONVENIENT WAY OF THROWING THE STRAP ACROSS THE TABLE AND BACK UNDER IT TO THE OPERATOR'S FEET

FIG. 13—A CONVENIENT WAY OF THROWING THE STRAP ACROSS THE TABLE AND BACK UNDER IT TO THE OPERATOR'S FEET.

Hold the strap as shown in Figure 13, swing the buckle out as far beyond the table as is necessary and, as it swings back toward the table, lower the hand so that the buckle will pass under the table and light near your feet. Pick up the strap and buckle it firmly across the patient's thighs, as shown in Figure 14. The strap will hold the patient's hips firmly on the table and make the spinal movements, as shown in Figures 14 and 15, more effective.

Fig. 14—TECHNIC FOR TORTION TREATMENT OF THE SPINAL COLUMN

FIG. 14—TECHNIC FOR TORTION TREATMENT OF THE SPINAL COLUMN.

The patient's hands are interlocked over the back of her neck. The operator's right arm passes below the patient's right arm and his hand grasps her left arm just below her shoulder. With this hold, he turns her shoulders toward the right several times to produce the desired tortion movements of the spinal column.

After turning the patient's shoulders a few times toward the right, as shown in Figure 14, the operator changes hands, and turns her shoulders toward the left several times. By varying the flexure of the spinal column, while giving this treatment, desired points may be affected.

This technic is too well known to require detailed explanation, however, it might be in order to say that the main object is to relax the deep muscles and ligaments along the spinal column. This relaxation is very important, as it is the soft tissue near the lesioned vertebrae that suffers first and most from the lesion, and becomes abnormally contracted. Chronic inflammatory processes at the vertebral lesions are bound to cause

some hyperplasia, which interferes with nerve functioning and blood movement.

In many cases, there are hypertonia of the spinal muscles and shortening of spinal ligaments without specific vertebral lesions. Such conditions interfere with nerve action and blood movements, in and about the spinal canal, and are necessarily detrimental to health. This spinal treatment is very beneficial, if properly given.

When treating large patients the operator can do this work very easily by using the half-Nelson hold, i. e., by putting one arm under the patient's arm and putting the palm of the hand on the back of the patient's neck as shown in Figure 15. With this hold it is easy to turn the patient's shoulders to produce spinal tortion for loosening the deep spinal muscles and ligaments.

Fig. 15—TECHNIC FOR GIVING TORTION TREATMENT OF THE SPINAL COLUMN BY HALF NELSON HOLD

FIG. 15—TECHNIC FOR GIVING TORTION TREATMENT OF THE SPINAL COLUMN BY HALF NELSON HOLD.

In this treatment, the operator's right arm passes under and in front of the patient's right arm, and his hand rests on the back of her neck.

The patient should lean forward and to the right, while her head and shoulders are turned toward the right several times. This movement permits of greater head and shoulder circumduction than the technic under Figure 14; therefore, it gets better spinal action. It also relaxes some of the ventral and lateral muscles of the abdominal and chest parites. The quadratus lumborum, over the crest of the ilium, where it so often pulls the twelfth rib down, can be relaxed effectively by this movement.

Try this movement without the strap; then try it with the strap buckled across the patient's thighs and note the difference. You will discover that the strap is a great aid and that the results obtained, by treatment with the strap, are better than those obtained without the use of it.

FIGS. 16, 18, 21 AND 22—SHOWING HOW THE SHOULDER STRAPS SHOULD BE PUT ON THE PATIENT.

Buckle the ends of the fourteen-foot strap together. Hook the snap on this strap into the handle at the front of the table; then put the strap over the patient's head and shoulders to her back and just below the axilia, as shown in Figure 16. The forty-inch strap attached to this fourteen-foot strap, should be at the patient's right and just in front of her axilla, as shown in Figure 18. Put this strap over the patient's right shoulder and downward between the patient's back and the fourteen-foot strap, as shown in Figure 21; then raise the free end of it and put it over the patient's left shoulder and buckle it to the six-inch strap, fastened on the fourteen-foot strap, as shown in Figures 18 and 22.

The object of the strap over the patient's shoulders is to hold the fourteen-foot strap at any desired position on the patient's back.

Fig. 16—TECHNIC FOR TREATING THE SHOULDER AND COSTAL REGION

FIG. 16—TECHNIC FOR TREATING THE SHOULDER AND COSTAL REGION.

Beginning with the patient as shown in Figure 16, take hold of her elbow with the right hand and with the left hand hold her hand on top of her shoulder. Raise her elbow as high as possible in a line directly in front of her shoulder. (This pulls on the pectoralis major muscle, raises the ribs and relaxes the intercostal muscles.) Raise as high as possible and lower the elbow a few times in this position. Then lower it and swing it a little toward the right. Raise and lower it a few times from that position. Next swing the elbow out directly lateral to the shoulder joint and raise and lower it a few times from that position. Repeat this movement with the elbow thrown farther backward. Draw the arms backward, as shown in Figure 20. Treat the left shoulder and costal region in the same manner. Finally, take both arms and treat them as shown in Figure 17.

These various movements relax every muscle and ligament about the shoulders, expand the chest and free intercostal circulation and nerve action. The technic is very forceful, yet it is easy on the operator, for he stands erect and works with a long leverage. (For other chest technic, see Figures 28, 29 and 30.)

Fig. 17—SHOULDER TECHNIC

Fig. 18—TECHNIC FOR EXPANDING THE CHEST

FIG. 18—TECHNIC FOR EXPANDING THE CHEST.

This treatment is usually given with the operator's knee in the patient's back, while the patient sits on a stool. By this method shown in Figure 18, the strap takes the place of the knee.

The patient's arms should be raised, with the elbows close together, and the elbows, flexed as the hands are lowered directly to the shoulders.

This treatment is valuable for treating patients suffering from lung, broncial or heart trouble. It uses the pectoralis muscles to raise the ribs and expand the chest. This expansion relaxes the intercostal muscles and frees the intercostal circulation. It gives more freedom of action to the thoracic viscera and frees the circulation of its blood and lymph.

Fig. 19—TECHNIC FOR CORRECTING A FIRST RIB LESION

FIG. 19—TECHNIC FOR CORRECTING A FIRST RIB LESION.

Dr. Ashmore, in her "Osteopathic Mechanics," on page 171, says: "Depression lesions of the first rib are rare," and I find this to be true. The upward lesion, however, is frequently found. It may cause pain at the head of the rib, and frequently causes pain in the arm or hand.

The strap is placed under the right-hand corner of the table and over the lesioned left rib, as shown in Figure 19. The strap over the patient's thighs is not necessary for this operation. Buckle the strap snugly, but not very tightly, over the patient's shoulder. Have the patient lean toward the left to tighten the strap, and forward to make the strap pull backward and downward. The downward and backward pull corrects the lesion.

Be careful to have the strap close enough to the patient's neck to be on the first rib.

This rib technic is easy on the operator, easy on the patient and very effective. I have never known it to fail. I usually have the patient lean forward against the pull of the strap two or three times to make certain that the correction is complete.

Before I learned this strap method for cor-

recting the first rib lesion, I pressed on the rib with my thumb, while I flexed the patient's head laterally toward the lesioned side to spring the first thoracic vertebra away from the head of the rib. I learned that the thumb pressure often produced soreness. I have had no such complaint from the use of the strap.

This treatment can be given while the patient is sitting on an ordinary chair, as well as on a treatment table. The only difference in the technic is that the strap must be placed under the corner of the chair bottom instead of under the corner of the treatment table. Frequently it becomes necessary to give the treatment at the patient's home where no treatment table is used. The chair will do just as well for this first rib technic.

A lesioned second rib can be treated in the same manner as the first one with the exception that a small pad like one of those used on my spine and rib fixer, should be placed under the strap and on the second rib so that the second rib will get most of the pressure of the strap. After the strap and pad is properly adjusted, direct the patient to lift with his shoulder on the strap and lean forward to produce the downward and backward pull on the lesioned rib.

Fig. 20—TECHNIC FOR TREATMENT OF THE STERNOCLAVICULAR ARTICULATION

FIG. 20—TECHNIC FOR TREATMENT OF THE STERNOCLAVICULAR ARTICULATION.

The operator passes his right hand over the patient's right shoulder and puts his thumb and fingers at her left sternoclavicular articulation to feel the movements of the clavicle produced by backward and circumduction movements of the patient's left arm, as shown in Figure 20.

By raising and lowering the patient's left arm, while it is extended backward, the clavicle can be rotated on its longitudinal axis; and by pulling the patient's arm downward and backward, the clavicle can be drawn from the sternum, thus stretching the ligaments of this articulation.

This technic is especially beneficial in the treatment of bronchitis, asthma or in affection of the throat and vocal cords due to irritation of the recurrent laryngeal nerve. Obstinate coughs, due to this irritation, may be cured by this treatment.

The technic gives the operator such powerful leverage, that he should work carefully until he is quite familiar with it.

Fig. 21—TECHNIC FOR CORRECTING AN ACROMIOCLAVICULAR SUBLUXATION

Fig. 22—TECHNIC FOR CORRECTING AN ACROMIOCLAVICULAR SUBLUXATION

FIGS. 21 AND 22—TECHNIC FOR CORRECTING AN ACROMIOCLAVICULAR SUBLUXATION.

The usual subluxation of this articulation is an upward or upward and forward one of the clavicle.

To test for this subluxation, raise the patient's elbow laterally from the body. If the lesion is present, he cannot raise the elbow in that direction high enough to put his hand on top of his head, neither can the operator do it for him.

This movement may be impossible also, in cases of soreness in and about the shoulder joint from rheumatism, neuritis, or synovitis, or in case of ankylosis; but, these conditions can be readily differentiated by any osteopath.

The ligaments of this articulation, to be taken into consideration, are the superior acromioclavicular and the inferior acromioclavicular.

When the acromium is drawn from the end of the clavicle, the ligaments, if normal, guide the clavicle to its proper place; so, when the acromium is allowed to return, the articular surfaces naturally meet in proper relation to each other.

The treatment is given as shown in Figure 21. The palm of the patient's hand is turned outward to stiffen the elbow joint; then the patient's arm is drawn downward and backward so the humerus pries across the ribs and forces the acromium away from the clavicle.

When the patient's arm is released, the lesioned articular surfaces should come together in proper relation. Test it by raising the arm, with the elbow laterally to the shoulder. When the articulation is correct, it will go up with ease.

In some cases the operator will find it necessary to press downward and backward on the end of the clavicle, while the articulation is being separated by the arm movement as above described.

If hyperplastic tissue has been formed by long standing irritation and inflammation at this articulation, or exostosis has developed, more force is required than above described. In that event, use the method shown in Figure 22, in which a strap is passed under one corner of the table and over the patient's shoulder to hold down the end of the clavicle; then raise the patient's elbow, as shown in Figure 22, to raise the acromial process.

This is a powerful treatment and it should be handled carefully, as the end of the clavicle might be forced too far downward.

In some cases the diseased process may have made complete correction impossible without several treatments. In such cases, after giving the treatment, raise the patient's elbow laterally to the body and see if it goes higher than it did before treatment. If it

does, some progress has been made. If the patient's hand goes up to the top of his head, with the elbow raised laterally from the shoulder, the reduction is complete.

There is no other joint in the body so difficult to keep in proper place after it has been lesioned. It is well to warn the patient that it may be necessary to correct this lesion several times before it will stay corrected.

Sleeping on the affected side often produces this subluxation, especially if a small pillow is used under the head, as that puts more weight on the shoulder. Throwing a ball or other object, may produce such a subluxation. Gymnasium work is likely to produce it.

Such a subluxation usually causes pain in the shoulder and arm, especially at the deltoid insertion on the humerus. This pain will usually leave at once on reduction of the subluxation.

In many cases the patient can correct his acromioclavicular subluxation by turning his palm outward and forcibly swinging his arm backward to the position shown in Figure 21. In this manner the patient accomplishes the same results, as the operator does for him, as shown in Figure 21.

Fig. 23—TECHNIC FOR TREATING THE UPPER DORSAL AND CERVICAL VERTEBRAE

FIG. 23—TECHNIC FOR TREATING THE UPPER DORSAL AND CERVICAL VERTEBRAE.

With the patient as shown in Figure 23, place one hand on top of her head to move her head as desired. The other hand is used to make fixation at the proper vertebra.

This position permits freely of anterior, posterior, lateral and circumduction movements of the head. Any desired movement of the vertebrae can be secured and the adjustment is comparatively easy to make.

In order to get the most favorable movements of the upper dorsal vertebrae, turn the patient's face somewhat laterally to stiffen the neck, and then make forward and backward movements as desired. In that manner movements of the first, second, or third dorsal vertebra can be produced readily; and, if the patient is slim, good movements can be obtained on the fourth dorsal vertebra.

The second cervical vertebra is aften lesioned to the right or left. If it is lesioned to the right, tip the patient's head to the left; then the right lateral side of its spinous process can be easily palpated and the patient will admit that it is very sensitive at that

point. Then tip the patient's head to the right and palpate the left side of the same process. If it is just as prominent and as sensitive to palpation as it was on the right side, the vertebra is in normal position or lesioned posteriorly. If it is not as easily palpated on the left side as on the right, it is lesioned to the right. This lesion often produces pain in the levator anguli scapulae muscle. This muscle is innervated by the third cervical nerve which is usually irritated by this lesion.

This vertebral lesion can be corrected by tipping the patient's head to the left and slightly backward, then giving it a little chug to move the lesioned bone. If, when the patient turns his face as far as he can to the right and to the left, pain is produced in the levator anguli scapalae muscle the lesion is not fully corrected. Try the correcting technic again, if necessary, until no pain is produced in said muscle when the patient turns his face as far as possible to the right or to the left.

The principles of this method of examinnation and treatment apply the same to a left lesion of the same bone.

Fig. 24—TECHNIC FOR CORRECTING A POSTERIOR OCCIPUT

FIG. 24—TECHNIC FOR CORRECTING A POSTERIOR OCCIPUT.

The patient is pulling backward on the strap as shown in this plate. The occiput cannot go backward, on account of the strap; but the cervical vertebrae will move backward as the muscles of the neck pull on them.

The patient should raise and lower her chin, in various positions, and pull again, to permit movement of the occiput on the atlas. An osteopath can correct his own posterior occiput by this technic.

The posterior occiput lesion is a very common one. It forces the transverse processes of the upper cervical vertebrae against the superior cervical ganglion and irritates it so as to cause trouble in the throat, ear or cerebral meninges. For more on this subject and on this lesson, see Figure 25 and its explanation.

This technic is intended for an osteopath who has to correct his own posterior occiput.

The method shown in Figure 25 is the treatment that should be used on patients.

Fig. 25—TECHNIC FOR TREATING THE NECK WITH CHEST STRAPPED

FIG. 25.—TECHNIC FOR TREATING THE NECK WITH CHEST STRAPPED.

In this Figure, there is but one strap used, and that is placed across the patient's shoulders and chest. It should be buckled snugly, but not tightly enough to be uncomfortable for the patient.

In order to crack the joints of the neck, take hold of the patient as shown in the figure, but do not raise her head from the pillow. Turn the patient's head to the right or left, as desired, and wait until the neck muscles are properly relaxed. Give a quick turn of the head and note how easy it is to make the joints crack. Usually two or three pounds' force is all that is necessary to make the joints pop.

The strap is especially beneficial in treating a posterior occiput. As shown in the figure, the head should be raised so that the neck is at an angle of about 45 degrees. While the head is so raised, give extension and slight lateral rotation. This movement not only stretches the ligaments of the neck, but it moves the head forward on the atlas. Special effort should be made to have the patient relax the muscles of the back of the neck.

My experience has led me to believe that the posterior occiput is the most common lesion of the neck and it is especially productive of trouble in the ear, throat, tonsils and cerebral meninges. I have never treated a case of otitis media that was not due to a posterior occiput. This lesion forces the transverse processes of the upper cervical vertebrae against the superior cervical ganglion, causing irritation which incapacitates these nerves for normal functioning. All branches from the superior cervical ganglion are affected by irritation of this ganglion.

I have treated children, partially paralyzed in the throat and all the exteremities by a posterior occiput evidently produced at birth.

In case of a posterior occiput, the upper end of the ligamentum nuchae is moved backwards with the occiput and it will be farther away from the spinous process of the second cervical vertebra than it would be in normal conditions. To test for this condition, while the patient lies on her back, raise her head to tighten the ligamentum nuchae and press on the ligament, near its upper end, to see if it springs against the spinous process of the vertebra. If it springs, there is a posterior occiput. In normal conditions, the ligament is against the spinous process of the

vertebra, and there is no spring to it. Give the treatment as above described and test again. If the ligament then lies against the spinous process, the lesion has been corrected. If an operator is not familiar with this test, he may lack confidence in it, and he should palpate the transverse processes of the atlas to satisfy himself of his diagnosis. In many cases, I have found it difficult to palpate the transverse processes, so I have examined, in a few seconds, by the ligamentum nuchae.

When the strap is not used for this treatment, the patient usually raises one or both shoulders and tightens the cervical muscles. Relaxation of the cervical muscles is much better when the strap is used; the treatment is more effective, especially when an upward pull is desired for correcting a posterior occiput or for stretching the posterior ligaments and muscles of the neck.

Fig. 26—TECHNIC FOR TREATING THE NECK WITH CHEST AND FEET STRAPPED

FIG. 26—TECHNIC FOR TREATING THE NECK WITH CHEST AND FEET STRAPPED.

In this treatment, there are two straps used, one as shown in Figure 25, over the patient's shoulders and chest, the other around the table and around both feet. The strap at the patient's feet prevents the body from sliding towards the foot of the table when pressure is applied to the top of her head.

In giving this treatment, the operator places the pillow between his body and the patient's head to enable him to push easily on top of her head. While pressure is applied to the top of the head, the operator can give any movement he desires to head and neck. He can raise and lower the base of the skull to get good movements at the atlanto-occipital articulation. He may give lateral movements of the neck and, by moving his body to the right or left, may swing the patient's head to get any desired lateral movement of the neck.

By the aid of these movements and the use of the hands, as shown in Figure 26, corrective work can be accomplished of lesions of the upper cervical vertebrae.

Fig. 27—TECHNIC FOR ROTATING THE LUMBAR AND LOWER DORSAL REGION

FIG. 27—TECHNIC FOR TREATING THE LUMBAR AND LOWER DORSAL REGION.

The strap extends around the table and over the patient's hips. It is tightly drawn and buckled to prevent her hips from rotating. If the upper hip is directly over the lower one, the strap will not hold it firmly. The patient must lie in such position that the upper hip is farther forward than the lower, before the strap is tightened.

The operator holds one hand on the lumbar region to note the spinal movements, as he pushes the patient's shoulder backward with the other hand. The patient's shoulder should be pushed back and forth several times to loosen the lumbar muscles and ligaments.

To reach the fifth lumbar by this method, place the patient's head and shoulders back farther on the table, and rotate the spinal column as shown in Figure 27; also, put one elbow and forearm on the patient's hip and force it downward suddenly to rotate the pelvis forward, when the patient's shoulder is rotated backward as far as possible. This act usually elicits from one to half a dozen "pops" of the joints in the lumbar region.

When the movement is desired especially

in the upper lumbar and lower dorsal regions, slide the patient's head and shoulders forward on the table, before rotating the spinal column as shown in Figure 27.

The direction of the force applied by the operator on the patient's shoulder determines where the greatest spinal movement takes place. If the operator stands near the head of the table and pushes on the patient's shoulder, the force will be centered in the lower lumbar region.

After treating one side as above explained, the patient should turn over and have the other side treated in like manner.

This treatment is a continuation of the spinal rotation treatment begun in Figures 14 and 15 with the patient sitting on the end of the table.

If the patient is a large person or one who does not relax well, have her or him hold the upper hand on the back of the head while you take hold of the elbow and use the arm as a lever to rotate the shoulders backward. This is a powerful leverage and should be used carefully. See Figure 30.

Fig. 28—TECHNIC FOR RAISING THE RIBS, AND RELAXING THE INTERCOSTAL MUSCLES

FIG. 28.—TECHNIC FOR RAISING THE RIBS AND RELAXING THE INTERCOSTAL MUSCLES.

See Figure 28 and note that the patient is in the same position as shown in Figure 27 for rotation of the spinal column. The strap holds the hips firm, while the arm is used as a lever to raise the ribs and stretch the intercostal muscles.

As in Figure 16, the arm should be raised from different positions to pull on different muscles. If the operator wishes, he can assist in stretching the intercostal muscles by pressing downward on the ribs, while the patient's elbow is raised, and pulling upward on them.

This in another powerful treatment, which should be handled carefully until the operator is familiar with it.

The value of this treatment can be better understood by thinking over the various ailments that are the result of contractions about the chest such as intercostal neuralgia, heart trouble, etc., as well as anemic conditions due to interference with the normal circulation of blood, into and out of the ribs, where millions of blood cells should be manufactured and put into the general circulation.

Fig. 29—TECHNIC FOR TREATING THE SHOULDER AND PECTORAL MUSCLES

FIG. 29.—TECHNIC FOR TREATING THE SHOULDER AND PECTORAL MUSCLES.

This treatment is a continuation of the work started in Figures 17 and 28. The same explanation applies here as was given under those figures.

Fig. 30—TECHNIC FOR TREATING THE RIBS AND SPINAL COLUMN

FIG. 30.—TECHNIC FOR TREATING RIBS AND SPINAL COLUMN.

As shown in this figure, the patient's hand is on the back of her head, while force is applied to her elbow to throw her shoulder backward and to rotate the spinal column. While the patient's shoulder is forced backward, her ribs are drawn forward by the operator; or the operator may stand behind the patient and push on the ribs, while he pulls backward on the elbow.

This movement can be used for correcting lesioned ribs or for expanding the chest and relaxing the intercostal muscles.

Fig. 31—TECHNIC FOR TREATING ELEVENTH OR TWELFTH RIB LESIONS

FIG. 31.—TECHNIC FOR TREATING ELEVENTH OR TWELFTH RIB LESIONS.

These cases, which are very common, usually reach an osteopath, since the medical doctors fail to diagnose or treat them correctly.

I treated one case of over ten years' standing. Several medical doctors had treated the case, and when they insisted on operating to find the cause of the pain, the patient came to me for examination and treatment. That was about three years ago. The patient weighed 114 pounds. I corrected the rib lesion and cured the trouble. The patient now weighs 150 pounds and is in the best of health.

The usual cause of this lesion is a contraction of the quadratus lumborum muscle, which draws the anterior end of the twelfth rib downward and causes it to irritate the soft tissues. Sometimes the transverse abdominal muscles are also at fault.

In some cases, the pain remains almost constant; in others it comes on suddenly and is severe; it lasts a few hours or a few days, when it gradually disappears.

The irritation is usually at the end of the

rib; but the pain that the patient complains of is usually in the abdomen. The patient does not suspect that the trouble is at the rib, though, sometimes, the pain is severe enough to cause a fever.

On examination, the patient recognizes the hypersensitiveness at the anterior end of the rib, as soon as the examiner's finger presses gently at that point. In some cases, the rib is drawn down far enough to irritate the soft tissue at the crest of the ilium and cause it to become hypersensitive. In this class of cases, the only pain may be between the end of the rib and the crest of the ilium.

As shown in Figure 31, the patient's upper hip is directly over the lower one and firmly held by the strap. The operator puts his elbow in front of the patient's arm and shoulder to press them backward, while, with both hands, he pulls upward and forward on the lower ribs and the quadratus lumborum muscle. The strap holds the hip so firmly that the operator can exert a very strong pull, in this manner, on the quadratus lumborum muscle.

If there is a considerable hypersensitiveness at or near the tip of the rib, or where the rib irritates the crest of the ilium, let

the patient lie on her back and buckle the strap firmly over the hips, then, while sitting on a stool, reach across the patient's body and pull on the quadratus lumborum muscle.

In this manner, the operator can work around the sore spots without producing much pain. The pull on these muscles should be upward and forward. With the patient lying on her back, the muscles may be worked with either hand or with both hands, as the operator may wish. The operator can do this work standing; but he can do it more effectively sitting. Try it and note the direction of the pull.

In some cases the anterior end of the twelfth rib is lesioned upward to such an extent that it rests inside, i. e., in front of, the eleventh rib. To correct this lesion, while the patient lies on the table with the lesioned rib uppermost, put a strap across the hips as shown in Figure 31. Rotate the upper hip backward then buckle the strap tightly to prevent the hip from rotating forward. Then put another strap around the table and across the patient's shoulder. Rotate the top shoulder as far forward as possible; then buckle the strap tightly to hold the shoulder forward. Now examine the twelfth rib and notice that its free end is separated from

the eleventh rib. With the palm of the hand press the eleventh and twelfth ribs inward several times to relax the muscles about them as much as possible.

Fig. 32—TECHNIC FOR RELAXING THE QUADRICEPS EXTENSOR MUSCLES

FIG. 32.—TECHNIC FOR RELAXING THE QUADRICEPS EXTENSOR MUSCLES.

The strap is buckled snugly over the patient's hips to keep them down. The operator raises the patient's foot, as shown in this figure, and forces it to the hip, or as near it as the patient will permit. This produces a forceful stretch on the quadriceps extensors. The operator then lets that foot down and raises the other in like manner. It is well to treat both legs alternately three or four times. It is advisable, after the heel touches the hip readily, to move the foot laterally, six or eight inches, on the patient's hip to put special strain on the vastus internus and externus muscles.

This treatment frees the arterial and venous circulation of the legs; hence, it is beneficial in any case of impeded circulation of the legs and feet. Such cases are very numerous.

This treatment also permits the patient to raise his knees freely; thus, it aids him in walking. When these quadriceps extensors are shortened, they shorten and retard each step. Patients often remark that, after taking this treatment, they find themselves

walking faster than usual without extra effort.

If, by this treatment, the quadriceps extensors are found to be abnormally shortened, the second, third and fourth lumbar vertebrae should be treated to remove the irritation, at that point, from the anterior crural nerve, which supplies these muscles.

Very often these muscles are contracted in one thigh, while they are normal in the other. The spinal treatment should be given accordingly.

If the operator desires to stretch the extensors of the foot, he can extend the patient's foot, by pulling gently on the toe portion of the shoe, while the heel of the shoe is near the patient's hip.

When the quadriceps extensors are stretched in this manner, it may be discovered that they are hypersensitive and the operation quite painful. The operator should work gently, until he learns the condition of these muscles.

Fig. 33—TECHNIC FOR TREATING THE SPINAL MUSCLES

FIG. 33.—TECHNIC FOR TREATING THE SPINAL MUSCLES.

The strap is buckled snugly over the patient's hips to hold the body firmly and prevent longitudinal movement. While the body is so anchored, deep treatment of the spinal muscles can be effectively given. Of course, this treatment can be given without anchoring the body; but, in that event, there is a considerable waste energy, as the patient's body moves with each forceable upward or upward and outward movement.

If it is desired to treat these muscles while they are in a fully relaxed condition, it should be done with the patient lying on her side. In that manner of working, the operator's force is usually exerted principally outward from the spinal column. When the muscles are treated as shown in Figure 33, the force is exerted principally upward, i. e., toward the patient's head. If a thorough loosening of the spinal muscles is desired, they should be treated with the patient first in one position, then in the other.

Fig. 34—TECHNIC FOR TREATING THE HIP-JOINT AND MUSCLES OF THAT REGION

FIG. 34.—TECHNIC FOR TREATING THE HIP JOINT AND MUSCLES OF THAT REGION.

In this treatment there is but one strap used. It is placed around the table and over the patient's thigh just above the knee. The strap holds the right pelvis firmly on the table and permits of but little movement of the left pelvis.

This treatment is especially beneficial in the treatment of fibrous ankylosis of the hip-joint. It is a forceful treatment for such cases. The foot may be raised or swung laterally as desired and a powerful strain can be put on the ankylosing fibers.

Treatment of this kind can be given to relax the pectineus muscles and the various groups of muscles passing from the sacrum and innominate bone to the femur. The leverage is great and the operator should work carefully until he learns how much force the patient is willing to tolerate.

Fig. 35—TECHNIC FOR TREATING A KNEE OR A DISLOCATED ANKLE

FIG. 35.—TECHNIC FOR TREATING A KNEE.

In this treatment, a short strap is put around the patient's thigh just above her knee, and a strap is attached to this strap and to the handle at the head of the table. The operator grasps the patient's knee with one hand and her foot with the other hand, as shown in this figure. In this manner, any desired movement can be produced at the knee. By the foot hold, the leg can be rotated on its longitudinal axis and can be raised, lowered or given lateral motion to suit the operator.

This treatment is good for correcting a slipped semilunar cartilage, or for treating a fibrous ankylosis. It is not advisable to use this method for treating synovitis of the knee-joint, as such cases get along better if the knee is left alone. They are sometims due to traumatism, but more often due to an innominate lesion or a lesion in the lumbar region affecting the anterior crural nerve. For best results, treat the lesions and leave the knee alone.

Fig. 36—TECHNIC FOR TREATING A LATERAL SPINAL CURVATURE

FIG. 36.—TECHNIC FOR TREATING A LATERAL SPINAL CURVATURE.

A strap is laid across the table with the buckle near the operator, while the tip-end of it is put through the handle on the side of the table as shown in this cut. A pillow is laid on top of the strap. The patient lies face down across the pillow. The strap, buckled across her back, does not extend around the table, but goes down through the handle at the side of the table, and up over the patient. The pillow should be adjusted to protect the patient's right side from the strap.

The strap, over the patient's shoulders, is through the handle at the right-hand side of the table. The operator draws the patient's legs towards him and so straightens the patient's spine. This treatment thoroughly stretches the tissue on the concave side of the curve. The patient's legs should be moved from time to time during this treatment; but a steady strain can be put on the tissues of the concave side of the curve and allowed to remain until they relax.

Pressure with the palm of the hands over the ribs and spine, while the stretch is on, will aid materially, if intelligently applied.

Fig. 37—RESISTANCE TECHNIC FOR TREATING A NECK

FIG. 37.—RESISTANCE TECHNIC FOR TREATING A NECK.

When one or more vertebrae are lesioned laterally, they can usually be replaced by this resistance technic. The operator pulls on the patient's head. The patient resists with all her might; her muscles, pulling on the lesioned vertebrae, draw them into normal position.

This method works well for correcting the second or third cervical vertebra, which often is lesioned laterally and irritates the third cervical nerve. This irritation produces, in the levator anguli scapulae muscle, the pain of which the patient complains in the side of his neck. Every time he attempts to turn his face to the right or left, the pain is increased.

In some cases, on account of so much hypesensitiveness over the lesioned vertebrae, the patient cannot permit pressure on the vertebrae to correct the lesion. For such cases, this resistance technic is very convenient.

Fig. 38—TECHNIC FOR TREATING CHRONIC STIFF NECKS

FIG. 38.—TECHNIC FOR TREATING CHRONIC STIFF NECKS.

The strap is put around the patient's neck. The other end of the strap is fastened to the handle at the end of the table. The patient's foot is against one leg of the table to prevent the table from moving. The head can be given any movement desired while the strap is holding the cervical vertebrae.

If a stiff neck cannot be worked out by this method, there is not much to be done for it.

The treatment is not dangerous, and no harm should come from its use, if ordinary judgment is exercised by the operator.

GENERAL OSTEOPATHIC TREATMENT.

Who needs a general osteopathic treatment? If one hundred osteopaths answered this question, they would express a great variety of opinions. Some osteopaths believe in specific treatments exclusively. Others believe that the bony lesion should be corrected and the soft tissue, adjacent to and directly affected by the lesion, should be treated.

Other osteopaths believe in giving general treatments because they know that the whole system is affected by local troubles. They know that a chill, a fever and other constitutional symptoms, arise from acute nephritis; that chronic interstitial nephritis produces high blood pressure, throwing an extra burden on every organ of the body; that, as the kidneys are eliminating organs, if they fail to perform their work, the liver will be overworked in its efforts to eliminate the waste products of the body; that, if the waste products are not eliminated by the kidneys and the liver, the sweat glands will be overworked, and will become laden with waste products endeavoring to escape; that, if the waste products are not eliminated, the blood becomes laden with them and the tissues of

the body become saturated with them; and that there is no end to this chain of troubles until the grave is reached, unless general treatments are given to aid in the elimination of the waste products from all parts of the body and to restore normal organic functioning.

Another osteopath says that general treatments are advisable, for even the intellect and disposition of a patient are governed largely by the condition of the body. He says the reason so many children possess disagreeable dispositions and fail to make their grades in school, is defective nutrition of the brain substance. Howell says, "Vasomotor nerves to regulate the blood supply to the brain have not been demonstrated." Therefore, general treatments with special attention to the cervical and upper dorsal regions are necessary to purify the blood and supply the brain tissue with good nutrition. Children, so treated, grow alert, make their grades at school, and become happy and agreeable.

Another osteopath believes that any man who works hard and constantly puts a strain on his nervous system, which, if continued, will result in neurasthenia, with its accompanying symptoms of headache, backache, gastro-intestinal disturbances and a fatigued

feeling on slight exertion, and that such a condition, not marked by a specific lesion, must be reached by a general treatment to free the circulation and provide good nutrition to the weakened nerve cells.

Another osteopath believes that if his patient's heart musculature is weakened, he must give not only specific treatment to insure good blood supply through the coronary arteries, and thus furnish the heart muscles with good nutrition and plenty of it, but also a general treatment to free the circulation of blood throughout the entire body, for, by doing so, he lessens the demand on the heart's strength. Thus, he would give a general treatment in all cases of heart weakness, even though dropsy of the limbs or ascites has not set in.

Is a general treatment detrimental to any one? No, it can harm no one, unless he is very feeble or has great soreness or extreme pain. As a rule, ninety per cent of the office patients can be benefitted materially by general treatments.

There is no tonic that can purify the blood as general treatments can do it. How are beef, iron and wine going to purify the blood? I don't know. Who does? Chemists say that all the iron so taken, passes through the body.

None of it is assimilated. Wine stimulates the heart's action if enough is taken. If too much is taken, it stimulates the tongue. As for beef, why not buy it from the butcher, rather than from the druggist?

On the other hand, any one can understand how general treatments purify the blood. They stimulate the eliminating organs to such activity, that, as the blood is brought to the kidneys, liver or sweat glands, the impurities are taken out of it. General treatments stimulate cell activities, increase metabolism and throw out waste products, like overhauling an old house, tearing out the defective parts and rebuilding with new material. After completing such a job, there is a great heap of trash to be hauled away or burned. The general treatment stimulates the circulation of blood and thus hauls the trash to the eliminating organs to be disposed of. By the general treatment, the various glands of the body are stimulated to better work, accordingly, the whole process of digestion is improved ,and the waste products of the alimentary tract are eliminated, preventing absorption of their toxins.

A general treatment should prevent the absorption of toxic products. It should increase cell metabolism, making every cell as nearly

perfect as possible. It should normalize all glandular activity in the body, thus improving, not only the action of the digestive glands, but the functioning of the ductless glands as well. It should free the circulation of blood, so as to lessen the work of the heart and to carry all waste products to the eliminating organs where they are disposed of. Thus, the blood and all tissues of the body become purified, normalized and made healthy.

If a man is perfectly healthy, a general treatment would do him no good; but who ever saw a perfectly healthy man? Perfect health is dependent on a perfect diet, perfect exercise of every part of the body, perfect ventilation, regular rest and sleep, freedom from worry, fear, jealousy or anxiety, etc., etc.

There has been so much said in our magazines about specific treatments, I fear that many osteopaths are failing to give their patients the benefit of general treatments as they should. It is all right to conserve energy when it can be done without detriment or loss to the patient; otherwise the work should be done.

For a good general treatment, I would recommend the manipulations described un-

der the following Figures, to be given in the order indicated, Figures 14, 15, 16, 17, 18, 23, 25, 26, 27, 28, 29, 30, 32 and 33, and followed by massage of the abdomen. This full treatment can be given in twenty minutes. It is well for any osteopath who is not familiar with strap technic to let someone give him this general treatment before he gives it to his patients. By doing so, he will know better how to give the treatment himself.

While giving a general treatment, add any specific treatment that may be indicated, for that, too, is essential. On the other hand, don't neglect the general treatment, when it is indicated, just because some specific treatment has been given. Do all for your patient that can be done. Then and not until then have you done your duty to your patient and to the profession you represent.

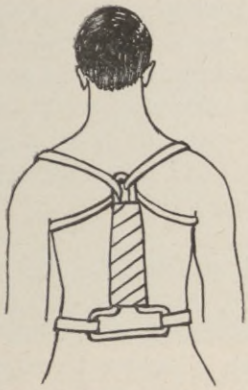

Fig. 39—SHOULDER BRACE AND SPINAL SUPPORT

SHOULDER BRACE AND SPINAL SUPPORT.

For several years past I have been using on patients a shoulder brace and spinal support like the one shown in Figure 39. It is light, cool and comfortable. After wearing it a few days, the patient feels more comfortable with it on than with it off. It holds the shoulders in proper position and supports the spinal column. It is easily taken off at night and put on next morning. It corrects anterior-posterior spinal defects, also lateral curvatures in the early stages.

It is made of heavy wire connected, where the two ends meet, by a piece of brass tubing. It is shaped in proper form to fit the patient's spinal column. The upright pieces are covered with adhesive tape, then the front side of the tape is covered with a cotton padding which is held in position by a covering of cotton bandage. A belt is made and attached as shown in Figure 39. Two soft cotton strips are made to pass through the top of the upright part and over each shoulder to support the top of the brace.

Any person who has the time and the desire can make up this brace. I have made many of them for my patients during the past few years. I will make them up for any osteopath, who will send me the patient's belt measure and height from the belt line to the fifth thoracic spinous process.

I usually treat the patients who are wearing the braces, once or twice a week; however, many of them can get splendid improvements by wearing the brace even though no treatments are given.

Fig. 40—SPINE AND RIB FIXER ADJUSTED FOR USE

THE SPINE AND RIB FIXER.

The spine and rib fixer is very convenient for rib lesions anywhere below the fifth rib. It will not work well on ribs between the scapulae. It is also valuable for treating a rigid or posterior lumbar or lower thoracic spine. A patient with average strength can push from two to four hundred pounds on the strap over his feet. While this pressure is maintained on the vertebra with the spine fixer, the patient can produce movements of the spine by moving his shoulders forward and backward.

In case of lumbago due to a posterior lumbar, the spine fixer is especially useful. In such cases the patient is usually unable to sit on the table and put his feet upon it also; so it is best to allow him to sit on the middle of the table and put his feet on a stool. Then adjust the spine fixer as shown in Figure 40. While the patient is using the spine fixer with his feet lower than his hips, the pull on the bar of the spine fixer will be too much downward. This trouble is readily overcome by the patient putting one arm on either side under the strap and allowing his hands to rest on his thighs. This will hold the strap up high enough to make the pull on the bar just what it should be to make the pads press squarely on the transverse processes of the vertebra.

An osteopath can treat his own spine with the spine and rib fixer. He can easily move the bar up or down as he desires by putting one hand on either end of it. While pressing hard with his feet on the strap to produce the desired pressure on the vertebra, he can move his shoulders forward and backward to produce the desired movements of the vertebra. In this manner he

can give his own spinal column a good treatment.

If a vertebra is lesioned to the right or left, it can be corrected by setting one pad on the more posterior transverse process and adjusting the end of the bar nearest this pad a little farther forward than the other end of the bar. This will put most of the pressure on this pad. While the pressure is so maintained, the patient by moving his shoulders forward and backward, produces movement in the vertebral articulations so that the vertebra can move into its normal position.

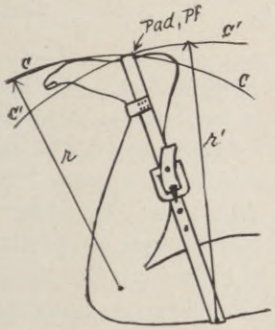

Fig. 41—ILLUSTRATION OF THE ACTION OF THE STRAP

The above drawing represents the principle on which the strap operates in giving

foot treatments. Two arcs are shown passing through Pf the point of contact between the pad and the foot. Arc cc has for its center the knee joint and represents approximately the line of motion of the point Pf when the knee is extended by a pull on the foot. Arc c'c' has the strap for its radius and the point of contact between the strap and thigh for the centre. It will be noticed that when the knee is extended the arc cc falls outside the arc c'c'. The distance between these two arcs indicates the amount of pressure upon the point of contact between pad and foot as the position of the foot is changed by forcible extension of the knee.

The little pad used on the plantar surface of the foot is for the purpose of centralizing the force of pressure on the desired point. The strap produces a very forcible pressure on the pad when the knee is extended; and that pressure can be easily maintained by holding the foot at the desired position. While the pressure is maintained on the pad, motion in the articulations about the lesioned bone can be produced by proper movements of the metatarsal and phalangeal bones. For instance, when correcting lesions of the cuneiform bones or the anterior

articulation of the cuboid bone, the movements of the metatarsal bones should be flexion, extension and inversion. When treating the reciprocal reception articulation the movements should be abduction or adduction principally, with more or less extension and flexion. For instance, if the scaphoid is lesioned downward on the astragalus, the pad should be placed on the plantar surface of the scaphoid bone and while pressure is maintained on it by means of the strap, the foot should be abducted, flexed and extended to open up the lesioned articulation, so the pressure of the pad can force the scaphoid into its normal position. If the cuboid is lesioned downward on the os calcis, the pad should be placed on the plantar surface of the cuboid and pressure should be produced on the pad by means of the strap, as above described. While said pressure is so maintained, the foot should be adducted, flexed and extended to open up the lesioned articulation while the pad presses the bone into its normal position. Further explanations will be given under the descriptions of specific treatments.

In some cases the patient's muscles and other soft tissues are hypersensitive. Some such patients may complain that the strap

hurts their thigh. To avoid this trouble fold a towel to several thicknesses and put it between the thigh and strap. Some patients may complain of the pressure of the strap on the sides of the foot. To avoid this trouble use a thicker pad on the sole of the foot, as it will reduce the pressure on the sides of the foot. Some patients will complain that the short strap which passes around the front of the instep produces some discomfort. To avoid this trouble fold a small cloth and put it between the strap and the ankle.

The short strap which passes in front of the ankle is for the purpose of preventing the other strap from slipping off the patient's heel when his foot is extended. This strap has a loop at one end of it to allow for adjustments for feet of different sizes.

Perhaps the most convenient way to adjust the strap and the pad is as follows: Put the strap on as shown in Figure 42; then press down on the distal end of the metatarsal bones and push the foot back so as to flex the knee a little more to lessen the pressure of the strap on the sole of the foot; then slip the little pad under the strap on the sole of the foot and place it where the pressure is desired.

THE RECIPROCAL RECEPTION ARTICULATION OF THE FOOT.
(Chopart's Joint)

It should be borne in mind that the lateral movements of the foot are produced principally in the astragalo-scaphoid articulation and in the calcaneo-cuboid articulation. These two articulations taken together form a reciprocal reception articulation. They permit of extension, flexion, inversion, eversion, adduction and abduction of the foot. When the os calcis and astragalus are firmly held and the balance of the foot is adducted or turned towards the median line, the calcaneo-cuboid articulation is separated while the astragalo-scaphoid articulation is held tightly together. Bear this point in mind for it will be necessary to open the calcaneo-cuboid articulation when adjusting the cuboid bone. When the os calcis and the astragalus bones are firmly held and the balance of the foot is abducted, or turned from the median line, the bones of the astragalo-scaphoid articulation are separated and the calcaneo-cuboid articulation is tightly pressed together. This is important because when the scaphoid bone is to be adjusted it should be separated from the astragalus.

The astragalo-scaphoid articulation can be examined best for sensitiveness at the dorsum on the inner edge of the foot. The calcaneo-cuboid articulation can be examined best for sensitiveness at the dorsum on the outer edge of the foot.

Inasmuch as these two articulations operate together as a reciprocal reception joint, I prefer to consider them as such. The two articulations form a compound curve like the articulation at the base of the metacarpal bone of the thumb which is known as the only reciprocal reception articulation of the whole human skeleton. In a foot misshapen by wearing high heeled shoes this articulation is always lesioned downward on the astragalus and on the os calcis.

For treatment, see chapter on correction of lesions due to high heeled shoes.

Fig. 42—FOOT WITH STRAP PROPERLY ADJUSTED

TREATMENT FOR A LESIONED SCAPHOID BONE.

The scaphoid bone is a very important one. It is the keystone of the longitudinal arch and it bears much of the burden of the weight bearing section of the foot. It is the highest point of the longitudinal arch and its position is maintained by the ligaments and the longitudinal muscles below it. Its articulation with the astragalus is of the condyloid type which permits motion in many directions. Practically all of the movements produced by adduction and abduction of the foot take place in this articulation. Flexion, extension and rotation may also be produced in it. Articulations possessing the greatest variety of movements

are the ones most often lesioned, such as the condyloid articulation formed by the occiput and atlas. This astragalo-scaphoid articulation is frequently lesioned. The lesions are of a great variety, as upward, downward, lateral, torsional, etc. As we study the anatomy of this articulation and its diversified movements we can readily understand why it should be subject to frequent lesions due to trauma and strains or to a weakened condition of the muscles of the foot.

The anterior portion of this bone articulates with the three cuneiform bones. The articular surfaces of these bones are nearly flat. However, there is some concavity of this bone where it articulates with the internal cuneiform bone. It might be expected that such an articulation would be readily subject to lesions and experience in treating feet has shown that these joints are frequently lesioned. Their lesions are like the lesions of any other condyloid joint, in that they may be lesioned in any one of many directions. The most common lesion of the scaphoid bone is downward with rotation on the astragalar articulation. There may be the same kind of a lesion in relation to the cuneiform bones. Sometimes the cune-

iform bones are lesioned downward on the scaphoid. In case of flat foot the scaphoid lesion is usually one of tortion downward and inward toward the median line of the body. This gives a fullness or bulged appearance of the inside of the foot. The bulge is also produced, to some extent, by the internal cuneiform bone when it is pushed out by a lesion of the other two cuneiform bones. In case the patient has worn high heeled shoes for a long period of time, the scaphoid bone will be badly lesioned downward in relation to the astragalus. Fortunately this bone can be easily palpated to detect its exact position. It should be palpated on top of the foot and on the inner side of the foot, as well as on the plantar surface. Not only the bony prominences should be palpated, but the hypersensitive points should be noted. Lesioned bones produce more or less hypersensitiveness by pressure and irritation on the adjacent soft tissues. This point should not be forgotten when palpating a foot for bony lesions.

Treat a downward or a downward rotation lesion of the scaphoid bone, at its articulation with the astragalus, as follows:

While the patient lies face downward on

the treatment table, adjust the strap on the foot and thigh as shown in Figure 42. Then slip the pad beneath the strap and adjust it on the scaphoid bone. Standing at the foot of the treatment table and facing the head grasp the heel of the foot with the fingers in such a manner that the heel of the hand presses against the lateral side of the cuboid bone and produces there a fixed point. Now with the hand in this position, pull the foot to extend the knee thereby producing pressure on the pad over the scaphoid bone. While maintaining this pressure, grasp the foot with the other hand about the metatarsal bones and holding the cuboid as a fixed point, by abduction, flexion and extension, loosen the articulations of the scaphoid bone, thus allowing the pad to force the scaphoid bone into its normal position. After this lesion is corrected, the other bones, especially the cuneiform bones, should be carefully examined and treated according to the indications.

The scaphoid bone may be lesioned by a sprain. Correction of the lesion and rest of the foot is usually all the treatment that is necessary. If the lesion is a part of a flat foot condition, the innominates and the

lumbar area should be carefully examined and treated according to the conditions found. The patient should be instructed to take some foot and leg exercises to develop the muscles.

It should not be expected that this articulation will invariably remain normal after the first correction. It should be under observation from time to time for several weeks, during which time the longitudinal muscles of the foot are being developed by special exercises. If it does not maintain its proper position it should be reset. The exercises to develop the muscles of the foot should be continued for a period of at least one month, as no muscle can be well developed by exercise in a shorter time.

TREATMENT FOR A LESIONED CUBOID BONE.

The cuboid bone belongs to the outer longitudinal set of bones. To some extent they support the weight of the body, but their principal function is that of maintaining the equilibrium of the body. The cuboid bone contains three articular surfaces, all of which are very smooth and easily dislocated. Its dislocation is usually downward or downward with rotation. It is well supported by ligaments, and by the tendon of the peroneus longus muscle when in action.

To correct this lesion, operate as follows:

While the patient lies face downward on the treatment table, adjust the strap on the foot and thigh as shown in Figure 42. Then slip the pad beneath the strap and adjust it on the cuboid bone. Standing at the foot of the treatment table and facing the head, grasp the heel of the foot with the fingers in such a manner that the heel of the hand presses against the inside of the scaphoid bone and produces there, a fixed point. Now with the hand in this position, pull the foot to extend the knee thereby producing pressure on the pad over the

cuboid bone. While maintaining this pressure, grasp the foot with the other hand about the metatarsal bones and holding the scaphoid bone as a fixed point, by adduction, flexion and extension, loosen the articulations of the cuboid bone, thus allowing the pad to force the cuboid bone into its normal position.

TREATMENT FOR A LESIONED INTERNAL CUNEIFORM BONE.

This bone is probably lesioned more often than any other bone of the foot. It forms an important part in the weight supporting portion of the longitudinal arch of the foot. It must be remembered that the bones of the foot are arranged in an inner longitudinal set and an outer longitudinal set of bones. The outer set is composed of the os calcis, cuboid, fourth and fifth metatarsal bones and the fourth and fifth toes. The function of this set is principally that of maintaining the body equilibrium. The weight of the body is principally supported by the astragalus, scaphoid, three cuneiform bones and the first three toes. The articulation of the tibia with the astragalus is broad and powerful to support the weight of the body on the astragalus. While standing or walking the main portion of the body weight is thrown on the muscles and ligaments supporting the articulations between the astragalus, scaphoid, cuneiform bones and the first three metatarsal bones. When this arch breaks down, the scaphoid and cuneiform bones are the ones displaced; or at least one or more of said bones will

be lesioned. The internal cuneiform bone is usually lesioned before the scaphoid, and that is usually followed by lesion of the middle and external cuneiform bones.

The great toe has but two phalanges, both of which are very heavy and strong. They are so constructed to meet the strenuous requirements of that part of the foot. The first metatarsal bone is more than twice as strong as any other metatarsal bone. Because of the anatomical relation of these bones with the internal cuneiform bone, it must support them in all of their functioning. It can be plainly seen that great responsibilities are placed on this bone and on the muscles and ligaments that support it.

The peculiar concavity of the anterior and posterior articular surfaces of the internal cuneiform bone makes it susceptible to lesioning when the longitudinal arch is settled or sprung down. When we take all of these facts into consideration it is not difficult to understand why this bone is so often lesioned. The lesion is usually downward, i. e., toward the plantar surface, or downward and inward, i. e., toward the median line of the body. If the middle and external cuneiform bones are lesioned down-

ward the internal cuneiform bone is necessarily forced inward by the separating effect of the wedge shaped middle and external cuneiform bones. When making the correction of these lesions, the above described conditions must be taken into consideration. The middle and external cuneiform bones must be adjusted first to allow the internal cuneiform bone to return to its proper longitudinal line; then the internal cuneiform bone should be raised to its proper height in the longitudinal arch. This can be done by using the little pad over this bone while the patient lies face downward and flexes his knee at about a right angle so the strap can be placed in position as shown in Figure 42. The desired amount of pressure on the pad can be produced, after the strap is properly adjusted, by pulling with one hand on the foot to extend the knee as far as necessary. While the pressure is maintained, movements should be produced in the articulations of the internal cuneiform bone so as to open the joints and coupled with the pressure of the pad, correct the lesion. The necessary movements to open the joints can be readily made by flexion, extension and lateral movements of the first and second metatarsal bones.

It must be remembered that this internal cuneiform bone is held in proper position by the ligaments and longitudinal muscles beneath the longitudinal arch of the foot. In order that these muscles and ligaments may have normal nutrition they must have proper blood and nerve supply. The drainage of blood and lymph from the foot, leg and thigh should be normal. The sciatic, anterior crural and obturator nerves, all of which supply muscles of the thigh, leg or foot should be in condition to function normally. Of these three nerves, the functioning of the sciatic is the most important, for the nutrition of the muscles at the bottom of the foot is directly dependent on this nerve. In order that these nerves may be in good working condition the innominates should be normal, the pelvic girdle should have its normal tilt and the lumbar area should be as near normal as possible.

If the sciatic nerve is in an inflamed condition, as shown by more or less pain and suffering, special foot exercises for developing the longitudinal muscles of the feet would not be advisable. But if the sciatic nerve is not in an inflammatory stage exercises should be taken daily, or, better, twice daily, to develop said muscles as they

are the main support for the longitudinal arch of the foot. A man who walks all day, like a mail carrier, will exercise the muscles beneath the longitudinal arch of his foot; but the retail clerk, who stands on his feet most of the time during the day, will fatigue these muscles by continued strain, but will not develop them. He needs exercises to dvelop these muscles. See "Physical Exercises."

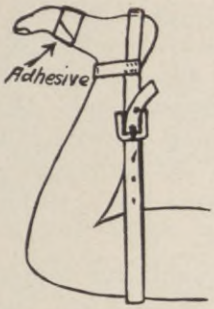

Fig. 43—STRAP ADJUSTED FOR TREATING THE ASTRAGALO-CALCANEAN LESION; ALSO, BANDAGE FOR TRANSVERSE ARCH

TREATMENT FOR A LESIONED ASTRAGALO-CALCANEAN ARTICULATION

These bones are very materially dependent on ligaments and muscles for support. They are bound together by four ligaments, the external, internal and posterior calcaneo-astragaloid ligaments and the interosseous ligament. The interosseous ligament forms the chief bond of union between these bones. It is a very thick and strong ligament, being at least an inch in breadth from side to side, and serves to unite the astragalus and os calcis solidly together.

These bones are also supported by the ligaments supporting the arch of the foot.

The three principal ones are the calcaneo-scaphoid ligament, the long and short plantar ligaments, and the plantar fascia. The inferior calcaneo-scaphoid ligament is an extremely strong fibrocartilaginous band. Together with the posterior surface of the scaphoid it forms a socket for the head of the astragalus. This is one of the most important ligaments for supporting the longitudinal arch of the foot. The long plantar ligament extending from the under surface of the os calcis to the base of the metatarsal bones assists in supporting the arch like the string of a bow. The plantar fascia is a thick strong band extending from the tuberosity of the os calcis to the metatarso-phalangeal articulations. This materially aids in maintaining the longitudinal bony arch of the foot. The importance of these longitudinal ligaments for maintaining the normal longitudinal arch must be admitted. However, these ligaments support the arch principally while the person is standing still. During locomotion the longitudinal muscles of the foot and some of the muscles of the leg support the arch before any material strain is brought to bear on the ligaments. Considering these facts, we can readily understand the importance of keeping these

muscles well developed. These longitudinal muscles not only support the arch by reason of the tension; but the belly of the muscles thickens by contraction and forms a padding that helps support the longitudinal arch of the foot.

There are seven muscles of the leg that extend their tendons beneath one or more of the tarsal bones and materially assist in supporting the longitudinal arch of the foot during walking, running and jumping. Various foot and leg exercises should be used to develop these muscles and to develop the muscles at the bottom of the foot.

Even though we are endowed with a wonderfully constructed foot and its bony framework is well supported by ligaments, muscles and tendons, a large multitude of people are afflicted with broken down arches. In case of broken down arches the astragalus is usually lesioned forward and inward towards the median body line. This throws extra weight on the sustentaculum tali and rotates the os calcis somewhat inward. To correct this lesion place the pad over the anterior end of the os calcis, while the patient is lying face downward with his knee flexed at about a right angle; adjust the strap over the pad as shown in Figure

43; then, while the strap and pad are properly adjusted as described, pull on the foot with one hand to extend the knee and to make sufficient pressure on the pad. While said pressure is so maintained grasp the patient's heel and move it from side to side a few times to work the articular surfaces of the os calcis down in proper position with the articular surfaces of the astragalus. Also produce a make and break pressure on the pad by moving the foot repeatedly forward and backward. After this lesion and all the other bony lesions of the foot have been corrected, attention must be given to the proper development of the muscles of the leg and foot referred to above. We must not forget that these soft tissues should be developed. To accomplish this the pelvic and lumbar areas must be made as nearly normal as we can make them. As broken down arches are due to weakened muscles and ligaments of the foot and leg, we should not expect a cure without improving the nutrition of these tissues.

Physical exercise should also be taken to develop the muscles of the foot and leg. See "Physical Exercises."

TREATMENT FOR A FALLEN ANTERIOR TRANSVERSE ARCH OF THE FOOT.

In this case the transverse arch at the distal end of the metatarsal bones has flattened. If it has been of long standing there may be a callus on the plantar surface of the foot directly below the distal end of the second, third or fourth metatarsal bone. If the arch is not broken down badly enough to form such callus, there will be a hypersensitiveness at these points which can be detected readily by palpation. There will also be hpyersensitiveness at the plantar surface of the foot below the middle and external cuneiform bones. One or both of these bones will be lesioned downward, i. e., toward the plantar surface of the foot. On account of the wedge shape of these two cuneiform bones this lesion spreads the internal cuneiform bone from the cuboid bone. It widens the foot at the proximal end of the metatarsal bones and lowers that end of the second and third metatarsal bones. It also produces a fallen condition of the anterior transverse arch.

The treatment indicated is to replace the lesioned cuneiform bones. This is done by

placing the pad directly over the plantar surface of these bones while the strap is adjusted over it as shown in Figure 42. Then by the use of one hand the patient's foot is pulled so as to extend his knee as far as possible. With the other hand the metatarsal bones can be moved about in different directions to produce movements of their articulations with the tarsal bones. This will open the articulations about the middle and internal cuneiform bones, and coupled with the pressure on the pads, will correct the lesion.

After making corrections of the bony lesions of such a foot, a tight fitting bandage should be adjusted around the distal end of the metatarsal bones, care being taken not to cover the articulation of the great or small toe. This bandage should be put on so as to force the distal end of the first and fifth metatarsal bones downward and the corresponding end of the second, third and fourth metatarsal bones upward. This can be done easily by using an adhesive plaster one and one-half or two inches wide as the bandage. Tear off the proper length so that the ends will lap one and one-half inches when placed in proper position around the foot. See Figure 43. As the bandage

is being placed on the foot, draw downward, i. e., toward the plantar surface on the first and fifth metatarsal bones, and push upward on the plantar surface of the second, third and fourth metatarsal bones. The bandage should be put on as tightly as the patient can wear it without discomfort. After the bandage has been adjusted on the foot ask the patient to stand up. The weight of his body will spread the foot as far as the bandage will permit. If the bandage is too tight, it will cause pain when the patient stands on the foot. If it is too tight or not tight enough, it should be properly adjusted before the patient puts on his shoe. Such a bandage should not be worn more than three days, as in case of a sensitive skin the bandage may produce some soreness if left on too long. To prevent such soreness, change the bandages every two or three days and line them with a piece of gauze bandage to within about one inch of each end of the bandage. There will be enough of the adhesive passing through the gauze to hold the bandage in place on the foot. Some adhesive plaster does not stick well. It comes loose at the end as soon as the patient stands on the bandaged foot. In that event, stick it down

again and put another piece of adhesive plaster about two inches long over the lapped ends to help hold them together.

This bandage will give the patient a great deal of comfort. It will assist the foot to become readjusted and the arch to become normalized. In these cases the ligaments and muscles have to undergo corrective changes and some weeks will be required for the restoration. As soon as the foot is sufficiently improved, the bandaging should be discontinued. Adjustments of the bones will have to be repeated from time to time until they remain in their normal position; then the patient may be discharged as cured.

It also must be remembered that, in addition to this treatment, if there are any lumbar or innominate lesions, they must be properly treated, as a foot will not normalize when it has poor circulation and bad nutrition.

Foot and leg exercises should be taken daily, or better, twice a day, for a period of at least thirty days, to develop the muscles of the foot and leg.

In many of these cases the longitudinal arch is also broken down, and it must be

treated so that the entire foot may be normalized by one course of treatments and exercises.

FLAT FOOT.

This is a common foot ailment. It is usually brought about by strain on weakened foot muscles. If the body is otherwise healthy and well nourished, there must be a local cause for the weakness of the foot muscles. In such a case we would naturally expect some lesion affecting the sciatic nerve, thereby impairing the nutrition to the foot and leg muscles. In some cases the foot muscles may be capable of supporting the longitudinal arch of the foot under ordinary conditions, but break down under heavy strain or fatigue. For instance, when a person who is accustomed to sitting during a great deal of his time takes a long walk, his foot muscles become fatigued easily and the arch sags. This sagging puts the ligaments on strain and they sooner or later relax allowing the center of the arch to settle lower. Some of the tarsal bones sag more than others and become subluxated. When the feet are rested the muscles contract more or less acquiring their normal tone and raising the center of the arch to its former position. Sometimes when the arch settles and raises again in this manner

some of the tarsal bones slip slightly out of their normal position.

It must be remembered that the longitudinal arch of the foot is supported like the arch of a bow. The longitudinal foot muscles, ligaments and fascia constitute the bow string. The arch is not self supporting, inasmuch as both ends of the arch are movable, easily spreading and allowing the center of the arch to settle down. The arch is not only supported by the pull or tension of the longitudinal muscles of the foot located beneath the arch, but also by the padding formed by these muscles. When a muscle is in action it not only shortens but thickens by the contraction of its fibers. This thickening of the muscles affords more padding beneath the longitudinal arch of the foot. If these muscles are undeveloped or somewhat emaciated, they are weaker and thinner than normal thus providing less support for the arch of the foot.

It is also true that the tarsal bones are often somewhat displaced by climbing hills or mountains or by stepping on rough or narrow surfaces. Such lesions are brought about more readily when the foot muscles are weakened by fatigue, partial paralysis or malnutrition.

In some cases the tarsal bones become lesioned by strain or trauma even though the muscles of the foot are in good condition, so we should not understand that weakened muscles of the feet are absolutely necessary for the production of flat foot.

Flat foot causes more or less painful and aching sensations, which in many cases become very distressing; yet we must make our diagnosis of flat foot from other signs and symptoms. One method of making the diagnosis is to wet the soles of the patient's feet and look at the tracks he makes by walking over a bare floor. The track of a normal foot indicates that the hollow of the foot does not touch the floor. The wet track left on the floor by a normal foot indicates that the heel, the external side of the plantar surface of the foot and the ball of the foot touch the floor and wet it. If the longitudinal arch of the foot is broken down the hollow of the foot will touch the floor and wet it. This test is not absolute, for some people who have normal short fat feet will make tracks like that of a flat foot.

By inspecting feet we learn their normal shape and contour, just as we learn the normal shape and contour of the chest. With

this knowledge we readily recognize abnormal shapes, sizes and contours. By inspection of a flat foot we note a flattening over the top of the instep; we note that the ankle is inverted and that the internal malleolus is unusually prominent; that the tarsal bones are protruding somewhat toward the median line, giving the inner edge of the foot an unnatural fullness.

If the transverse arch is also broken down, which is usual in such cases, there will be an unusual flatness across the distal end of the metatarsal bones. In these cases very often a callus is to be found on the plantar surface of the foot beneath the distal end of the second, third or fourth metatarsal bones. This callus is not always present in cases of a broken down transverse arch; however, when it is present it is conclusive evidence of such a fallen arch. In some cases of a broken down transverse arch, when a callus has not yet formed, a considerable hypersensitiveness can be elicited by pressure on the plantar surface of the distal end of the second, third or fourth metatarsal bones.

When the middle and external cuneiform bones are lesioned toward the plantar surface of the foot they spread the bones on

either side of them to which they are articulated. This spreading leaves the second and third metatarsal bones free to sag down and thus cause the transverse arch to become flattened. These two cuneiform bones are wedge shaped; so, when they settle down, the bones about them must separate. In all of these cases pressure on the plantar surface of the foot beneath these cuneiform bones will reveal a hypersensitiveness which is an important diagnostic point.

Flat foot will usually cause a clumsy gait. The feet lack the normal spring, elasticity and strength that a normal foot should possess.

In a case of flat foot an imaginary line drawn parallel with the front of the center of the tibia will extend to a point much nearer to the inside of the foot than it should normally. This deviation of the tibia causes the knees to come closer together, so it is often said that flat foot gives a tendency for knock-kneed condition, and this condition is used as a diagnostic point.

The tarsal and metatarsal bones should all be carefully palpated to ascertain which are lesioned. As lesioned joints are usually hypersensitive, each articulation should be

palpated for sensitiveness. In many cases the lesioned articulations can be correctly diagnosed by the sensitive tissue about them, even though they cannot be otherwise diagnosed. The articulations should be thoroughly examined by palpation from the plantar surface of the foot, from the dorsum of the foot and from the lateral surface of the foot.

The treatment for flat foot is to correct the bony lesions in the foot, lumbar and pelvic areas. This also should be followed by physical exercises to develop the muscles of the foot and leg.

An explanation of how to correct the bony lesions of the foot can be found under proper titles. Foot and leg exercises are fully given under the heading, Physical Exercises.

Fig. 44—STRAP ADJUSTED FOR STRETCHING THE TENDO ACHILLIS AND THE LONGITUDINAL MUSCLES AND LIGAMENTS BELOW THE LONGITUDINAL ARCH

CORRECTION OF LESIONS DUE TO HIGH HEELED SHOES.

A foot that has worn high heeled shoes for a considerable time flexes at the reciprocal reception articulation until it remains permanently flexed. The scaphoid, cuboid, cuneiform bones and the metatarsal bones form a straight line slanting downward towards the toes, and the toes are materially extended. In such a case the muscles, tendons, ligaments and plantar fascia become adjusted accordingly, i. e., the tendo Achillis becomes shortened because of the elevated position of the heel; the plantar fascia, ligaments and longitudinal muscles below the

longitudinal arch of the foot become abnormally shortened due to the flexed condition of the foot; and the extensor tendons of the toes become shortened due to the extended condition of the toes and the extension of the ankle joint. The whole foot takes on an abnormal contour. The scaphoid and cuboid bones are lesioned toward the plantar surface of the foot.

Treatment should be given to restore normal contour of the foot by correcting the bony lesions and restoring normal length to the muscles, tendons and ligaments. Thoroughly loosen up all the articulations of the foot. Treat with the strap and pad as shown in Figure 44, to stretch the tendo Achillis and the longitudinal muscles and ligaments below the arch of the foot. In this treatment, extend the patient's knee as far as possible by pulling on his foot. Hold it in this position long enough to give the muscles of the foot and leg an opportunity to relax then let the knee flex again to rest the muscles. Repeat this operation several times for a treatment. This part of the treatment can be taken daily by the patient with the aid of an assistant.

The reciprocal reception articulation should be adjusted as soon as the muscles

and ligaments permit. To make this adjustment, put on the foot strap and pad as shown in Figure 43. In this figure, note that the strap is as close to the heel as possible without slipping off during the treatment. Its purpose is to hold the os calcis and astragalus as firm as possible. The strap is tightened by pulling on the foot with one hand to extend the knee as far as desired while the other hand produces as much movement as possible at the reciprocal reception articulation with a view to moving the scaphoid and cuboid bones as far as possible toward the dorsum of the foot to correct the lesion.

Advise physical exercises to develop the muscles of the feet and legs. See "Physical Exercises."

It must be remembered that the high heels have changed the balance of the body and necessarily have had their evil effects on the pelvic and lumbar areas. The pelvic girdle and the lumbar vertebrae and muscles should be carefully examined and treated according to the conditions found. In most of these cases a lumbar lordosis will be found. Raising the heels causes the body to be pitched forward and the shoulders must be pitched backward to maintain

the equilibrium. This posture naturally produces a lumbar lordosis.

The lumbar lordosis can be corrected by stretching the muscles of the lumbar region, giving special attention to the erector spinae and quadratus lumborum muscles. For this work I would recommend the treatment shown in Figure 6. After the treatment has been given the patient should be advised to keep it up daily at home. It can be done on a short table or on a board laid on two chairs as a substitute for a treatment table. In case the chairs are used, the strap should be placed under the bottom of one of them and up over the knees. If the strap is placed under the board and not under the bottom of the chair and then up over the knees, pushing with the knees against the strap will split the board. It should be remembered that a pressure of from one thousand to fifteen hundred pounds can be exerted with the knees against the strap and the pull on the erector spinae and other muscles of the lumbar area will be about seven times that amount. Correction of the lumbar lordosis will normalize the pelvic tilt and improve the circulation of blood through the legs and feet.

If the patient should have a posterior lumbar condition, which is possible when due to spinal lesions, it should be treated with my spine and rib fixer as that will give quick and satisfactory results. A posterior lumbar spine is capable of producing not only a poor circulation of blood in the feet and legs, but it also causes many pelvic disorders. It is also very important that the innominates should be kept normal while the normal balance of the body is being restored.

It would not be advisable for a patient who has misshapen feet due to wearing high heeled shoes to wear a real low heeled shoe, as the change would be too great and would probably cause unnecessary suffering. She should wear a shoe with a common sense heel. She should wear the same height heel every day of the week including Sunday. The muscles will became accustomed to a certain height heel and the patient should be warned carefully about wearing shoes that would put extra strain on the muscles of the feet, legs and lumbar region while she is under treatment for her troubles brought about by wearing high heeled shoes. She should be informed that it took years to bring about the troubles

for which she seeks relief; that she should expect it to take months to cure them; and, that the cure, when produced in this manner, is of inestimable value. It not only relieves the suffering from the feet, but it normalizes the pelvic and lumbar areas which were destined to bring on more or less serious pelvic or nerve troubles provided they were allowed to remain in their abnormal conditions. The far reaching effects of wearing high heeled shoes can be traced to all parts of the body. A lumbar lordosis necessarily produces a thoracic kyphosis and a cervical lordosis as compensatory curves. Hence, it will be seen that the entire spinal column will be affected by the prolonged use of high heeled shoes. A cervical lordosis will be followed by a posterior occiput and that combination will cause an irritation of the superior cervical ganglion. Branches from this ganglion supply the nasal tract, tonsils, throat, sinuses, eustachian tubes, ears, etc. It can be plainly seen that irritation of this ganglion may produce a multitude of troubles in the throat, nose, and hearing apparatus. The thoracic kyphosis may affect the nerves supplying the bronchial tubes, lungs, heart, stomach, liver, spleen, etc. It could also

affect the circulation of blood in any part of the body, as the vasomotor nerves leave the spinal column from the second thoracic to the second lumbar vertebrae.

It is important that high heels should be discarded as early as possible and the evil effects treated before it is too late in life. After the bones become hardened and the ligaments shortened with age, the abnormal spinal curves cannot be corrected. The best that can be done then is to loosen the articulations as much as possible to free the blood and lymph streams, and to permit the nerves to function as freely as possible.

TREATMENT OF MORTON'S DISEASE.

This disease is a form of metatarsalgia due to the irritation of the superficial branch of the external plantar nerve and its two digital branches where they pass between the heads of the fourth and fifth metatarsal bones. The head of the fifth metatarsal bone presses on the neck of the fourth metatarsal bone. This pressure is usually brought about by a tight fitting shoe. Removal of the shoe soon gives relief. Walking increases the pain and suffering, which sometimes becomes very severe. The pain is usually confined to the region of the head of the fourth and fifth metatarsal bones and to the fourth and fifth toes. In many cases the pain does not reach the toes. The condition is a neuralgia brought about just as intercostal neuralgia is produced by irritation of an intercostal nerve due to a lesioned rib. This condition is usually associated with flat foot, which may produce other pain in the foot.

The treatment should be directed to a removal of said nerve irritation. The outside edge of the fifth metatarsal bone should be rotated upward to prevent its head from rotating somewhat beneath the

neck of the fourth metatarsal bone. A pad of cotton or some other soft substance should be worn between the fourth and fifth toes to cause the little toe to pull the head of the fifth metatarsal bone from the neck of the fourth metatarsal bone. The cuboid bone may be lesioned; if so, it must be corrected. If flat foot exists it also should be treated as described in this text.

This disease probably has existed ever since people have worn tight fitting shoes. It was first discovered by Dr. Thomas G. Morton of Philadelphia in 1876.

TREATMENT FOR A HAMMER TOE.

This is a toe deformity with a more or less fixed flexion of the articulation at the distal end of the first phalange. The plantar ligaments below the toe are materially shortened by contraction, and this shortening is given by many authors as the cause of the hammer condition of the toe. My observations of joint deformities have led me to believe that the ligaments on the flexor side of a joint do not contract and flex the joint; but that the flexion is due to one or more contractured muscles. The ligaments then contract to meet the changed conditions of the joint. In the case of hammer toe, the ligaments become contracted after the toe joint is permanently flexed by the flexor brevis digitorum muscle. This muscle is innervated by the internal plantar nerve which crosses the plantar surface of the navicular bone and the internal cuneiform bone. A lesion of either of these bones may irritate the nerve and cause some abnormal contraction of the flexor brevis digitorum, thus producing one or more hammer toes. This muscle supplies the second, third and fourth toes. By correcting the lesion of the navicular bone or of

the internal cuneiform bone as conditions demand, the irritation can be removed from the internal plantar nerve, thus permitting the flexor brevis digitorum to relax and allow the toe joint to extend to its normal position. I have seen hammer toes normally extended within a few days after the bony lesions had been corrected. No treatment was applied directly to the affected toes.

In curing hammer toes by simply correcting one or more bony lesions, the osteopath should feel highly pleased with his success as compared with the results of surgical operations performed in such cases.

TREATMENT OF HALLUS VALGUS AND BUNION.

This is a subluxation of the great toe outward, i. e., toward the other toes. This trouble is usually brought about by wearing shoes with narrow toes, shoes that are too short, or shoes with high heels. It may be due to gouty or rheumatic conditions. A bursa develops on the inner side of the head of the first metatarsal bone due to continued irritation and congestion of the tissues. This bursa finally develops into a bunion. As the toe becomes displaced outward the extensor hallucis longus, by its contraction, tends to increase the deformity.

The treatment in severe cases is surgical removal of a portion of the bones so that the toe may be brought back in proper alignment of the foot. But if treatment is begun in time surgery is not necessary. The treatment should be directed towards furnishing normal nerve action to the tissues about the joint. A lesion of the navicular bone or of the internal cuneiform bone may interfere with the nerve supply of the first metatarsal and great toe region; hence, they should be carefully examined, and, if lesioned, they should be properly

adjusted. A padding should be worn between the first and second toes to prevent the first toe from turning toward the second toe. Properly fitted shoes with wide toes or with a straight line last should be worn. Shoes with pointed toes and with high heels must be tabooed.

Treatment of a bunion should be directed toward removal of the cause as above outlined. Any external application to reduce inflammation of the bunion should prove beneficial. One Doctor says that much relief from the discomfort of a bunion may be secured by painting the bunion with a solution of ten grains of permanganate of potassium in two drams of water. He also advises a pad of cork and cotton between the first and second toes.

SPRAIN OF THE ANKLE.

The ankle joint is a hinge joint. Its movements are flexion and extension. Gray says, "The malleoli tightly embrace the astragalus in all positions of the joint, so that any slight degree of lateral movement which may exist is simply due to stretching of the inferior tibio-fibular ligaments and slight bending of the shaft of the fibula."

The ankle joint is well protected and supported by numerous powerful ligaments, yet it is more subject to sprains than any other joint of the whole human framework. These sprains are usually the result of lateral force, either that of inversion or eversion of the foot. As the external ligaments are weaker than the internal ligaments, the sprain due to inversion of the foot is by far the more common. In such cases the tarsal articulations are usually moved laterally beyond their normal limits, as the ankle joint permits of practically no lateral movements. What is referred to as a sprained ankle is often a sprain of the articulation of the astragalus with the os calcis; and in some cases, the reciprocal reception articulation is also sprained.

When the foot is forcibly everted, the deltoid ligament supports the ankle joint with such great strength that it usually results in fracture of the fibula. It also frequently fractures the internal malleolus. In some such cases the deltoid ligament ruptures.

A lesion of the ankle joint often sets up acute synovitis. This will materially increase the amount of synovial fluid and cause a considerable bulging in front of the joint and some bulging at the lateral sides of the joint. When the puffiness is principally below the ankle joint it indicates that the subastragaloid articulation is materially affected. Very often the whole foot and a considerable part of the leg swells to such an extent that the ankle movements are practically impossible. In such cases the swelling should be reduced by the application of heat and cold or by massaging. To massage such a case, begin high on the swollen part of the leg. Free the circulation until the swelling reduces and massage down closer and closer toward the ankle until most of the swelling is reduced. No rough treatment should be used in treating a sprained articulation. If any manipulative treatment is used at all it should be very

gentle and without strain on the already sprained tissues. The foot should be so bandaged as to support the ankle joint and prevent strain on the affected tissues. For instance, the most common sprain of the ankle joint is one due to a forced inversion of the foot. After a sufficient examination of such a sprain has been made to ascertain that there are no bony fractures nor bony subluxations, the bandage should be applied. All bony subluxations should be adjusted before bandaging the ankle. An adhesive bandage is probably the most satisfactory to use at first. Use one inch adhesive tape. A good way to apply the bandages is to begin on the inside of the foot, about an inch in front of the heel; pass the bandage under the plantar surface of the foot and up on the outside of the leg to a point about four inches above the ankle. Then begin again on the back of the heel and pass the adhesive tape around the outside of the foot and up across the metatarsal bones. The first tape applied is for the purpose of preventing inversion of the foot. The second one is for the purpose of preventing adduction of the foot. These two tapes are not sufficent to properly do the work. Two or three more pairs of tapes should be used

by applying them parallel to the two tapes first applied.

The ankle lesion due to a forcible inversion of the foot often becomes chronic by repeated sprains. In that event the foot should be kept bandaged to support the ankle and the shoe heel should be fixed to support the outside of the ankle. For further information on how to treat sprains, see McConnell and Teall, Fourth Edition.

DISLOCATIONS OF THE ANKLE JOINT.

This joint is frequently dislocated, and often fractures of the tibia or fibula accompany the dislocation. All cases of an injured ankle should be carefully inspected and palpated for dislocations and fractures. In many cases the fractures are small pieces broken from the malleoli and the examination for such breaks must be carefully made or they will be overlooked. The dislocated articulation can usually be corrected best while the patient's knee is flexed so as to reduce the tension of the tendo Achillis. While the patient lies on his back on the table, put a strap once around his leg just above the knee, then fasten the strap to the head of the table, so as to support the patient's thigh in a perpendicular position. See Figure 35. Then stand at the foot of the table and take hold of the patient's foot and use traction on it with careful movements to correct the dislocation. After correction of the dislocation, the joint should be cared for as any other joint that has been dislocated.

CORNS.

People who never wear shoes or boots are not troubled with corns or bunions. Corns originate with calluses due to ill fitting shoes or boots. The cause of corns must be removed. If the shoe cannot be made to fit the foot, it must be discarded. Temporary relief may be had by paring off the hard horny layers of the corn after soaking it in warm soap suds for about one-half hour. However, this treatment will not give permanent relief.

Soft corns develop between the toes and are due to sensitive skin with nutrition below par. The toes should be spread by wearing cotton between them. They should be carefully cleansed every night. A patient with soft corns needs shoes with wide toes. The shoe must be longer than the foot so the toes will not be cramped. It must be borne in mind that the foot is longer and wider when walking than when at rest. A shoe should be selected accordingly.

To cure soft corns apply a little formaldehyde to the corn daily until cured. Or wet cotton with raw linseed oil and place

it between the toes and renew it day by day until the corn is cured.

To remove hard corns apply a drop of acetic acid, soak the foot and lift the corn out.

A simple remedy said to cure in four or five treatments is to bind cotton on the corn before retiring and saturate it with turpentine.

INGROWN TOE-NAILS.

Frequently the cuticle adjacent to the edge of the nail becomes overgrown and causes this trouble. It may be pushed back away from the edge of the nail by inserting a small roll of cotton under the edge of the nail. It may be held away by the use of a small piece of adhesive plaster. The nail should be carefully cut away. This can be done with very little inconvenience provided melted tallow has been previously poured on the affected part and allowed to remain a few days.

An ingrown toe-nail may be the result of pressure by a tight fitting shoe or by a stocking that binds over the end of the toe. In such a case the cause of the trouble must be removed before any treatment can be expected to be effectual.

In some cases granulations and pus may have formed and the toe should be treated accordingly.

SOME CAUSES OF PAIN IN THE FOOT.

Pain is our best friend. Were it not for its warning message many of us would unnecessarily allow our bodies to go to rack and ruin. It is this warning message that leads the patient to a doctor's office, where he enters full of hope and with much confidence in his physician who is expected to definitely locate the pain, find its cause and remove it.

If the patient complains of a burning sensation in his foot, his physician readily knows that it is due to irritation of the sciatic nerve. Said irritation may be at the fifth lumbar, due to a tilted pelvis, or it may be due to an innominate lesion, a lesion of the pelvic organs, a pelvic tumor or an inflamed psoas muscle. In some cases the lesion may be in the tarsal or metatarsal bones. Wherever the lesion is, it should be adjusted so that normal conditions may be restored.

I once knew a case in which the little toe was badly twisted over the next toe to it. It continually irritated the nerves until the whole sciatic nerve was affected to the hip.

Usually when a patient complains of pain or a burning sensation in the leg, thigh or

hip, the point of irritation is at the fifth lumbar vertebra, the pelvic area or about the hip.

A common location for pain is on the heel at the insertion of the tendo Achillis, known as achillodynia, or at the bottom of the heel, or at the plantar surface of the foot just in front of the heel. It may be almost instantly relieved by correcting the innominate lesion to remove the irritation of the sciatic nerve.

In rheumatic conditions there may be a considerable pain and suffering due to diseased joints of the foot. It should be borne in mind that rheumatism is due to streptococcic infection in the blood. It arises from a focus of pus that has no drainage—such as pus in a tooth socket, in a sinus, in the tonsil or imbedded in other tissues. The streptococci are carried in the blood stream to all parts of the body. Dr. Richard Cabot says that a rheumatic condition has a distinct involvement of joints with evidence of acute infection. The same infected blood will be carried about to all parts of the body; hence, all joints are likewise attacked. The inflammation will not remain long in one joint without other joints showing manifestations of the same nature. In case of

rheumatism affecting the feet, it would be useless to treat the feet. The focus of pus should be located and drained. The cause of the pus should be treated and a general treatment should be given to purify the patient's blood.

The joints of the toes may be affected by gout. Such a case would call for a constitutional treatment, an abundance of physical exercise and a very rigid diet.

The toes may be affected by Raynaud's disease. At first the patient may complain of the toes having a dead feeling and of turning white for a few minutes or hours at a time, especially when exposed to a cooler atmosphere. In some cases the condition becomes serious, even fatal, as gangrene may result from the vasomotor spasms. This disease is purely a vasomotor disorder and should be treated as such. It is characterized by spasmodic contractions of the arterioles. The fingers are more commonly attacked than the toes; however, in some cases the toes are attacked while the fingers are not. In all cases of Raynaud's disease the nervous system should be treated. The toes are not at fault; hence, treatment of the feet would not be curative.

Traumatic synovitis might affect the joints of the feet; but it is not very likely to do so on account of the limited amount of synovial membrane in said joints. If such a case should appear in a foot, it should not be diagnosed as rheumatism, as the affection would not move from one foot to the other nor to the joints of the hands or wrists. Such a case calls for local treatment—principally rest of the affected joint and treatment for the reduction of the inflammation. Manipulation of a joint affected with synovitis is detrimental. Manipulation above and below such a joint is quite beneficial to establish a good circulation through the joint.

Arthritis deformans often affects the feet and is seldom cured. This disease is classified as rheumatism or rheumatoid, which means like rheumatism, yet its cause is not understood. Some writers express an opinion that these joint deformities are due to some specific germ. However, they have, as yet, been unable to prove the correctness of this theory. A correct diagnosis of these cases should not be difficult for when the joints of the feet are badly deformed the joints of the hands are usually affected in like manner.

As the foot is frequently affected by trauma it is liable to have periostitis which is quite a painful affliction which sometimes results in abscess or necrosis. These cases are not due to bony lesions of the feet. They should be treated just the same as they would be treated if appearing in any other part of the body.

Ulcers may appear on the sole of the foot due to malnutrition caused by an irritated sciatic nerve. Such ulcers heal readily after said irritation is removed by correcting the innominate or other lesion responsible for the trouble.

An ulcer will not develop in healthy tissue without some external irritant, and in that event, as soon as the irritant is removed the ulcer should readily heal. Wherever one or more ulcers appear spontaneously in any part of the body, we should look for defective nerve functioning to the affected tissue. For instance, if an ulcer should appear on the lip, as herpes labialis, or common cold sore, we always find a lesion of the Gasserian ganglion with resulting trophic disturbances of the regions supplied by the trigeminal nerve. If the tissue of the neck just back of the angle of the inferior maxillary is properly worked out and

lesions in the upper cervical region are corrected the ulcers readily heal.

In case of an ulcer in the stomach, vertebral treatment to remove the cause of the irritation to the great splanchnic nerve will soon give desired results. If an ulcer on a finger is due to irritation of the brachial plexis by a first rib lesion, liniments applied to the finger will fail to cure said ulcer. The rib lesion should be corrected; then nature will do the rest. There is very little use for liniments for healing ulcers on the soles of the feet. The lesion that irritates the sciatic nerve should be corrected, so the foot may have normal nutrition through normal functioning of said nerve; then the ulcer will readily heal and the patient will feel grateful for what osteopathy has done for him.

SYSTEMIC INFECTION VIA THE FEET.

Perhaps more recognition should be given to the feet as an avenue of ingress of infection into the body.

Occasionally patients complain of the skin between the toes cracking and bleeding and causing more or less annoyance. Whether coincidental or resultant, there is often associated with this condition what the sufferer usually calls rheumatism. Lack of cleanliness may be the cause of this condition, but not necessarily so. In fact, daily bathing of the feet will not always be sufficient for a cure. In such cases some good antiseptic solution such as sodiphene should be applied morning and night and the patient should be instructed not to walk about in his bare feet.

Doubtless these cases are due to the lower forms of plant life, probably fungus. The effect of the fungus growth is to produce the raw and bleeding surface in an area well protected from the friction of the foot covering. Here the germs flourish without interference except at times when the feet are cleansed. For this reason these areas are fine avenues of ingress for any germs picked up by the feet.

Associated with this condition will be found horny skin about the margins of the toes and on their under surfaces, especially where pressure has produced ridges. Also, it will be found that the skin tends to hard-

en and proliferate along the margins of the nails. This condition will be corrected if the primary lesions between the toes are cured.

In cases of so-called rheumatism, where the recognized causative factors are not found, I would suggest the examination of the feet for the above described conditions and application of the indicated treatment.

PHYSICAL EXERCISES.

Toe Exercises:

Remove the shoes and stand on a book about two inches thick, with the toes extending beyond the book. While in this position, flex the toes to their extreme limit, then extend them as far as possible. Repeat these movements until the point of fatigue has been reached.

Foot Exercises:

Stand on a book about two inches thick with the heels entirely off the book. While in this position, raise the heels as high as possible by extending the ankle joints. Then let the heels down nearly to the floor. Repeat these movements until the point of fatigue has been reached.

Leg Exercises:

Stand erect, and raise the heels as high as possible above the floor while the weight of the body is supported on the ball of the feet. Then let the heels down to the floor and flex the knees and hips as far as possible or until the hips are down to the heels. Then repeat these movements over and over again until the point of fatigue has been reached.

Tibialis Anticus Exercise:

Sit in a chair with both feet set squarely on the floor. While both heels are resting on the floor, raise the balls of the feet by flexing the ankle joints; then invert the feet as far as possible to put a strain on the tibialis anticus muscle. This exercise should be repeated over and over again until the point of fatigue has been reached.

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