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# THE Journal of Osteopathy

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## OSTEOPATHIC LESIONS

DR. CARL P. McCONNELL.

The following somewhat arbitrary outline is presented as a practical working basis for the student. We believe that the experience and observation of the practicing osteopath will bear out its logicalness. Hulett's definition that an osteopathic lesion is "any structural perversion which by pressure produces or maintains functional disturbance" has been accepted as authoritative.

We have divided the principal osteopathic lesions into the five following groups: I, Osseous Vertebral Lesions; II, Muscular Vertebral Lesions; III, Rib Lesions; IV, Pelvic Lesions; V, Visceral Lesions.

### I. OSSEOUS VERTEBRAL LESIONS.

Caused by—

1. Traumatism:
  - a. Direct and indirect violence.
  - b. Extreme flexion or extension.
  - c. Extreme rotation.
  - d. Impaction.

Produces—

- a. Osseous maladjustment or malalignment.
  - b. Stretching and weakening of ligaments.
  - c. Contraction and contracture of muscles.
  - d. Intervertebral arthritis.
  - e. Interference with vessels and nerves.
  - f. 1. Irritative symptoms. 2. Debilitative symptoms.
2. Weak ligaments.
  - a. Secondary to traumatism.
  - b. Neurasthenia.
  - c. Postural defects.
  - d. Anemia and wasting diseases.
  - e. Constitutional diseases.

Produces—

- a. Laxness of ligaments.
- b. Laxness of muscles.
- c. Osseous maladjustment.
- d. Debilitative symptoms.

3. Muscular contractions:
  - a. Secondary to traumatism.
  - b. Muscular strain.
  - c. Atmospheric changes.
  - d. Reflex to visceral diseases.
  - e. Compensatory changes.

Produces—

- a. Contraction of muscles.
- b. Osseous displacement.
- c. Interference with vessels and nerves.
- d. Irritative symptoms.

4. Compensatory changes.
  - a. Primary osseous and muscular lesions.
  - b. Postural defects.

Produces—

- a. Osseous, muscular and ligamentous changes.
- b. Disturbance of vessels and nerves.
- c. Irritative and debilitative symptoms.

5. Reflex stimuli.
  - a. Visceral disorders.

Produces—

- a. Muscular contractions.
- b. Osseous changes.
- c. Disturbances of vessels and nerves.
- d. Irritative symptoms.

The osseous vertebral lesion is the common fundamental osteopathic etiologic factor of disease, i. e., it is of first rank. It should be remembered, however, that muscular contractions, rib displacements, innominate changes, visceral prolapses, etc., are also fundamental etiologic factors, but not of so frequent occurrence.

Traumatic forces and influences undoubtedly come first among the causes of vertebral lesions. These, as outlined above, are various direct and indirect physical forces, sprains, strains resulting in extreme flexion or extension, and impactive forces or blows that set up irritative processes to the vertebral articular structures. It is well known that osseous maladjustment, or malalignment of several sections, is a common result, and if the displaced tissues are not shortly adjusted by natural forces, or by the osteopath, or compensatory changes do not take place,

a more or less permanent lesion is the final outcome. Herein the ligaments are stretched and consequently weakened, and the muscles are contracted or are thrown into a state of contracture. In other instances, particularly impactive lesions, there is comparatively little or even no tissue displacement, but congestion, inflammation and irritation of the articular tissues occur, followed by thickened ligaments and muscular contracture and myositis. (Clark has especially called attention to the importance of intervertebral arthritis). Following these pathological changes there results an interference of vascular channels and nerve courses depending upon the location and the extent of the lesion for secondary, functional, organic and systemic involvement. Irritative symptoms and signs are necessarily the first pathologic manifestations, which are followed, in the course of more or less time, by debilitative symptoms.

We have placed WEAK LIGAMENTS second in the list of causes not because they are of such primary importance, but they are necessarily involved when osseous displacement or injury takes place. Thus in traumatic influences the ligaments are involved when the osseous tissue is displaced. In postural defects the ligaments are stretched and weakened primarily with the osseous and muscular tissues, forming what would be called a composite or group lesion; or owing to weak ligaments and muscles, or to either alone, defect of posture may occur and bony displacement results; or the ligamentous weakness and laxness may be secondary to the osseous malalignment. Neurasthenia is a prolific source of weak vertebral ligaments; the general laxness of the ligaments being symptomatic of the disease, and thus osseous lesions secondary to the disease may readily result. Likewise anemia, any weakening or wasting disease or marked constitutional disease may secondarily cause weak ligaments. Consequently, following laxness of ligaments we have laxness of muscles and dependent osseous displacements and various debilitative symptoms.

MUSCULAR CONTRACTIONS play an important part in the production of osseous vertebral lesions, although muscular contractions are more often secondary to osseous disorders. Traumatic forces, muscular strains and atmospheric changes are common causes of muscular contraction which in turn through extreme, uneven contraction produces osseous displacement, especially malalignment of several successive vertebræ. Rib lesions are frequently caused by muscular contraction. Then reflex stimuli to the vertebral muscles from visceral diseases are another source of disorder. Compensatory changes from curvatures, pelvic distortions, postural defects, etc., will affect the muscles which

in turn may be of either primary or secondary effect relative to the osseous change. The above forces primarily produce contraction of muscles, osseous displacements, interference with vessels and nerves and irritative symptoms.

COMPENSATORY CHANGES may produce osseous lesions, primarily, either by osseous or muscular changes; the ultimate effect in either instance is malalignment of at least several vertebræ. Secondary curvatures, pelvic and hip joint deformities and a marked twist between the fifth lumbar and sacrum, wherein the lumbar and dorsal vertebræ are malaligned, are excellent illustrations. Then postural defects are frequent sources of consequent compensatory changes. The above changes produce osseous, muscular and ligamentous disorders; also, disturbances of vessels and nerves, and various irritative and debilitating symptoms.

REFLEX STIMULI from various visceral disorders are well known sources of muscular contraction. If the contraction is marked, extensive and constant osseous malalignment may result, either from extreme uneven contraction or secondarily from dependent postural defects. In addition to contraction of muscles and displacement of vertebræ there will be disturbances of vessels and nerves and irritative symptoms.

The osseous vertebral lesion is seldom if ever, in our opinion, a displaced single vertebra (an exception to this may be the atlas), that is, where the vertebra is alone rotated or displaced anteriorly, posteriorly, laterally or any combination of these. There is a possibility that a sharp, severe blow upon a single vertebra might so result, but, if so, the occurrence is very rare, for from the nature of the tissue construction a single osteopathic displacement is practically impossible. The lesion is usually a twist between two sections, a malalignment of two or three or more vertebræ, or a curvature.

The following symptoms and signs are considered pathognomonic of the osteopathic lesion: (a) anatomical displacement; (b) muscular contraction; (c) restricted motion (this may be due to osseous displacement or malalignment, to muscular contraction or contracture, to tensed ligaments, and to arthritic involvement); (d) local tenderness; (e) compensatory changes (Forbes considers this a very important sign).

## II. MUSCULAR VERTEBRAL LESIONS.

Caused by—

1. Primary
  - a. Traumatism.
- changes:
  - b. Atmospherical.
  - c. Posture.

Produces—

- a. Contraction or contracture.
  - b. Congestion or inflammation.
  - c. Osseous lesions.
  - d. Laceration of fibers.
  - e. Obstruction to vessels and impingement to nerves.
  - f. Irritative symptoms.
2. Secondary
    - a. Osseous.
  - changes:
    - b. Compensatory.
    - c. Postural.
    - d. Reflex stimuli.
    - e. Diseases.

Produces—

- a. Contraction or contracture.
- b. Congestion or inflammation.
- c. Osseous lesions.
- d. Obstruction to vessels and impingement to nerves.
- e. Irritative symptoms, and later probably debilitating symptoms.

We have divided muscular vertebral lesions into primary and secondary changes, as a matter of convenience and of a practical working basis.

First, under primary changes is placed TRAUMATISM as of greatest importance. It can be safely stated that traumatic effects are a most common source of muscular lesions to various parts of the body and to the spinal region in particular. Trauma, in this regard, does not refer to the direct blow or force alone but more often the effects of strains and sprains from slipping, falling and similar accidents wherein the effect of the violence is exerted upon a vertebral muscle or group of muscles. Thus the muscular injury is a primary one owing to the suddenness, the effort to save one's self, or the extreme flexion, extension or rotation. It can be readily seen that contraction of the muscles would be the first pathologic step, soon to be followed with congestion and frequently inflammation of the muscular fibers; this in turn with contracture, and in many instances displacement of the bony tissues (vertebræ and ribs) owing to the continuous extreme and uneven muscular tension. In a few instances muscular fibers may rupture followed by ecchymoses. Dependent upon the above will result obstruction to vessels and impingement to nerves, thus disturbing not only cutaneous vessels and peripheral nerves but anastomoses and reflex stimuli, the spinal cord circu-

lation and spinal cord centers and organic innervation. Irritative symptoms will be manifested, followed by debilitating symptoms if the lesion is long continued.

ATMOSPHERIC influence is next in importance as a cause of the primary muscular lesion. And in the cervical region it takes first rank among the important etiologic factors. Atmospheric changes cause contraction and congestion of the muscles. This results in disorder of the afferent sensory nerves and thus reflexly to vaso-motor nerves in particular. In addition to the above there is the immediate and direct effect of the contraction upon superficial circulation of the blood-vessels and lymphatics. If the contractions are severe or long continued, osseous lesions will result. Irritative symptoms are first manifested which will be followed, if lesions remain more or less permanent, with debilitating and chronic vascular symptoms as in other lesions.

Changes from POSTURE may be primary or at least coincident with the osseous change. Many times, however, the muscular lesion is secondary. In this will be included the few instances of primary muscular lesions from compensatory effects. These are not, as a rule, the severe or markedly acute symptoms as in traumatic or atmospheric lesions. The pathologic processes are slower in development but nevertheless are effective and may be permanent.

Among the etiologic factors wherein the vertebral muscular lesion is a secondary change or effect the OSSEOUS displacement takes first rank. Osseous vertebral and rib lesions are a prolific source of contiguous muscular lesions; in fact, all osseous lesions are productive of muscular irritation and contraction either directly or through the innervation. Consequently it may require considerable diagnostic ability to determine whether a certain group or composite lesion (a lesion embracing both osseous and muscular disorders) rests primarily, from an etiologic viewpoint, with the bony displacement or with the muscular contraction. The history of the case coupled with a careful survey of the lesion field will usually reveal the primal factor. As a general rule primary muscular lesions cover a larger field and involve both the superficial and deep muscular areas; whereas the secondary muscular lesion includes a smaller area and involves deeply seated muscles. This is not always true, however, but is particularly found where traumatism and atmospheric causes are the source of the primary changes and osseous displacements are the source of secondary changes, which are inclusive of the major portion of muscular lesions. These secondary changes are productive of a train of pathologic effects similar to the effects of the primary lesion, although not so commonly severe and extensive, and

besides, when the primary lesion is corrected the dependent disorders will usually adjust themselves. The symptoms and signs are contraction and contracture, congestion and inflammation of muscular tissues, probably dependent secondary osseous malalignment, obstruction to vessels and impingement to nerves, and irritative and debilitating affections.

COMPENSATORY muscular secondary changes are common, in fact, from the nature of things, are present to a greater or less extent in all lesions.

Likewise in POSTURAL defects muscular lesions are always present, of a secondary character if not primary.

REFLEX STIMULI are another cause of the muscular vertebral lesion. Various acute visceral affections are manifested, reflexly, along the corresponding spinal muscles, of the nature of contractions and often aching and neuralgia. In chronic visceral diseases the muscular disturbance may assume a contracted condition and thus present a permanent, or rather chronic lesion. It may require considerable diagnostic acumen to tell whether the chronic muscular lesion is a primary vertebral one or alone due to reflex stimuli. And in a number of instances the primary muscular and the reflex muscular, the primary osseous and the secondary osseous, the compensatory, the postural, etc., may be so "mixed" that the relative importance of each is impossible to determine. These are chronic cases arising from visceral displacement, laceration of tissues, infection, etc., that produce severe chronic lesions of the vertebral muscles, and even osseous malalignment and postural defects. These cases require correction of the primary etiologic factor before the secondary spinal manifestation can be adjusted.

Then there are various diseases either constitutional in character or systemic in effect that disturb the muscles.

Arterio-sclerosis, anemia, neurasthenia, various forms of paralyses, etc., are causes of muscular contraction, contracture, congestion, etc. The muscular involvement is generally somewhat extensive. The effect is to produce obstruction to vessels, impingement to nerves, osseous malalignment, etc.

The muscular phase of the osteopathic lesion, on the whole, presents an interesting field for study. Three features in particular are presented first, the etiologic; second, the diagnostic; and, third, the therapeutic. ETIOLOGICALLY, are the points of primary and secondary changes we have just outlined. DIAGNOSTICALLY, are the several considerations dependent largely upon the etiology in addition to the status and effects of the lesion. Points to consider are whether the lesion is primary or

secondary (for their sub-divisions, see above), extent of contraction or contracture, congestion or inflammation, etc. Two or three points of special interest are: It will be noted that traumatic and atmospheric effects are more or less extensive involving both superficial and deep muscles. Acute reflex effects are somewhat extensive and involve superficial and deep muscles but the local pain or tenderness of the lesion is more acute and circumscribed, besides there is a history of acute visceral disorder. Chronic reflex stimuli involve (contracture) somewhat of a large area of the deep muscular layers and do not relax or respond to treatment readily (these are the cases that frequently do not respond to spinal treatment alone as the spinal derangement is simply a reflex phenomenon). Muscular lesions resulting from osseous displacement are usually deeply seated and circumscribed. Lesions from compensatory and postural changes are in direct proportion to the cause and extent of disturbance and are comparatively slow in development. THERAPEUTICALLY, are to be considered the several methods of muscle correction. Readjustment, manipulation, stretching, inhibition and stimulation are the principal osteopathic therapeutic features to take into account. These present an interesting field for study and discussion. All are useful, but three points are apt to confuse the student unless he follows some systematic outline in his diagnosis and treatment. First, reflex contractions are likely to be overlooked, that is, their probability; second, the likelihood that the deeply seated circumscribed lesion is secondary to an osseous lesion; and, third, employing stimulation and inhibition indiscriminately at the expense of the great osteopathic fundamental—readjustment.

Simple illustrative drawings of muscular vertebral lesions are difficult to represent. Any or all of the five layers of back muscles may be involved, but of particular interest are contractions of the deeper muscles. In acute conditions the lesion is a simple contraction while in chronic cases contracture takes place which probably in many instances is characterized by an interstitial myositis. One-sided contractions or weaknesses may be productive of curvatures and apparent compensatory changes, whereas in nearly all cases the muscular lesion is the cause of vascular and nervous disturbance and probably of some osseous maladjustment (however slight). Two excellent illustrations of muscular lesions outside of the spinal region are contractions of the omo-hyoideus muscle, disturbing the hyoid bone area, and contraction and tenseness of the pyriformis muscle irritating the sciatic nerve.

(Concluded next month.)

### X-RAYS LEADING FACTOR IN PATRICK CASE.

#### Exclusive Interview With Dr. William Smith, Who Proves, by Skiagraph, that Embalming Fluid Unquestionably Permeates the Lungs.

(This concludes the report of the interview with Dr. Smith by a Sunnyside representative, the first part of which appeared in the January Journal of Osteopathy.—Ed.)

Q. Then in making your examination of the lungs with different bodies did you find that your plastic solution had entered or passed through the capillary network in the lungs as well as in the other tissues of the body?

A. Certainly.

Q. To the best of your recollection was this most marked in the posterior part of the lungs or in the anterior?

A. I cannot answer you. It was simply a matter of general business with me; I paid no particular attention, as, to an anatomist, it was not of special importance. I never thought about it until ten days ago.

Q. Then you did not pay any particular attention? You found the injected matter in the lungs?

A. Yes, I have seen it. Matter injected into the arterial system does enter the lungs. I have seen it enter by way of the incompetent aortic and mitral valves, via the pulmonary veins. I have seen it enter the right heart by way of the coronary sinus, hence enter directly into the main pulmonary circulation, and in EVERY case I have found the bronchial arteries distended with the injection.

Q. That is, with the plastic material?

A. Yes.

Q. Doctor, isn't it a well known fact that where a plastic solution is used containing dyes of any kind, or a solution such as you used, that owing to the minute construction of the capillary network, the coloring matter will be filtered from it?

A. That question I answered eight years ago. Immediately below the statement which I quoted to you a few moments ago from the American X-Ray Journal, you will find the following words: "In cases where colored wax passes through the capillaries it is always found of a distinctly lighter hue in the veins, much of the coloring matter having been filtered out in the capillaries."

Q. Then you have a plate showing the presence in the lungs of this plastic solution?

A. Absolutely.

Q. In making these injections, what quantities of plastic solution did you decide upon as being sufficient to fill the arterial circulation?

A. The amount would vary in different cases. My syringe holds about 30 ounces and I do not remember ever requiring, even in the case of the largest body, to fill it more than three times.

Q. In this case, where you have a skiagraph plate showing the presence of your plastic solution in the bronchial arteries, how much did you use?

A. It was first injected with probably from two to two and a half quarts of preserving fluid in the usual way by using the femoral artery. After waiting 24 hours it was injected with somewhere about 90 ounces of wax, etc., in the femoral artery, through the same opening; I guess at ninety ounces, it was probably less. I

am sure I never used more than three fills of the syringe, for this reason, when you are handling a metal syringe filled with boiling wax and have the considerable trouble of filling your syringe and attaching it each time to the nozzle in the artery, you are extremely liable to remember how many times you had to go through this operation.

Q. In this case, where your skiagraph shows the presence of this plastic solution in the bronchial arteries, what was the weight of the body?

A. That body was the body of a girl about 22 years of age. I guess she would weigh about 140 to 145 pounds. She was a well-formed, stoutly built colored girl. Of course, she being a young person, would naturally take more fluid than an old person with degenerated vessels.

The Sunnyside representative then questioned Dr. Smith.

Q. Doctor you have since you came here read up on this particular case, the Patrick case?

A. I have read some affidavits.

Q. You have also read the testimony, unofficial, of the leading instructors of embalming who had been quoted in the Sunnyside?

A. Certainly.

Q. You have undoubtedly paid attention to the size, age, weight, and condition of Mr. Rice's body?

A. Yes.

Q. Let us have your opinion on the point whether you think embalming fluid reached the lungs, or whether the apparent congestion was due to the inhalation of chloroform vapor?

A. There is no doubt in my mind that all of the appearances described in the statements regarding the condition of the lungs in the case of Mr. Rice are perfectly compatible with simply an injection of embalming fluid, especially one containing formaldehyde, into the arterial system.

Q. In other words, the witnesses for the prosecution are mistaken?

A. I dislike the word mistaken. I may simply say that in the course of my teaching of anatomy, extending over a period of eight years, had a student in his second term stated to me that "under no circumstances or in any way could embalming fluid reach the lungs," he would at once have been put back in his studies for six months. I regret the ignorance of those who testified.

Q. In case it would be desirable to make an actual demonstration with a body to prove what you claim, would you be willing to undertake to do it?

A. Absolutely. I will send for my syringe which is in Kirksville, Mo. It has never been used by any other demonstrator in America, although it is used a good deal in Europe. I had to have it and its nozzle made specially for me in 1892, by the A. S. Aloe Company, of St. Louis. I found that I could not buy one.

Q. Why is this particular syringe necessary?

A. When you use a boiling hot wax you cannot use the ordinary syringe, as it is made of rubber. You require a metal syringe. In this case, where you have great friction to overcome and must be speedy in your work, you require to use more pressure in injecting the filling than if it were simply embalming fluid. I will get this syringe if you want me to demonstrate, but I don't think it will be necessary. It is not only the skiagraphs which I have given Mrs. Patrick, but also the original negatives from which they were made that speak the truth in this case, and those negatives are open to the inspection of any photographer for his opinion as to whether they have been retouched in any manner whatsoever.

Q. You have not been retained in the case, you have not been summoned to take up this matter by the defence in the case, but as I understand it, you accidentally ran across the statement in the paper and decided to bring your knowledge into requisition in order to be of service to humanity?

A. When I accidentally saw, two weeks ago, that a man's life or liberty was depending upon statements absolutely wrong, and it flashed across me that I had the absolute proof to establish his innocence, I felt compelled to make it known. I cannot believe, I refuse to believe, that medical men of the standing such as that possessed by those who testified, in such manner as has been indicated in the affidavits seen by me, were so ignorant. If they were ignorant to such an extent they have no right to practice medicine in the State of New York.

Prof. Renouard then questioned the doctor.

Q. Did you ever use the brachial artery for injecting the plastic solution?

A. I always use the femoral artery and have reached all parts of the body with the solution sufficiently hot and the body sufficiently heated. I have never used the brachial.

Q. Would your solution do the same if you did use the brachial?

A. Certainly, providing I had the body hot enough. In this case my dissecting material was somewhat scarce and I had to make sure that I secured good injections, and therefore got the most I could out of my anatomical material.

Q. Suppose you took a body of the same weight as Mr. Rice and you were to use the brachial would it be possible to do that?

A. I will not say the wax injected into the brachial would enter the arteries of the feet. It might become cold before it reached there, but would certainly fill the entire arterial system with, perhaps, the exception of the feet.

Q. In other words, you can duplicate the embalming of Mr. Rice also the injection of the plastic solution through the brachial artery and then open the body and remove the lungs and prove that your plastic solution was present in them?

A. Yes.

Q. Will, or does, embalming fluid, when injected into the brachial artery in the quantity of fluid used by embalmer Potter, enter the lungs and cause congestion, that is the point upon which this case hinges?

A. The body of Mr. Rice was, I presume, after death, laid upon its back; at once there began a gravitation of the blood into the dependent parts of the body; as a result the posterior aspects of the lungs would become engorged with blood. According to Mr. Potter, he injected about two quarts of fluid into the body of an old man with the arteries of the aged and who, his attending physician had stated, had a "weak heart." In all probability that embalming fluid reached the lungs by all four of the channels which I have mentioned. The formaldehyde in the fluid, mingling with the blood in the lungs, caused a pseudo-coagulation and the liquid portion of the blood was set free, while an apparent area of congestion, due to this pseudo-coagulation of blood in the capillaries, resulted. Hence, we would find the appearance of oedema, and at the same time, on incising the lungs, an appearance which might readily be mistaken for congestion.

Prof. Renouard then questioned Mrs. Patrick as follows:

Q. I have made several inquiries and often wondered what ever became of the lungs of Mr. Rice, can you tell me?

A. After the autopsy the doctors having claimed that the old man died a natural death, there was no occasion or reason for keeping the lungs, and they were put back in the body and cremated.

The Sunnyside representative then again questioned Dr. Smith:

Q. From your experience in administering chloroform, do you imagine for one moment that the prosecution had any right to charge that Mr. Rice died of chloroform poisoning?

A. I myself have administered chloroform in many hundreds of cases, I have seen it administered in thousands. I have never seen a case of chloroform administration where it was not necessary to begin the administering of the anaesthetic very slowly. Chloroform is extremely irritating and if inhaled strongly at first, will at once produce signs of choking and strangulation.

Q. Therefore you don't think that it would enter his lungs?

A. I don't believe that the smallest particle would enter his lungs.

Q. Suppose he was insensible?

A. I have never seen an insensible person chloroformed. If a person is insensible, there is no reason for chloroforming.

Q. But suppose you wanted to kill him, you know he was asleep?

A. As soon as chloroform is administered to a sleeping person he would wake up immediately.

Dr. Harry M. Still stated he had seen Dr. Smith inject many cases at Kirksville and seen the subsequent work on the bodies, and was willing to corroborate all his statements. In reply to the question, "Have you seen the plastic material, in the lungs of any of the bodies injected by Dr. Smith?" he replied, "Certainly, in very many."

#### SKIAGRAPHY AND THE CIRCULATION.

(The following is a verbatim reprint of the article published by Dr. Smith in the American X-Ray Journal, Vol. 3, No. 6, St. Louis, December, 1898, with the exception of the pictures to which reference is made, as the engravings could not be obtained. Dr. Smith was able, however, to locate some of the negatives from which the prints were made, and the Fred Waller Company, 413 and 415 West Broadway, New York, made five specially good prints from them for the Sunnyside. We may state that the article was reprinted in the Journal of Osteopathy of January, 1899. The American X-Ray Journal of February, 1899, published a letter from Mr. Stevens, manager for Thomas A. Edison, thanking Dr. Smith for pointing out that sulphide of mercury was opaque to the X-rays. We may also add that Dr. Monell, when preparing his work on medical electricity, wrote to Dr. Smith, referring to the article and asking its author to contribute a chapter to his book and allow the use of the plates. Dr. Smith, who was in Europe at the time, received the letter too late to comply.—Ed. Sunnyside.)

It is probable that every teacher of anatomy has, at some period or other, felt in his inmost being a desire to see how the structures of the body appeared before being subjected to the mutilation of the knife and the necessary alteration of relations. This desire was satisfied in a great measure so far as the skeletal apparatus was concerned by the advent of the Roentgen rays; but the extreme permeability of the soft parts of the body rendered further observation of little value. In the case of the vascular apparatus an easy method appeared to be the injection of the arteries with some substance impervious to the rays, and, of course, the first agent thought of was mercury. Unfortunately the metal is very heavy and also has a tendency on

injection to be erratic in its distribution; as a consequence the mere weight of the injected material breaks down the smaller vessels, or, in other cases we find serious hiatuses in the resultant radiograph.

The school with which I am connected as Demonstrator of Anatomy recently secured a ten-plate Van Houten and Ten Broeck static machine, together with a Dennis fluorometer and a series of large sized Crookes' tubes, Monell type, and the idea entered my head to try and ascertain whether it was not possible to devise some system of arterial injection which should comply with the following requirements: First, be of such consistence as to be readily injected into the smallest vessels without solution of continuity; second, be almost, if not quite, as impervious to the rays as is bone; third, to be of such consistence, either on injection or immediately thereafter, as not to tend to gravitate to the more dependent parts of the body and so leave the higher vessels devoid of injection; fourth, be of such weight as not to rupture the smaller vessels. On these lines I made some experiments, and now present to the American X-Ray Journal some account of my method and its results, prefacing what there is to be said by the remark that my work in this line is only in its infancy.

The first problem to be considered was as to what material would most efficiently interrupt the rays, and at the same time be readily introduced into the arteries. Metallic mercury for the reasons previously given I did not consider; solutions of salts I believed would be impractical as, in order to produce opacity, it would be necessary to wait for either precipitation or drying, and in either case the tendency to settlement in the more dependent parts was certain. I was therefore compelled to discover some agent which might be mixed with substances which would carry it into the body, hold it in suspension and then harden with it in position. I tested a few salts with the fluoroscope and found that vermilion (the bi-sulphuret of mercury, or red sulphide) was very opaque to the rays; the Chinese being rather more so than that produced in this country. In Fig. 1 I show the two specimens, (Chinese and the domestic article) as compared with such objects as a silver quarter-dollar and an ebonyhandled dissecting scalpel. The little mass above the scalpel in the picture is the Chinese product. (And let it be noted that the vermilion is almost as opaque as metallic silver.)

Having found my agent to be introduced, the matter of its method of introduction now arose; its settlement was easy. In my work as demonstrator I inject in all my subjects an arterial filling of tallow and spermaceti with coloring matter. It is more troublesome to produce than a plaster injection, but the result amply justifies the extra trouble. I made up a compound of tallow and yellow beeswax, selecting the latter in place of spermaceti as it hardens rather slower and also produces a mixture which is not quite as brittle as that made with spermaceti; the proportions being made simply by a process of "guess," adding more and more beeswax until the consistency of the mixture when cold satisfied me. In the same manner I added my vermilion, taking a drop of the compound and examining it on the fluoroscope until the opacity of the mixture led me to believe that a body injected with it would have its arteries sufficiently clearly defined by the rays to be capable of skiagraphic delineation. In Fig. 1 a small, regularly shaped object is seen at the top of the cut; that is a drop of the injected wax allowed to fall on a smooth surface, which after cooling was cut into that shape. The thickness is precisely that of the silver quarter, as also is that of the two masses of vermilion. It can thus be readily seen that the opacity of the material is marked, but that the particles of vermilion have been so far sep-

arated by the menstruum that the rays could readily pass between them and thus render the opacity very materially less than in the pure powder.

Having settled the preliminary points, all that remained was to inject some bodies with the mixture and then determine whether or not it was a success; first by fluoroscopic observation; second, by skiagraphy. The technique of the injection process is not difficult but disagreeable. I selected four bodies for the purpose, and from three of them illustrations accompany this article. Each body was first immersed completely in a bath of water heated to a temperature of 45 C. and the water was then kept at that temperature for two hours. During the latter part of this time the mixture for injection was heated to a point somewhat under the boiling point of water. Immediately upon the removal of the body the injection was made, the vessel selected for the purpose being the femoral (A) for the reason that I judged, it being in a fairly central part of the body, the distribution of the liquid would be more rapid throughout the arterial system. As an artificially heated body cools very rapidly (extremely rapidly as compared with postmortem cooling) this is an important point in any injection with material which is used hot, so also, to save time, it is well to expose the artery before immersing the body. The injection was made with a metal syringe holding about thirty ounces, through specially made nozzles provided with stop cocks. The arteries were injected as fully as possible, save in one case shown where the injection was cut off from certain parts in order to exhibit the difference in appearance. The body was not moved after the injection was made until it was quite cold; and then extreme care was taken to avoid flexion of any part which would, naturally, have broken the continuity of the hardened mass of coloring matter.

The accompanying illustrations were all made from three bodies, as already stated; the first was the body of a male aged 35, slight build (No. 1); the second was a colored female 22 years of age, medium build (No. 2); the third, an aged negro, spare but muscular (No. 3). In Fig. 2 No. 2 is shown on the fluorometer table. The position is that as the radiograph of the thorax was being taken. It will be noticed that the body is that of a fairly well-built woman with a thorax by no means flattened.

The statement has been made that dead tissue is very much more impervious to the rays than living. Accordingly I made the exposure longer. But in Fig. 3 is seen a controversion of the statement. The two hands there shown are the right hand of No. 1, and the corresponding hand of a young woman who kindly placed her hand on the plate and allowed me to use it in comparison. Both hands were about the same thickness; the tube was so placed as to shed its radiance on a point precisely between the two; the exposure was three minutes. In the photograph both are exactly the same in clearness of definition. This fact was not, however, ascertained until I had made all of the other radiographs; hence the far longer exposure which is recorded in connection with each.

Fig. 4, hand of No. 1, shows very clearly the radial and ulnar arteries, as also the anterior and posterior interosseous, also the anterior carpal branches of the radial and ulnar, and the various digital branches. Length of exposure, 10 minutes.

Fig. 5 is placed next in order to show in contrast to the last an abnormal condition of the arteries. This is the hand of No. 3; (B) and here we see a magnificent illustration of the tortuosity of the vessels in the aged, consequent upon the hardening of the vessels and their loss of elasticity leading to increase in their length. Note

here that even in the small digital branches this is well demonstrated. Exposure, 10 minutes.

Fig. 6 is taken from No. 1, and here are seen the internal and external plantar arteries, with the plantar arch and digital branches. The exposure here was 12 minutes, but owing to the density of the tissues of the foot and the greater size of the bones the arteries are not seen as clearly as are those in the hand.

Two feet are seen in Fig. 7, these are from No. 2; in this case one foot and one hand were shut off from the injection by strong pressure on the arterial trunks. One foot is thus seen uninjected while the other shows plainly the track of the vessels. In Fig. 8 the hand in this case is shown, the radial and ulnar arteries are seen distended and distinct, their branches are invisible.

Fig. 9 is the elbow of the same case, here are seen the following vessels, the brachial bifurcating into the radial and ulnar; branches of the superior and inferior profunda and the anastomosing branches from the radial and ulnar. Note in this case the clearness of definition of the very small branches from the two profunda arteries.

In Fig. 10 is seen another pathological condition; No. 3 had at some time sustained an amputation through the junction of the middle and the lower third of the thigh. The femoral artery has here (C) undergone consequent atrophy, (to a very great extent at least,) and in its lower part exists only as a very slender and rapidly diminishing trunk. In this case note that the injection has been broken subsequent to its introduction; also that, while the amputation had evidently been done long before, the bone is not rounded off. Exposure, 10 minutes.

Next follow three radiographs which I consider of special interest, none so extensive of injected subjects, so far as I am aware, having ever been attempted, and I am not a little pleased with my success on this first trial. Fig. 11 shows the thorax of No. 1. Here are well seen the base of the heart with the arch of the aorta and its branches. The axillary artery lying in close relation with the neck of the scapula giving off the circumflex (which one, whether anterior or posterior, I am unable to say) and the subscapular. In the case of the latter it is interesting to note the curious twist; the artery requires the means for increasing and diminishing its length to accommodate to the movements of the shoulder. Nature has made provision. Compare this artery with the same in Fig. 12. Here also we see well the carotids in the neck, together with the vertebrae. In these last three illustrations special care was taken to have the Crookes' tube exactly over the center of the object to be depicted, and the anode level with the horizon. Hence we have, in each case, an almost absolutely symmetrical picture. Exposure, 60 min. Another thorax is shown in Fig. 12, (D) that of No. 2; the same remarks as in the last case would apply in this, save that on one side it appears as though the axillary artery were double; this, however, may be only apparent, as in more than one case of employing hot injections I have found that the injected material has passed through the capillaries in a part and thus filled the veins. Here it seems too thorough, and in cases where colored wax passes through the capillaries it is always found of a distinctly lighter hue in the veins, much of the coloring matter having been filtered out in the capillaries. Here both vessels appear equally opaque, I am thus inclined to believe that we have a double axillary artery. Time of exposure, 70 minutes.

The position of the tube in the cases of the two thoraces was precisely similar. It may be noted that the structures in the neck of No. 1 are much more distinct than in No. 2; the difference is due to the facts that in the female subject there existed a

large goitre which, being so highly vascular, was distended with the injection and so tended in a marked degree to obscure the sublying vessels and bones.

Fig. 13 is a view of the pelvis of No. 2. This was somewhat disappointing to me as the pelvic vessels are not clearly defined. When one considers, however, the vascularity of the parts, and that all the vessels are filled with material somewhat opaque, it is not at all wonderful that even an exposure of 70 minutes should not show more clearly such large structures as the aorta and the iliac arteries. They all lie deeply, are covered by vascular structures, and these simply render the picture very cloudy. The superficial and deep femoral arteries are well seen, the internal and external circumflex branches of the latter; the obturator lying in relation faintly, the sciatic and comes nervi ischiadici. The girl from whom this illustration was taken had the narrowest pelvis which I have yet noted; the distance between the anterior superior spines was only 17.5 cm. while she was a little above medium height and of normal build in every other particular.

As regards the height at which the tube was elevated above the plate; this varied from 30 cm. in the case of the hands, to 70 cm. in the case of the thorax and pelvis. The height in the latter cases was estimated with regard to the area to be covered.

While writing this paper I have before me reproductions of the photographs from which are made the illustrations which accompany it. (E). These are larger and of course clearer than any half-tone can be; it may be, therefore, that my remarks do not apply with exactitude to the figures in the Journal.

To Dr. David Littlejohn, who has charge of the X-ray Department in the school with which I am connected, and in which these experiments were carried out, I have to express my thanks for much valuable assistance; while Mr. Lee Hickman, a student, also merits acknowledgement for his very careful handling of the plates in development.

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#### OPERATIVE SURGERY AT A. S. O.

BY W. O. POOL, MEMBER P. G. CLASS.

At this date the course in operative surgery and experimentation, being given by Dr. G. A. Still, on dogs and smaller laboratory animals, is of absorbing interest to P. G's.

The course was opened by spending a few days in a thorough study of abscess formation and tissue repair. The subject of antiseptics was next taken up and exhaustively dealt with by the lecture and quizz method. An experiment was then carried out to determine the most effectual and practical method of rendering the hands aseptic for an operation. Members of the class whom, for convenience, I shall designate as Nos. 1, 2, 3, 4, 5, 6 and 7 made cultures on Petri dishes of sterile agar in the following manner:

No. 1. washed his hands for three minutes in a five per cent solution of carbolic acid, then in sterile water and some of this water was used for the culture. No. 2 washed five minutes in pure water. No. 3, three minutes in a five per cent solution of lysol; No. 4, three minutes in a 1-500 solution of corrosive sublimate; No. 5, scrubbed nine minutes in warm water with soap, and No. 6, scrubbed twenty-five minutes with soap in warm water. Each one then rinsed his hands in sterile water, and washed again separately in sterile water. Cultures were made from the water used in this last washing. No. 7 was a culture made from the unpolluted sterile water itself. The Petri dishes were then placed in the incubator, and the culture kept at a temperature of 37 C. for 24 hours. They were then removed and kept outside for 24 hours.

Inspection of the cultures at the end of the 48 hours showed that numerous colonies of germs had developed in every dish except Nos. 6 and 7. No. 6 contained a single colony while No. 7 contained two colonies. Smears taken from any of these cultures and stained showed thousands of pus forming organisms, under the microscope.

This simple experiment proves conclusively that any attempt to render the hands aseptic by an ordinary soap and water wash, and then dipping in any of the solutions such as 5 per cent carbolic acid, 5 per cent lysol, or 1-500 corrosive sublimate is a farce. For even after the hands had been washed clean in soap and water, which I failed to mention above, and then washed from three to five minutes in these solutions the cultures showed thousands of colonies. On the other hand, the experiment proves just as conclusively that nearly absolute asepsis can be attained by mechanical means. For culture No. 6 developed only one colony, which could be easily accounted for through the water since culture No. 7, having been made from the source of sterile water used in No. 6, developed two colonies.

The practical work as outlined by Dr. Still, which outline has been followed for nearly two weeks, consists of making wounds under both septic and aseptic conditions, and of watching the changes which take place during the process of repair; also, of watching the progress of repair under different methods of dressing. Then a graded set of operations will be taken up, ranging from a skin and nerve resection through amputations and abdominal operations to that of putting in a Murphy's button. The student will thus learn in a very practical manner what is the best method of dressing a wound; and how to recognize what is wrong when a wound is doing badly. He will gain that confidence in himself which comes from having actually cut into live flesh, taken care of the hemorrhage, and sewed up the wound.

That the work may be done systematically and all members have an equal opportunity the class has been divided up into groups of six each. And the members of each group have been given a definite order by which they are to succeed each other in doing the different parts of work about an operation. The positions in the order of chief surgeon, assistant, clean nurse, dirty nurse, anaesthetist, and sterilizer, and the work falling to each one, were all explained in detail before any operation was performed. The operations of skin and nerve resection already done, have been successful, and the animals are doing well.

In order that the development of certain infections may be studied from the beginning, experiments have been begun on a number of young rats. Two of the animals were given a peritoneal injection of a solution made from a pure culture of tubercle bacilli. The third animal was infected on a fresh wound with pure culture of the Ray fungus or actinomycosis. While the fourth animal was given a dorsal hypodermic injection of a solution made from pure culture of tubercle bacilli. The animals were then marked to avoid any possible mistake in the record of developments. After a study of the course of these infections has been made for a time, the animals will be killed and microscopic mounts made from the various organs for microscopical study.

Particularly interesting also is the study of the blood of healthy and infected animals and humans and the study under the microscope of the cross-sections of healing and infected wounds.

A LETTER TO THE MEMBERS OF THE MISSOURI OSTEOPATHIC ASSOCIATION  
FROM THEIR PRESIDENT.

\* \* \*

Some Weak Points Found in Actual Practice Among the Osteopathic Practitioners,  
Both Among the Pioneers and Recent Graduates.

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The Slogans for the Coming Year Being "Original Research," "Technique" and  
"Prognosis."

\* \* \*

DEAR DOCTORS:—

I greet you with the compliments of the season and desire to give you a message of cheer in the good work you're engaged in and ask your indulgence until we set forth the battle cry for our next state convention.

We have encouragement from the Presidents and Secretaries of all the organizations both state and district in the states of Iowa and Illinois in helping us to make the meeting, as last year, a tri-state affair.

We have set a high standard for this year and hope by so doing to bring out the best in our membership. Last convention was a good one and to excel, we will have to work.

Great strides are now being made in our profession and our state; the home of osteopathy should lead.

It is our purpose, and we are assured of co-operation from those who have already appeared at the front, to make three things the predominant features.

Let the slogans be original (1) "Research"; (2) "Technique;" (3) "Prognosis." It is on these three we hope to center all our big guns and we hope to hear from you as one of the big guns.

Possibly you have never spoken before a convention but in your way have been doing something. We want you to write us your thoughts on these subjects so that the best can be given at the convention.

In an inverse order we shall speak a word about each of these.

First—Prognosis, you all know is a very weak point among the practitioners of to-day and has been from the time the first class was inaugurated. With no text book guides at first and limited experience it was necessarily so. It now behooves us to correlate the knowledge we have so that we may be able to speak with an air of certainty as to the outcome of each individual case. We would like to know from what mechanical precision or what other procedure, do you, as an osteopath, base your prognosis.

Second—Technique. By what laws of physics or natural philosophy have you made a change in your daily labors. The old Doctor beginning with this law "A free flow of blood means health, any obstruction to that flow means disease" was not satisfied to stop. He was constantly on the alert and changing his technique, so as to use the best way in removing that obstruction, when new cases presented themselves with different phases of symptoms produced apparently by the same cause.

I agree with Dr. Ashmore's article of December, '06 Journal of Osteopathy, "That too little attention is now being paid or has ever been to technique."

With our busy toils and excessive labors in the practice and in educating the public, we have found it very arduous for many of us to do much research work. However there is time for all of us to devote more time to the study of natural philosophy, the rules of mechanics, in fact we should give it an equal proportion of thought

with our anatomy and physiology. By studying the laws of mechanics, we will find there are other things to do, than to use simply extension, flexion and rotation. Carry daily in your work a steel rule, take more measurements and be exacting in your diagnosis and with such a precision that you can tell from the flexibility, rigidity or flability of the machine you have in mind, how to make your prognosis.

A strong feature will be individuality. You have your way, and we want it. It is an injustice to yourself to think that your way is like that of others. It is not, in some very important way, yours is different. The technique of osteopathy is practically an unwritten chapter in the great book of osteopathy and it is right here where we want our state association to lead.

Third—Original research work. In other states we have some people who are doing a great deal along this line, as well as here. To speak of McConnell, of Pearce, of Louisa Burns, of Geo. Laughlin, of Goetz and of Harry Forbes, brings to our mind's eye some certainties. Now we also want to hear from you doing something, possibly you are. What is it? Are you delving deeper into the mysteries of life and in a systematic and continuous manner, if so, that is what we are anxious for.

The tri-state meeting of last year marked an era in the history of osteopathy with its wealth of original material, to its osteopathic, gynecological, obstetrical and surgical clinics, therefore we must at once conclude, that if our next meeting is to be its equal, we must continue to present original investigations as well as clinics of added interest that shows the broader scope and application of osteopathic therapeutics.

ATTENDANCE.

Remember that the fundamental element that contributes to a successful meeting is a larger attendance, and if we are alive to the progress of our profession, it becomes not only our pleasure but our imperative duty to attend.

Don't forget to suggest ways and means to make this next meeting of the Missouri State Association the greatest osteopathic meeting ever held. We want your aid and co-operation at all times.

We thank you in advance for the spirit in which you will receive this communication and feel now that our meeting will be a grand success. Do not wait, but inform me at once by personal letter just what I may expect from you at our next convention.

I am,

Your obedient servant,

HOMER EDWARD BAILEY, D. O.

President M. O. A.

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DETROIT OSTEOPATHIC ASSOCIATION.

The annual election of officers of the Detroit Osteopathic Association, held in Feb. 13th, resulted as follows:

Pres., Dr. Chas. L. Severy; Vice-Pres., Dr. David Mills; Sec.-Treas., Dr. Carrie B. Taylor-Stewart. Board of Directors: Drs. Edythe Ashmore, Chas. Bennett and J. M. Church.

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NEW ENGLAND OSTEOPATHIC ASSOCIATION.

The third annual convention of the New England Osteopathic Association was held at Copley Square Hotel, Boston, Mass., Saturday, January 19, and the following interesting and much enjoyed program was presented:

MORNING SESSION:—Reading of Minutes; Reports of Officers; President's Address;

Tuberculosis, Dr. Guy E. Loudon, Burlington, Vt.; Clinic, Cervical Region, Dr. C. P. McConnell, Chicago, Ill.; Address, Dr. S. A. Ellis, Boston. Appointment of Nominating Committee. Adjournment.

AFTERNOON SESSION:—Clinic, Chronic Tonsillitis, Dr. Ralph A. Sweet, Providence, R. I.; Paper, Gynecology, A Comparative Study, Dr. E. C. White, Watertown, N. Y.; Clinic, Innominate Lesions, Dr. H. Alton Roark, Boston. Business Meeting. Report of Nominating Committee; Election of Officers; Adjournment. A Banquet was given in the evening.

The convention was fortunate in being immediately preceded by Dr. Carl P. McConnell's lecture and stereopticon presentation of "Osteopathic Research." As usual, Dr. McConnell was a source of inspiration for every D. O. present.

The newly elected officers are as follows: Pres., Ralph A. Sweet, Providence, R. I.; 1st Vice-Pres., W. D. Emeny, Manchester, N. H.; 2nd Vice-Pres., Margaret L. Laughlin, Norwich, Conn.; 3rd Vice-Pres., C. D. Wheeler, Brattleboro, Vt.; Sec., Florence A. Covey, Portland, Me.; Treas., J. Edward Strater, Providence.

Respectfully,

FLORENCE A. COVEY, Secretary.

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#### WOMAN'S OSTEOPATHIC ASSOCIATION OF KANSAS CITY, MO.

The Woman's Osteopathic Association of Kansas City, Mo., celebrated the first anniversary of their organization on the evening of Feb. 5th.

The following program was given: "The Past of Our Association," by Dr. Bertha F. Whiteside; "Professional Ethics," by Dr. Mary E. Harwood; "The Future of Our Association," by Dr. Mathilde Loper.

A lecture on the "Diaphragm" was to have been given by Dr. Anna I. Peters but she was unable to be present, much to the regret of the association.

After the program, a chafing dish luncheon was served and the remainder of the evening was spent in a social way.

The officers elected for the ensuing year are: President, Dr. Anna I. Peters; 1st Vice-President, Dr. Nellie M. Cramer; 2nd Vice-President, Dr. Bertha F. Whiteside; Treasurer, Dr. Katherine A. Loeffler; Secretary, Dr. Mathilde Loper.

The W. O. A. meets the first Tuesday evening of each month at 8 o'clock at 520 New Ridge Building. A cordial invitation is extended to all lady D. O.'s. who may be visiting in the city.

Applied Anatomy has been the general subject studied the past year and with clinical demonstrations much valuable work has been accomplished. The association enters with enthusiasm upon its second year's work and expects good results therefrom

MATHILDE LOPER, Sec.

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#### SAN FRANCISCO OSTEOPATHIC ASSOCIATION.

The second annual meeting of the San Francisco Osteopathic Association was held in Oakland, Feb. 2, 1907, and was attended by representative osteopaths from all the cities about the bay, several of the southern and most of the northern cities. There being about seventy-five good wide-awake osteopaths at both the afternoon and evening sessions.

The following program was rendered: Address of Welcome by Dr. Frank Martin, president of the association. Clinic presented by Dr. Rule of Stockton. Demonstration of Correction of Lesion by Dr. Meacham of Oakland. Paper on Obstetrics by Dr. Myrtle Herrmann of Alameda. Discussion by Drs. Harris, Vanderburgh,

Rule and Meachem. Paper—Case reports by Dr. Josephine Jewett of Berkeley. Clinic—Tubercular Hip, presented by Dr. Willcox of Oakland. Demonstration by Dr. Forbes of Los Angeles. Clinic—Anterior Polio Myelitis, presented by Dr. Cooper of San Francisco—demonstrated by Dr. Forbes. Clinic—Goitre, by Dr. Penland of Berkeley. Clinic—Congenital Hip Dislocation, Dr. Cooper. Clinic—Anterior Polio Myelitis, Dr. Ponting.

Dr. Tasker of Los Angeles explained the legislative situation, the happy solution of which caused a great deal of rejoicing among all the practitioners.

EVENING SESSION:—The secretary read a letter from our former president, Dr. William Horace Ivie, who is now in Kirksville doing post-graduate work. His words of cheer and suggestion were warmly received.

Paper—Gynecology from a Practical Standpoint, Dr. Effie E. York of San Francisco; Blood Pressure—Dr. Meachem of Oakland; Cervical Lesions and Clinical Demonstrations, Dr. Sheldon of San Francisco.

SUSAN ORPHA HARRIS, Sec.-Treas.

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#### OREGON OSTEOPATHIC ASSOCIATION.

The fifth annual convention of the Oregon Osteopathic Association was held in Portland, January 12th, 1907, and was well attended.

Our legislature convened on January 14th, so the question of a Protective Law overshadowed all else. Dr. Chas. C. Teall, who has come from New York to lead our fight, made several addresses urging diligence and co-operation and reviewing the history of efforts in other states.

In addition the association enjoyed an exhibition of joint dislocations, by Ellis Whitman, the so-called "Human Rattle-Box."

The officers elected for the ensuing year are: President, Dr. G. S. Hoisington, Pendleton; 1st Vice-President, Dr. F. E. Moore, La Grande; 2nd Vice-President, Dr. W. L. Mercer, Salem; Secretary, Dr. Mabel Akin, Portland; Treasurer, Dr. C. E. Walker, Portland. Board of Trustees—Dr. R. B. Northrup, Portland; Dr. Gertrude L. Gates, Portland; Dr. F. J. Barr, Portland; Dr. H. L. Leonard, Portland; Dr. M. G. E. Bennett, Eugene. Legislative Committee—Dr. W. A. Rogers, Portland; Dr. O. F. Akin, Portland; Dr. B. P. Shepherd, Portland; Dr. W. L. Mercer, Salem; Dr. R. B. Northrup, Portland. Program Committee—Dr. Hezzie C. P. Moore, La-Grande; Dr. Clara Macfarlane, Portland; Dr. H. L. Studley, Roseburg.

Fraternally, MABEL AKIN, Sec'y.

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#### MICHIGAN OSTEOPATHIC LAW.

Public Acts 162, 1903.

AN ACT

To regulate the practice of osteopathy in the state of Michigan to provide for the examination, licensing and registration of osteopathic practitioners, to appoint a State Board of Osteopathic Registration and Examination and for the punishment of offenders against this act and to repeal acts and parts of acts in conflict therewith. The People of the State of Michigan enact:

Section 1. There shall be a State Board of Osteopathic Registration and Examination, consisting of five persons, appointed by the Governor by and with the advice and consent of the senate, in the following manner, to-wit: Within thirty days after the passage of this act, the Governor shall appoint five persons having the qualifications required by this section, who shall constitute the first Board of Osteopathic Registration and Examination. The terms of office shall be so designated by the Governor that the term of one member shall expire each year, these several periods

to date from May first, nineteen hundred three. Thereafter, in each year, prior to May first, the Governor, by and with the advice and consent of the senate, shall, in the same manner, appoint one person to fill the vacancy to occur on the board on that date, from expiration of term. A vacancy occurring from any other cause shall be filled by the Governor for the unexpired term in the same manner by and with the advice and consent of the senate, if in session when such vacancy occurs, or in other cases subject to the approval of the senate at its regular session.

Each person appointed as a member of the board, shall, before receiving his certificate of appointment file with the Governor a certificate of the Michigan State Osteopathic Association, a corporation duly organized under the laws of the state of Michigan, under the seal of its president and secretary, setting forth that the person named in the certificate is a graduate of a reputable school of osteopathy; that he has been engaged in the practice of osteopathy in the state of Michigan for two years or more; that he is of good moral character; and that he is of good standing in his profession. The Board shall organize by electing a president, secretary and treasurer, each to serve for a term of one year. The treasurer shall give a bond in the sum of five thousand dollars with sureties approved by the board for the faithful discharge of his duties. The secretary shall receive a salary to be fixed by the board, of not exceeding six hundred dollars per annum. The members of the board shall each receive their annual expenses for the time actually employed in the discharge of their duties. The board shall have a common seal, and shall formulate rules to govern its actions. Its president and secretary shall have power to administer oaths. The board shall meet in Lansing on the first Tuesday of September of each year, and at such other times as a majority of the board may appoint. Three members of the Board shall constitute a quorum but no certificate to practice osteopathy shall be granted on an affirmative vote of less than three. The board shall keep a record of its proceedings, and a register of all applicants for certificates, giving the name and location of the institution granting the applicant the decree of Doctor of Osteopathy, the date of his diploma, and also whether the applicant was rejected or a certificate granted. The books and register of the board shall be prima facie evidence of all matters recorded therein.

The board shall create no expense exceeding the sum received from time to time as fees and fines therein provided.

Section 2. Any person before engaging in the practice of osteopathy in this state, shall, upon the payment of a fee of twenty-five dollars, make application for a certificate to practice osteopathy to the Board of Osteopathic Registration and Examination, on a form prescribed by the board, giving first, his name, age — which shall not be less than twenty-one years—and residence; second, evidence that such applicant shall have, previous to the beginning of his course in osteopathy, a diploma from high school, academy, college or university, approved by aforesaid board; third, the date of his diploma, and evidence that such diploma was granted on personal attendance and completion of a course of study of not less than three years of nine months each, and such other information as the board may require: fourth, the name of the school or college of osteopathy from which he was graduated, and which shall have been in good repute as such at the time of the issuing of his diploma, as determined by the board. The board may, in its discretion, accept as the equivalent of any part of all of the second and third requirements, evidence of five or more years' reputable practice of osteopathy, by an osteopathic practitioner located in the state

at the time of the passage of this act: Provided, such substitution be specified in the certificate. If the facts thus set forth, and to which the applicant shall be required to make affidavit, shall meet the requirements of the board, as laid down in its rules, then the board shall require the applicant to submit to an examination as to his qualifications for the practice of osteopathy which shall include the subjects of anatomy, physiology, physiological chemistry, toxicology, pathology, bacteriology, histology, neurology, physical diagnosis, medical jurisprudence, obstetrics, gynecology, minor surgery, hygiene, principles and practice of osteopathy, and such other subjects as the board may require. If such an examination be passed in a manner satisfactory to the board, then the board shall issue its certificate granting him the right to practice osteopathy in the state of Michigan. Any person failing to pass such examination may be re-examined at any regular meeting of the board within a year from the time of such failure, without additional fee. Any person engaged in the practice of osteopathy in this state at the time of passage of this act who holds a diploma from a regular college of osteopathy as determined by the board, and who makes application to the State Board of Osteopathic Registration and Examination before January first, nineteen hundred four, upon the payment of a fee of five dollars, shall receive a certificate from the Board without examination, which, when filed with the county clerk in the county where he resides, shall authorize the holder thereof to practice osteopathy in the state of Michigan, but shall not permit him to practice medicine within the meaning of act number two hundred thirty seven of the public's acts of eighteen hundred ninety-nine or acts amendatory thereto: Provided further. That the board may, in its discretion, dispense with an examination of the case, first, of an osteopathic practitioner duly authorized to practice osteopathy in any other state or territory, or District of Columbia, who presents a certificate or license issued after an examination by the legally constituted board of such state, territory or District of Columbia, accorded only to applicants of equal grade with those required in Michigan, or second, an osteopathic practitioner who has been in the actual practice of osteopathy for five years, who is a graduate of a reputable school of osteopathy, who may desire to change his residence to Michigan and who makes application on a form to be prescribed by the board, accompanied by a fee of twenty-five dollars.

The Board of Osteopathic Registration and Examination shall refuse to issue a certificate of registration provided for this section to any person guilty of grossly unprofessional and dishonest conduct.

Section 3. All fees shall be paid in advance to the treasurer of the board, and by him at once covered into the state treasury to the credit of a continuing fund, which is hereby appropriated for the use of the State Board of Osteopathic Registration and Examination. The compensation of the secretary and expenses of members and officers of said board, and all expenses proper and necessary in the opinion of said board to discharge its duties under and to enforce the law, shall be paid out of such fund, upon fully itemized bills certified by the president and secretary as having been duly authorized by the board. Such bills shall be presented to the Auditor General who shall draw his warrant upon the State Treasurer for the payment thereof.

Section 4. The certificate provided for in section two of this act shall entitle the holder thereof to practice osteopathy in the state of Michigan, but it shall not authorize him to practice medicine and surgery within the meaning of act number two hundred thirty-seven of the public acts of eighteen hundred ninety-nine or acts amendatory thereto: Provided, That nothing in this act shall be so constructed as to

prohibit any legalized osteopath in this state from practicing medicine and surgery after having passed a satisfactory examination before the State Board of Medical Examiners in the state of Michigan. Osteopathic practitioners shall observe and be subject to the state and municipal regulations relating to the control of contagious diseases, the reporting and certifying of births and deaths, and may have the right to certify to births and deaths.

Section 5. Every person holding a certificate from the State Board of Osteopathic Registration and Examination shall have it recorded in the office of the county clerk of the county in which he expects to practice, and the date of the recording shall be indicated thereon. Until such certificate is filed for record the holder shall exercise none of the rights or privileges conferred therein. The county clerk shall keep, in a book provided for the purpose, a complete list of all the certificates recorded by him, with the date of the recording of each certificate. Each holder of a certificate shall pay to the county clerk a fee of one dollar for making such record.

Section 6. Any person who shall practice or attempt to practice, or use the science or system of osteopathy in treating diseases of the human body, or any person who shall buy, sell or fraudulently obtain any diploma, license, record, or registration to practice osteopathy, or who shall aid or abet in such selling or fraudulent obtaining; or who shall practice osteopathy under cover of any diploma, license, record, or registration to practice osteopathy, illegally obtained, or signed or issued unlawfully or under fraudulent representations; or who after conviction of felony shall practice osteopathy, or who shall use any of the forms of letters, "Osteopath," "Osteopathist," "Osteopathy," "Osteopathic Practitioner," "Doctor of Osteopathy," "Diplomate in Osteopathy," "D. O.," or any other titles or letter either alone or with qualifying words or phrases, under such circumstances as to induce the belief that the person who uses such terms is engaged in the practice of osteopathy, without having complied with the provisions of this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined not less than fifty dollars, nor more than five hundred dollars, or be imprisoned in the county jail not less than thirty days nor more than one year, or both: Provided, That nothing in this act shall be construed as prohibiting any other state or county meeting a registered osteopathic practitioner in this state for consultation; or any osteopathic practitioner residing on the border of a neighboring state, and duly authorized under the laws thereof to practice, whose practice may extend into this state, and who does not open an office or appoint a place of meeting or receive calls in this state; or any osteopathic practitioner duly registered in one county, called to attend isolated cases in another county. It shall be the duty of the prosecuting attorneys of the counties of this state to prosecute violations of the provisions of this act.

Section 7. This system, method or science of treating diseases of the human body known as osteopathy is hereby declared not to be the practice of medicine, or surgery within the meaning of act number two hundred thirty-seven of public acts of eighteen hundred ninety-nine of the state of Michigan and not subject to the provisions of said act: Provided, That this act shall not apply to any legally qualified medical practitioners practicing medicine and surgery, under act number two hundred thirty-seven of the public acts of eighteen hundred ninety-nine or acts amendatory thereto, nor shall this act apply to masseurs or nurses practicing massage or manual Swedish movements in this state.

Section 8. All acts or parts of acts in conflict with this act are hereby repealed.

# The Journal of Osteopathy

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## LEGISLATIVE REVIEW.

The hottest fight this month, as shown by the press and other reports has been that waged by the Oregon osteopaths under the able leadership of "Father" Teall. The entire Oregon press has been concerned with the bill, printing column after column of matter relative to the fight. The "Oregonian" paid Dr. Teall the compliment of saying that the osteopathic lobby was the best organized and most efficient of all except that maintained by the shippers. The "Statesman" of Salem, published a review of the bill as proposed by the osteopaths and amended in the committee, practically the standard A. O. A. bill, except that all so-called neuropaths, naturopaths, etc., could go ahead and practice osteopathy, provided they they did not call themselves osteopaths. In our judgment the amendment practically emasculated the bill as regards its effectiveness towards incompetents. All medical bills provide that the administration or prescription of drugs shall be considered the practice of medicine, but the osteopaths seem not to have learned the lesson and so fail to include in their bills that "spinal adjustment with remedial intent shall be considered the practice of osteopathy," or words to that effect. Until this is done an incompetent can start any old system he desires, advertise it as good or better than osteopathy, and go on taking in the shekels from those who, as Barnum said, love to be humbugged. The bill as amended failed to pass—perhaps it was a good thing. The medical substitute passed the Senate, Feb. 16, after a close and bitter fight. It provides for osteopaths having equal rights under the medical law, and for one osteopath on the board, which at present has three allopaths, one homeopath, and one eclectic.

We have not the exact details of the bill, but it appears to be very similar to that in Wisconsin, which osteopathically considered, is one of the best states in the Union. The bill has yet to pass the House. Mrs. F. E. Moore has been assisting in the lobby, but gives all the credit to Dr. Teall.

\* \* \*

In California, where there has been so much internecine strife, the practitioners are trying to get together and pass a law which will hold water. The following explains the situation at the Golden Gate.

SAN FRANCISCO, CALIF., Feb. 4, 1907.

DEAR DOCTOR: At a conference held in Sacramento, January 29th, 1907, between Drs. Burke, Cooper, Sisson, York, Forbes and Tasker, a compromise agreement was entered into concerning the amendments to be offered to Assembly bill 241 in order to harmonize all interests. The amendments provide for appointment of Board by Governor from 15 D. O.'s recommended by State Ass'n., these to be selected by mail ballot. Also provides for licensing all D. O.'s in the State who hold twenty months' diplomas from legally authorized colleges and for licensing students upon graduation who have completed twenty months of their three year course in the osteopathic colleges in this State.

Please notify all legislative friends immediately that you now advocate Bill 241 in Assembly and 238 in Senate.

EFFIE E. YORK,  
Secretary of Osteopathic Association of Calif.  
1481 Geary St., San Francisco, Calif.

\* \* \*

The animals were loose again in Indiana, this time introducing a bill to force everybody to pass the medical examination in full before being allowed to practice healing in that state. Dr. M. E. Clark, who recently located at the capitol city, promptly removed the lesion, and the bill died a natural death in the committee. The State was saved the circulation of the toxic matter that might have resulted from the bill, had it passed.

\* \* \*

The latest news received from Texas was to the effect that the osteopaths were fighting the "one-board" bill proposed by the Medics "in the interest of harmony."

\* \* \*

Pennsylvania faces a similar proposition. The Philadelphia North American publishes a resume of the bill, a part of which follows:

That there shall be four State medical examiners in the council, no two to belong to the same state society.

The three State Medical Examining Boards are abolished, and in their stead there is to be, after March 1, 1908, one State Board of Medical Examiners, having nine members, to be appointed by the Governor, from lists of qualified members of State medical societies or associations.

The examiners will be empowered to require candidates for license to practice "medicine, surgery, or any of their branches," to do laboratory work, demonstrate on the human cadaver, and even practice at the bedside in convenient eleemosynary institutions.

Educational requirements are made stricter, and no new license is to be issued unless the candidate has passed a four-year course in a medical school, and, prior to that, has taken a course in some school or college having a four-year course of instruction.

\* \* \*

In Utah, the osteopaths present the spectacle of the lion and lamb,—not lying down together, but taking their respective bills to the Senate, and promising the Governor to be good provided he will sign both. The lion emitted one growl, by voting for the osteopath bill 15-2, while the lamb continued lamb-like and passed the Medic bill 17-0. We await further developments. The bills were the same introduced by both parties in the drawn battle of two years ago.

In Montana, the osteopathic board brought suit against a chiropractor, charging him with faking osteopathy. The suit was decided in favor of the state board and the chiropractor appealed.

\* \* \*

In Idaho, the Osteopathic Association submitted to the legislature a bill, which is entirely acceptable, except that it is deficient in not defining what shall constitute osteopathic treatment. After 1908, the three year clause to be in force, no mention is made of practicing surgery, but the examination is for the minor only; reciprocity and temporary permits are provided for; equal rights are guaranteed and M. D.'s, who have attended two terms of five months each, or after 1908 of nine months each, may practice osteopathy. The bill passed the Senate.

\* \* \*

New York osteopaths are still keeping up their fight in the newspapers, each side writing voluminous letters, having read which, few are the wiser, as each side devotes itself largely to telling what the other fellows want. Ultimately these are a source of good to the practitioners, however, as they excite popular interest and inquiry, through which the truth is finally made known. The speech of Mr. Littleton, of Brooklyn, before the Legislature, is a forceful statement of the osteopathic contention, and would make good campaign literature anywhere. It also shows the bull-dog determination of the New York practitioners, which always wins out in the end.

\* \* \*

On page 53 of this issue will be found the Michigan State Osteopathic Law. The Michigan state board was too poor to have its law printed but the Journal prevailed upon them to provide a typewritten copy. We publish the law in full for the benefit of the profession at large.

\* \* \*

#### BOOK REVIEWS.

The Practitioner's Medical Dictionary. An Illustrated Dictionary of Medicine and Allied Subjects, Including all the Words and Phrases Generally used in Medicine, with Their Proper Pronunciation, Derivation, and Definition. By George M. Gould, A. M., M. D., author of "An Illustrated Dictionary of Medicine, Biology, and Allied Sciences," "The Student's Medical Dictionary," "30,000 Medical Words Pronounced and Define," "Biographic Clinics," "The Meaning and Method of Life," "Borderland Studies," etc.; Editor of "American Medicine." With 388 Illustrations. Octavo; xvi x 1043 pages. Flexible Leather, Gilt Edges, Rounded Corners, \$5.00; with Thumb Index, \$6.00, net. P. Blakiston's Son & Co., Publishers, 1012 Walnut St., Philadelphia.

This book is in every respect and detail new. Its object is to supply the practitioner with trustworthy, modern definitions of essential medical words and terms. It is based on recent medical literature, and contains among other new features the terms of the Basle Anatomical Nomenclature (BNA).

It has been made up in a form most suitable for ready reference, complete in text and illustration, and attractive in appearance. Printed on tough, thin paper, excessive weight and bulk is eliminated, while the dull surface of the paper, together with the employment of new clear type, facilitate ease and comfort in reading. The book will lie perfectly flat at any page to which it may be opened.

The illustrations number 388, the pages xvi x 1043, thus exceeding any other work of claimed similar nature and scope.

## RESOLUTIONS.

Whereas: On February 2nd, 1907, we have sustained an irreparable loss in the death of our brother, Dr. Sylvester W. Hart, and,

Whereas: The profession has lost one of its ablest and best representatives, the city of Albany, a skillful practitioner—his associates a loyal friend and co-worker; therefore be it

Resolved: That we, in this great affliction, share with the bereaved wife, her sorrow, and hereby tender our heartfelt sympathy, and that copies of these resolutions be sent to the afflicted wife, to the local papers, to the osteopathic journals, and to the osteopathic society of New York.

A. O. A. Necrology Com.:

BESSIE A. DUFFIELD, Nashville, Tenn.

ALFRED BYRON KING, St. Louis, Mo.

WILLI L. BUSTER, Mt. Vernon, N. Y.

\* \* \*

## IN MEMORIAM—DR. SYLVESTER W. HART.

At a meeting of the Hudson River North Osteopathic Association, held the 2nd day of February, 1907, at the offices of Drs. Frink and Brown at Troy, N. Y., a committee was appointed to prepare a testimonial to the memory of Dr. Sylvester W. Hart.

## MEMORIAL.

With profound sorrow the members of the Hudson River North Osteopathic Association record the death of their beloved associate and charter member, Dr. Sylvester W. Hart, and bear witness to the irreparable loss this association and the profession at large have sustained.

In the death of Dr. Sylvester W. Hart this association is bereft of a life singularly strong in character and steadfast in purpose. He was ever courageous, sympathetic and possessed high ideals of life and of his profession. Dr. Hart's name and presence graced and honored the many positions of trust he was called upon to fill.

We, who have been so highly favored with his personal friendship and presence, recall with pride and gratitude his earnest and devoted service, his tireless labors, his unselfish sacrifices, his matchless loyalty and deep interest in the promotion of the welfare of his profession.

This association extends to the bereaved wife its heartfelt sympathy and directs that this memorial be entered upon its minutes.

J. H. McDOWELL, }  
ELIZABETH FRINK, } Committee

\* \* \*

## PERSONALS.

Dr. R. L. Starkweather has located in Cumberland, Maryland.

Dr. Ella X. Quinn of Baltimore, Md., is located at St. Augustine, Fla., for the winter. Dr. Quinn is enjoying good health and will welcome osteopathic patients intending to visit St. Augustine.

Dr. M. E. Clark, who has recently taken up his residence in Indianapolis, Ind., was honored with the presidency of the Indianapolis Osteopathic Society at its regular meeting on Wednesday, Feb. 6th. The doctor has also been elected president of the Obstetric Section of the A. O. A. meeting to be held at Norfolk the coming summer. With Dr. Clark at the head of this section the profession may look for something interesting.

Dr. Harry M. Gifford of Louisiana, Mo., has been appointed medical examiner of Camp No. 2067 Modern Woodmen of America at Louisiana. Three medical doctors

were also appointed examiners. Dr. Gifford sought the appointment and we congratulate him on his success.

Dr. Wm. S. Hartford of Champaign, Ill., has opened a branch office in the Ford and Saffell Building in Urbana, Ill.

Drs. W. A. and Jessie Fulton Streeter, who have been practicing in Worcester, Mass., and Dr. Georgiana Watson of Haverhill, Mass., sailed on February 16th for London, Eng., where they will locate for the practice of osteopathy.

Dr. Mabel Blake-Phelps of Schnectady, N. Y., and Dr. Corinne E. Larimore of Jan. '07, A. S. O., have opened offices in Suite 215-19 Garrett Block, Danville, Ill.

In last month's Journal we announced the removal of Dr. Louise Lewis from St. Louis to Clarinda, Ia. This was a mistake. Dr. Lewis has no intention of leaving St. Louis, but was visiting her mother in Clarinda.

\* \* \*

## VISITORS.

The following practitioners visited at the A. S. O. since our last issue: Drs. L. M. Robison, Fayette, Mo.; G. W. Coonfield, Dodge City, Kans.; Georgia A. Fix, Gering, Neb.; G. G. Graham, Centerville, Iowa, who brought two patients for examination; Riley D. Moore, Brookfield, Mo.; Kathryn A. Romig on her way to Philadelphia, Pa.; Carlyle W. Hamilton of Chicago, Ill.; E. J. Kampf of Fort Wayne, Ind.; O. M. Calland, Kansas City, Mo.

\* \* \*

## BORN.

Born—To Dr. and Mrs. E. Clair Jones, 459 Walnut St., Columbia, Pa., on January 19, a daughter.

Born—To Dr. and Mrs. Victor P. Urbain, 111 Dayton St., Hamilton, Ohio, on Feb. 5th, a son.

Born—To Dr. and Mrs. Charles Hazzard of New York City on Feb. 5th, a son.

Born—To Dr. and Mrs. John Rieger of Billings, Mont., on Feb. 12th, a son.

\* \* \*

## MARRIAGES.

Married—Tuesday, Oct. 16th, 1906, at Moscow, Idaho, Mr. Frank Price and Dr. Addie E. Fish. Dr. Fish-Price continues to practice at Moscow.

Married—Thursday, Feb. 14th, 1907, at 5229 Baltimore Ave., Philadelphia, Pa., Dr. Henry George Wolf and Dr. Luella May Chaney.

Married—Wednesday, February 6th, 1907, at New York City, Dr. Lamar Kuy Tuttle and Miss Marie Moreau. At home Thursdays after the first of March. The Clare Arms, Broadway and 124th St., New York, N. Y.

Married—Sunday, December 30th, 1906, at Shenandoah, Iowa, Mr. C. D. Dewey of Millburn, Ill., and Dr. Nettie Whiting of Shenandoah, Iowa.

\* \* \*

## DEATHS.

Died—Luverne Myron Taylor, infant son of Dr. and Mrs. A. Taylor of Northfield, Minn., on Feb. 4th, after about 14 hours illness of acute lobar pneumonia.

\* \* \*

## REMOVALS.

Dr. Charles S. Harper from Washington, Ia., to 606 Kansas Ave., Topeka, Kans.

Drs. Heisley & Heisley from Spokane, Wash., to 14½ East Main St., Walla Walla, Wash.

Dr. G. E. Thompson from Casey, Ill., to Elmwood, Ill.

Dr. Geo. M. McIntyre from 10 Loomis St., Chicago, to Suite 14 McKinnon Blk., Grand Rapids, Wis.

- Dr. R. W. Cain from Pagosa Springs, Colo., to 326-7 Empire Bldg., Denver, Colo.  
 Drs. H. A. & Mary G. Tucker from Van Buren, Ark., to Lockwood, Mo.  
 Dr. Charlotte Strum from Boerne, Tex., to 2329 University Ave., Des Moines, Ia.  
 Drs. W. E. Scott and Frances Butcher from Hydrick Bldg., to 11 E. Main St., Spartanburg, S. C.  
 Dr. Jno. A. Bell from Butler, Mo., to Hannibal, Mo.  
 Dr. Robt. P. Coulter from Childress, Tex., to Weatherford, Tex.  
 Dr. Geo. W. Perrin from Steele Bldg., to 524-5 Empire Bldg., 16th & Glenarm Sts., Denver, Colo.  
 Dr. W. H. Elmore from Bowling Green, Mo., to Chula, Mo.  
 Dr. A. E. Mac Galliard from Las Esperanzas, Mex., to Granite City, Ill.  
 Dr. O. C. Keller, from Tekoa, Wash., to Troy, Idaho.  
 Dr. R. B. Johnston from London, Ohio, to Webb City, Mo.  
 Dr. Annie McCaslin from 50 Highland Ave., to 68 E. North St., New Castle, Pa.  
 Dr. Sadie Day Root from Lake City, Ia., to 210 W. 8th St., Erie, Pa.  
 Dr. J. P. McCormick from 150 Highland Ave., to 506-7 Lawrence Savings & Trust Bldg., New Castle, Pa.  
 Dr. Willis N. Stuver has removed his office to Bowden Bldg., Brookfield, Mo.  
 Dr. Alon H. Gleason from State Mutual Bldg., to The Albion, 765 Main St., Worcester, Mass., where he will succeed Dr. W. A. Streeter.  
 Dr. T. J. Watson from Pueblo, Colo., to Broadway & 55th St., New York, where he has formed partnership with Dr. Graham.  
 Dr. Lizzie Heberer from Monmouth, Ill., to Vancouver, B. C.

\* \* \*

## ADDRESS OF GRADUATES OF THE JANUARY, 1907, CLASS.

- Adams, Edward..... Independence, Kans.  
 Amussen, Heber S..... Logan, Utah  
 Amussen, Jos. S..... Logan, Utah  
 Atherton, D. C..... Schenectady, N. Y.  
 Bakehouse, Clara..... Doniphan, Mo.  
 Banker, Chas. Freemont..... 184 Albany St., Kingston, N. Y.  
 Banker, Minerva Kellogg..... 184 Albany St., Kingston, N. Y.  
 Barbee, Lottie C..... 41 Sage-Allen Bldg., Hartford, Conn.  
 Bartley, M. B..... Tulsa, Ind. Ty.  
 Bashline, O. O..... Boyles Bldg., Grove City, Pa.  
 Baymiller, Minnie M..... Abingdon, Ill.  
 Bell, Annie E..... Care Standard Bank, Bradford, Ont., Canada  
 Beslin, F. P..... Aberdeen, S. D.  
 Best, A. E..... Mount Sterling, Ohio  
 Broderick, Kathryn..... 28 Jackson St., Torrington, Conn.  
 Burrus, M. C..... New Franklin, Mo.  
 Chappell, W. F..... Main St., Hannibal, Mo.  
 Clouse, D. H..... Loveland, Colo.  
 Cox, Martha Saunders..... Joplin, Mo.  
 Curtain, Katherine Elizabeth..... 216 Gifford St., Syracuse, N. Y.  
 Cobb, Geo. A..... Port Arthur, Texas  
 Dunnington, Wesley P..... 620 Real Estate Trust Bldg., Philadelphia, Pa.  
 Ecker, F. L..... 4042 Snyder Blk., Carthage, Mo.  
 Ecker, Myrtle L..... 4042 Snyder Blk., Carthage, Mo.  
 Fechtig, Louis R..... 37 Madison Ave., New York, N. Y.

- Fogle, William E..... Bath, N. Y.  
 Follett, E. G..... 541 W. 123rd St., New York, N. Y.  
 Forsee, W. E..... Loveland, Colo.  
 Gaddys, Cyrus J..... Shenadoah, Iowa  
 Gamble, H. L..... 41 W. 105th St., New York, N. Y.  
 Gillespie, Joannah..... Campbell, Texas  
 Gleason, Jennie C..... Akron, Ohio  
 Griggs, Lizzie..... Wheaton, Ill.  
 Goehring, Frank L..... R. F. D., Unity, Pa.  
 Hamilton, Carlisle W..... 669 W. Madison St., Chicago, Ill.  
 Hardy, Thomas C..... Ontario, Calif.  
 Holmes, Frank..... 1221 Sheridan Road, Chicago, Ill.  
 Henderson, John H..... Main St., Jamestown, N. Y.  
 Honska, Harry N..... 814 Lafayette St., Denver, Colo.  
 Horn, George Francis..... 503-4 Simonds & Adams Bldg., Haverhill, Mass.  
 Horn, Mary B..... 503-4 Simonds & Adams Bldg., Haverhill, Mass.  
 Horne, Tracy B..... Edina, Mo.  
 Howley, Edward..... Blue Earth, Minn.  
 Herdman, Sara F..... Denison, Texas  
 Johnson, H. C..... Barry, Ill.  
 Kampf, E. J..... Eureka Springs, Ark.  
 Kampf, F. H..... St. Charles, Mo.  
 Knight, Delia Gazley..... 41 West 105th St., New York, N. Y.  
 Kurtz, David P..... Lewistown, Pa.  
 Lake, Agnes..... 21 Ellery St., Cambridge, Mass.  
 Lake, F. B..... 21 Ellery St., Cambridge, Mass.  
 Larimore, Corrinne..... Danville, Ill.  
 Lathrop, Bessie..... La Harpe, Kans.  
 Lathrop, Ethel M..... Bismark, N. D.  
 Lathrop, Guy F..... Bismark, N. D.  
 Lathrop, Philip L..... La Harpe, Kans.  
 Leeper, Clarence..... Box 64, Albany, Ind.  
 Lycan, Jessie V..... 413-15 Grand Opera House Bldg., Macon, Ga.  
 Lee, John H..... Benton Harbor, Mich.  
 McCoach, Wm. Harris..... 140 Hoyt St., Buffalo, N. Y.  
 McFarland, A. H..... Lewiston, Idaho  
 McKinney, Lula..... Eureka Springs, Ark.  
 Martin, Frank C..... 1088 Franklin Ave., Columbus, Ohio  
 Mason, Hubert B..... Mineral Wells, Texas  
 Moore, Riley D..... 916 Virginia St., Sioux City, Iowa  
 Murphy, J. W..... Sherwin Bldg., Elgin, Ill.  
 Neville, J. L..... 331 Broadway St., Paducah, Ky.  
 Newton, G. H..... 657 Park Place, Brooklyn, N. Y.  
 Nicholl, T. H..... 323 Mint Arcade Bldg., Philadelphia, Pa.  
 Nichols, Adrain D..... St. Louis, Mo.  
 Nikolas, Kathryn..... 515 Sherman St., Fremont, Neb.  
 Oliver, W. Rollins..... 522 Locust St., Johnstown, Pa.  
 Phelps-Elding, Ada L..... 316-17 Shukert Bldg., Kansas City, Mo.  
 Proctor, Glenn J..... Fairdale, Ill.  
 Rankin, Florence..... Washington C. H., Ohio

Ramsey, J. E.	1024 Walnut St., Kansas City, Mo.
Rau, Marie Kettener	Rochester, N. Y.
Reckley, Mary Daisy	Box 77, Wellington, Colo.
Rude, C. C.	Mount Carroll, Ill.
Sanborn, R. W.	Akron, Ohio
Schwentker, Julius O.	Bath, N. Y.
Lee, John H.	Benton Harbor, Mich.
Sexton, Wm. H.	Philadelphia, Pa.
Shell, Nelle M.	Tampa, Fla.
Sims, Mary Lyle	Union, S. C.
Sinden, Harry Earle	840 Wash. St., Buffalo, N. Y.
Skyberg, Alice	201 Pennsylvania Blk., Riverside, Calif
Smallwood, George S.	657 Park Pl., Brooklyn, N. Y.
Smith, Arthur Newton	Schenectady, N. Y.
Smith, J. Marion	94 E. 35th St., Portland, Oregon
Smith, M. A.	Vance Bldg., South McAlester, Ind. Ter.
Swift, N. L.	Buffalo, N. Y.
Taylor, I. E.	Grand Junction, Colo.
Temple, Stephen	Prarieville, Mich.
Thompson, Bertha	Watertown, N. Y.
Thompson, Dessa Blackman	Cincinnati, Ohio
Thompson, Grace	Hopkins, Mo.
Thompson, H. E.	South McAlester, Ind. Ty.
Thompson, J. W.	Watertown, N. Y.
Tindall, H. F.	San Diego, Calif.
Tindall, Viola C.	San Diego, Calif.
Toole, Clementine P.	218 N. Pearl St., Dallas, Texas
True, Minnie W.	Kirksville, Mo.
Urban, H. L.	Maquoketa, Iowa
Urban, Grace D.	Maquoketa, Iowa
Vance, Arlyn L.	Fullerton, Calif.
Wakefield, William Howard	Union Saving Bnk. Bldg. Oakland, Calif.
Weegar, Percival Leeman	11 Allen St., Buffalo, N. Y.
Whitcomb, Vernon O.	"The Van Dyck," New York, N. Y.
Whitcomb, Mrs. V. O.	"The Van Dyck," New York, N. Y.
Williams, Juliette	3555 Olive St., St Louis, Mo.
Williamson, J. A.	Parsons, Kans.
Williamson, Alice Lowe	Parsons, Kans.
Wood, Fred	Coffeyville, Kans
Wynne, Ionia K.	Denison, Texas

\* \* \*

FOR SALE CHEAP—Good practice in thriving South Dakota town. Address "I" care Journal of Osteopathy.

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