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Prof. H. C. Pierce.



# THE Railway Surgeon

Vol. III.—No. 9

CHICAGO, SEPTEMBER 23, 1896.

Whole Number 61.

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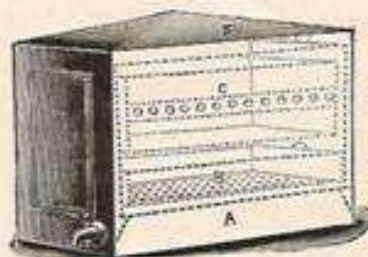
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The Laboratory teaching and facilities in Chemistry, Physiology, Histology, Pathological Anatomy and Bacteriology are unsurpassed, and the CLINICAL facilities of this College are unequalled.

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Medical Department of the Western University of Pennsylvania.

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The laboratories are open during the collegiate year for instruction in chemistry, microscopy, practical demonstrations in medical and surgical pathology, and lessons in normal histology. Special importance attaches to "the superior clinical advantages possessed by this College." For particulars, see annual announcement and catalogue, for which address the Secretary of Faculty

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# THE Railway Surgeon

Vol. III.

CHICAGO, SEPTEMBER 22, 1896.

No. 9.

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## THE RAILWAY EMPLOYES' HOSPITAL ASSOCIATION.\*

By DR. GEO. CHAFFEE, BROOKLYN.

Founder and Ex-President, New York State Association Railway Surgeons.

The history of this beneficent association dates back to the year 1869, when the late Mr. A. N. Towne, vice-president of the Central Pacific Railway, organized and put it in operation on that line. The association early became popular with railway men and its field of operation has been extended until the popular wave has reached the Atlantic coast via the Plant System and the C. & O. It has been thoroughly tested by conservative people, has become a fixed branch of the operating department and it is not at all likely that it will ever be abandoned. Prominent among the lines which have organized and are now operating the hospital association may be named the Great Northern, Northern Pacific, Union Pacific, Central Pacific, Southern Pacific, Denver & Rio Grande, Texas Pacific, Santa Fe, Missouri Pacific, Wabash, Big Four, Plant System and the C. & O. Steps are now being taken to organize this hospital association on the Erie Railway.

I am under obligations to Dr. W. H. Morehouse, chief surgeon of the Wabash Railway, for the accompanying photo of the Wabash hospital at Moberly, Mo., and for a brief description of the same, as follows:

"I send you by to-day's mail a photograph of our Moberly, Mo., hospital, with accommodations for about sixty patients. The dining-room, kitchen and nurses' sleeping rooms are in a building detached from the hospital building proper, but connected by a lighted and heated corridor. We thus have no kitchen odors in the hospital building. This photograph was taken immediately after comple-

\* Read by title at the sixth annual meeting of the National Association of Railway Surgeons, at St. Louis, Mo., May, 1895.



tion of the building, when the ground was in a rough state. Since then we have a beautiful, smooth, well grassed lawn, and during last spring and summer it was the most beautiful I had ever seen.

"We are beginning the construction of a hospital at Peru, Ind., to replace the old one at that place which we are now using. This will be a singularly beautiful building; the basement is to be of cut stone; above that of pressed brick, a buff color; the roof to be of green tile. This building is to be situated on a piece of ground containing over two acres. I should have added that in the Moberly grounds there are three and a half acres."



DR. GRO. CHAFFEE, SURGEON TO LONG ISLAND RAILROAD.

There is a point from which the hospital system may and should be viewed, which is high and most worthy, and that is from the humanitarian standpoint. Looked at from this point, railway men should, without the aid of a glass, be able to see that with this system the welfare of the employe is being properly looked after. When an employe falls sick or is injured—where this system is in operation—he is promptly, and with care, removed to the company's hospital, an institution in which he is himself a stockholder and part owner, and in which, by his monthly assessments, his bills are paid in advance, an item

of no small account. Employes are not all able to be treated in luxurious homes, but their cuts, fractures and injuries are just as sore and painful as though they were able to afford the best of everything. The simple adoption of this system on the part of the company, and the consent of the employe to the light monthly assessment, will place him in a position to receive and enjoy the very best treatment in the land, and when cured he will be discharged from the hospital and returned to his position at the earliest possible moment—free from debt.

The employes of our lines are on the train, constantly facing danger, and must meet the crash when it comes. Wrecks have occurred and will continue to occur "just so long as human agents are necessary in the manipulation of railways." And since this is true, we should neglect no particular whereby their horrors may be palliated. Is it not far better to be fully prepared for half a dozen wrecks along the line, than to have even one occur with no preparation whatever? The answer is short and easy, but we leave it unwritten. General practitioners, who are suddenly called to the scene of an accident, are often obliged to go poorly prepared for the work, and if to this we add lack of system, they are terribly handicapped in their efforts to relieve.

If we have adopted up-to-date and approved methods, and done our very best in applying the same, then we have done our duty, our conscience is clear, our minds at rest, and there will be little room for public criticism. The hospital association fund provides (1) an emergency box of simple dressings and soothing remedies on every train; (2) local and specially trained surgeons all along the line; (3) a chief surgeon to direct the efforts of local surgeons and for consultation; (4) a railway hospital or home, at convenient points, where sick and injured employes are cared for; (5) a relief car at division towns, with beds, stretchers, warm blankets, restoratives, anodynes, splints, surgical dressings and instruments for all emergency work.

With the association of the A. T. & S. F., the monthly assessments for the hospital fund are as follows:

"From employes' earning during the month:  
 \$30 or less . . . . . 25 cents per month  
 \$30 and less than \$60 . . . 35 cents per month



\$60 and less than \$100.50 cents per month  
\$100 or over.....\$1.00 per month

"The above deductions shall be made from total earnings as shown on pay rolls."

In his address as president of the National Association of Railway Surgeons, and in a more recent paper, which I trust will find a place in the Railway Men's Reading Rooms, Dr. W. B. Outten, chief surgeon of the Missouri Pacific Railway, says:

"The employes assert that they save money by paying the assessment which constitutes a hospital fund, as prior to its establishment, sick and injured employes were helped out by other employes and friends contributing to subscription lists carried about by the generously inclined, and that it was not uncommon for men to give, under such circumstances, fifteen, twenty or more dollars a year, for such a purpose. The men say that, while some might doubt the right of assessments, still this point is not now considered, in view of the benefit conferred upon those who really needed it. The hospital system has stood the test of time for many years and must certainly possess merit, as the compulsory elements of the assessments would, naturally, produce prejudice unless some redeeming virtue was constantly manifest. The small assessment is not deemed a burden by the employes, and the hospital system is viewed as a benefit.

"We maintain that a properly conducted hospital department upon a railway is more conducive to loyalty than any other existing form of relief association. It at least offers opportunity for the manifestation of that good will and consideration which a widely diverse and extended interest seemingly prevents. In the precincts of a hospital the manifestation of kindness, consideration and humanity are not subversive of discipline, but are at all times a gracious aid in treatment. A railway hospital partakes more of the nature of a home than it does of the cold nature of a general hospital. Its every element is based upon a thoroughly unselfish desire in providing the best possible elements of subsistence, treatment and results.

"We do not believe that it can be demonstrated that any relief association connected with any prominent railway can obtain from any hospital, not owned or rented, the same beneficial results in all directions, as the one under its own government and control. The peculiar influences of a railway hospital upon its patients should be seen before they can be thoroughly realized. Railway men are naturally clamish and they take pride in direct contact and in discussing the diverse experiences of their vocation; and it is in the nature of a curative measure for railway men to have

their surroundings thoroughly railroadish, and as has been said before, the homelike element is the one which satisfies the railroad man."

In response to my request for a statement from employes in regard to their opinion of the hospital association, Dr. Frank H. Caldwell, chief surgeon Plant System, makes the following reply, which, with the letters from two railway men, speaks volumes in favor of the hospital association, and for which we tender our sincere thanks to the writers.

"Sanford, Fla., February 17, 1896.

"Dr. George Chaffee,

"In compliance with your request of February 8 I herewith inclose communications from Conductor L. K. Morris and Section Master J. E. Stokes. The former has been very ill with an attack of inflammatory rheumatism and has been in the hospital, as he states, some time. He is now convalescent and will soon be out. Mr. Stokes had an at-



WARSHAW RAILWAY EMPLOYEES HOSPITAL AT MOBERLY, MO.

tack of typhoid fever, which came very near proving fatal. These two men are naturally grateful, and gladly wrote the letters, copies of which I inclose.

"The majority of the employes appreciate the Hospital Department. I believe if it was put to a vote as to whether or not the system should be abolished, nine-tenths of the men would vote to continue it. Of course the track men and train crews derive more benefit from the service than any others. Therefore, I obtained statements from the head of the transportation service, and head of the roadway gangs, i. e., conductor and section master.

"Trusting this will meet your wants, I remain,

Yours truly,

"Frank H. Caldwell, Chief Surgeon."

"Sanford, Fla., February 14, 1896.

"Dr. F. H. Caldwell, Chief Surgeon.

"Dear Sir:—I have been in Hospital No. 1 two months, suffering from rheumatism, and I will leave in three days almost well. Previous to this time, I have been employed by



this company five months and my hospital dues were \$2.50, or fifty cents per month. I have always been in favor of compulsory assessments, and I do not see how a hospital, that is, a railroad hospital, could be operated successfully in any other way, and the assessment is so small I do not miss it. I would, under no circumstances, be willing to do away with the hospital. I am of the opinion that the hospital has tended to make the employes more loyal to their employers, and I think the general feelings of the conservative employes are greatly in favor of the hospital system.

Respectfully,  
(Signed) "L. K. Morris,  
"Conductor."

"Sanford, Fla., February 15, 1896.  
"Dr. F. H. Caldwell, Sanford, Fla.

"Dear Doctor:—By your request, I gladly write a few lines relative to your hospital system. I have always favored the plan of compulsory assessments of each employe; always advocated it, and shall continue to do so. I do not miss the assessment from my wages and consider it an excellent investment for any employe.

"Since the 9th of January, 1896, I have enjoyed the benefits of your hospital system, and in consequence shall always have a warmer and more proper regard for my employers. I think there is the kindest feeling among the employes toward the Plant System Hospital, and if there are those who do not advocate it, they need only to suffer the misfortune of sickness or injury, and receive the hospital benefits, to be made warm converts to your service. I heartily endorse it in its entirety.

Respectfully,  
(Signed) "J. E. Stokes,  
"Section Master."

Dr. Geo. W. Hogeboom, chief surgeon of the Santa Fe, in his annual report to members of the association, makes use of the following language:

"There has been during the year a greater tendency for married men, especially those suffering from injury, to go to our hospitals for treatment instead of to their homes, and I cannot too urgently commend such action, as the chances of recovery and especially of more perfect recovery, are so much greater under the antiseptic treatment furnished in our hospitals, than through effort and often failure to furnish the same treatment at even the best of homes or boarding houses. Besides this, the surgeons of our hospitals are particularly skilled and practiced in the specialty of railroad injuries and ailments and their treatment in hospitals, which fact, together with the advantages of trained and careful attendance, should be the strongest kind of inducement for

all classes of employes to avail themselves of hospital care.

"When it is taken into consideration that these injuries are many of them cases of the worst forms of fractures, contusions and lacerations, and the ailments are more often than otherwise in an advanced stage when reaching the hospital, on account of the employe remaining at his duties as long as possible, this is a very fine showing for the results of well organized hospital treatment for both injuries and sickness."

Speaking of the hospital association, Mr. Stevens, general manager of the C. & O., says:

"It is a model of equity and justice."

Mr. W. B. Doddridge, general manager of the Missouri Pacific Railway, says:

"It operates practically in securing and promoting harmony among all classes and conditions of employes in cases of injury and sickness, the preference, in almost every instance, being in favor of treatment at the hospital, or under its control. Better results are accomplished for sick and injured employes because of the superior facilities the hospital department secures for nursing and caring for the employes, and that at a nominal cost to the employe."

There is a feature of the hospital system which, if properly managed, should become very popular and useful indeed, and that is the transfer system. As yet we are not aware that the transfer system or interchange of patients is in practice between lines having their own hospitals. The transfer or interchange of patients from one system of hospitals to another would greatly increase the popularity and usefulness of the hospital association on such lines. The transfer system not only furnishes the employe with the best medical and surgical service in the land, including all specialists, without extra charge, but provides for him, when indicated, a luxury which only those of means can afford, viz., transportation, change of climate and private hospital service until well. Employes are not looking for positions in the hospital, but fortunate, indeed, is the one whose name is on the assessment roll of the company's hospital when he has need for the service, and especially so where the transfer system is in operation, for by it lives may be saved that otherwise would certainly be lost. Patients recovering from pneumonia, la grippe, rheumatism and other diseases of this class would be taken from the North to the sunny South. Typhoid, malarial



and swamp fever cases would be sent North or to non-malarial sections of the country. The unfortunate consumptive would seek the West and Southwest, where he might not only find relief, but in time, employment; results which he would very likely be unable to secure under any other circumstances. Bring the employe, sick with heart disease, who has been partaking of game and birds, from the plains and mountains to the railway hospital on the coast for surf bathing, clam bakes and shore dinners, and his diseased organ will recover, or at least its condition will be improved.

We would like to ask railway men if they know of any form of relief that will compare with or even approach the hospital association as it now stands? Add to this excellent system the transfer feature or interchange of patients and we have the highest order of charity ever devised by the human mind; a charity which does not humiliate, but which renders the employe independent, furnishing him with a service equal to any private service which his employer is able to secure. It is true that only a small percentage of cases would require this change, but when indicated it will be found to repay a thousand fold for any effort it may cost. Only the best is good enough for our faithful railway men.

On most of our great lines the relations between employer and employe are very close indeed. The employe is contented and satisfied, the employer is pleased with his men and proud of their work. There is an element of friendship or social feature of the very strongest character, and the desire for such to continue is mutual. Nothing could induce either employer or employe to propose a change which might disturb these pleasant relations. When we proposed the hospital system, which reflects the views of the members of the National Association of Railway Surgeons, to our eastern lines for consideration, we were fully conscious of the happy relations above described. We are not the ones to introduce or to propose a disturbing element at any time or place; we incline to the opposite most decidedly. In this matter we are sincere and firmly believe that the humane and beneficent hospital system which we here propose, will prove one of the strongest ties to be found in maintaining that happy union between employer and

employe. The sun of railway surgery and of the hospital system rose in the West, but its brilliant light is rapidly breaking over the East.

"THE VALUE OF EXAMINATIONS OF SIGHT, COLOR SENSE AND HEARING IN RAILWAY EMPLOYEES."\*

BY C. W. TANGEMAN, M. D., OCULIST FOR THE C. C. C. & ST. L. RAILWAY SYSTEM.

For some years past navigation and railway companies, many of them, at least, have been recognizing the importance of examining the eyes of their employes. Devices are patented, and machinery and equipment perfected to reduce the danger of travel and traffic to a minimum, and yet not one will dare to dispute the statements that the requirements that should be exacted of railway employes must necessarily become more and more rigid, in fact, keep pace with the improvements above mentioned. In no capacity of man's employment to-day, do we find it more necessary to select men fitted mentally and physically for their position than in high grade railroading.

No matter what the inventive genius may do in the way of inventing machinery to increase speed, to perfect automatic devices in signally, it will require the guiding hand of man to direct it all. No automaton can be placed in the cab. Dismiss the train crews of the most perfect railway system of to-day and replace them by employes of 40 or 50 years ago, and imagine the result! Men are demanded that are physically perfect; their senses should be acute and their intellect clear, and with all these requisites, long training is necessary to make a good railroad man. Navigation and railway companies have in latter years recognized the importance of determining whether their employes possess sight enough to see form at a sufficient distance, whether they have sufficient range of vision to read orders and rules clearly, whether their color sense is sufficiently acute to readily and correctly determine signals by day or night; and lastly, whether their sense of hear-

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ing is acute enough to receive orders by word of mouth. In some of the states it is statutory law that railway employes must be tested at certain intervals, and no man is to be employed unless he has been tested and is known to possess perfect color sense and good vision. To employ a man who is color blind is a violation of this law, and is punishable by a fine of one hundred dollars. Strange as it may seem many railroads oppose every measure to adopt a uniform standard of color test or any test at all. Opposition was even known to emanate from the ranks of this body, the medical advisors of railway corporations. These conditions are happily changing, roads that have never examined their men heretofore are now making inquiry as to methods, rules and requirements. Having just completed an examination of the employes of the Big Four Railway System, which controls about 2,400 miles of line and employs nearly 5,000 men who handle signals, it occurred to me that to point out the results obtained and the methods used in a brief way, might act as an argument or as an inducement with those who are still in doubt whether railway employes should be tested. All examiners have recognized the importance of adopting some method that is simple, in order that a committee of laymen can make the preliminary tests, under the direction of the division superintendent. In order to accomplish this I had a number of meetings with all of the division superintendents and their train dispatchers, under whose immediate supervision these tests were to be made. I explained to them the object and principle of the various tests, and how to bring out the best results and record the condition found, so that the surgical expert to whom all of these papers were to be submitted could act intelligently. I adopted the form of record blank, devised by Dr. Thomson, with a few modifications, I formulated rules of instruction governing all of the tests, and had them printed on the reverse side of this blank, so that doubtful questions could be referred to at all times. They are brief, and read as follows:

RULES GOVERNING THE TESTING OF EYES AND EARS.

No. 1. All test types for distant vision should be placed in a good bright light, twenty feet away from the applicant. Each eye must

be examined separately in all tests, and the result so recorded.

No. 2. If the applicant can read but the first line, record it as 20-200; the second line as 20-100; the third line as 20-70; the fourth line as 20-50; the fifth line as 20-40; the sixth line as 20-30; and the last line as 20-20.

No. 3. Each eye must be tested separately for reading the small type. Nos. 1, 2, 3, 4. Record the shortest and greatest distance that this type can be read. Never use a soiled card.

No. 4. Field of vision: Take a piece of pasteboard, about one foot square, with a circular opening in the center one inch in diameter, and place against a window light at the height of the applicant's eye and at a distance of one foot from him. Direct him to look through the circular opening in the card, at some distant object, and while in this position see how far to right, left, up and down he can see some small object, as the end of a piece of chalk, when moved over the surface of the card.

No. 5. Color Test: Place the applicant in a good light. Throw the first skein marked "test" across the stick. Have the applicant select the colors that match the test in the first division. Record the numbers selected. Repeat this test with the second and third divisions on the stick.

No. 6. Have the test colors named separately. Record whether he selects and names these colors promptly. Have him name the color of the flags used as signals, and mention their use and match the color of the flags with yarns on the stick. He must not be permitted to hold two colors together for comparison.

No. 7. Hearing: Test the applicant in a quiet room. Test each ear separately, both with the watch and conversation, and record the result in inches and feet.

Every new applicant for a position must submit to the above tests before being given employment.

No. 9. Should the applicant not see more than 20-40 (the fifth line) with each eye, he must be at once suspended and referred to the oculist for a more thorough examination. Do not have more than one person present during an examination, and keep your woollens and test cards clean.



No. 10. All employes that have anything to do with signals, flags or lights, must be tested.

No. 11. Each division superintendent must promptly forward records of all examinations to the general superintendent.

No. 12. No employe is to be given a certificate by the superintendent, until the examinations have been passed upon by the surgical expert and returned, marked "approved."

For testing the acuteness of vision two sets of Snellen's test types of different text are used, framed back to back and covered with glass to keep the type clean (a set for each division). By this arrangement the examiner can use the second set whenever he has reason to believe that the applicant has familiarized himself with one set of test letters. We have heretofore attached too little importance to this part of the test; it should be just as conscientiously made as the color test. These tests are all made without the aid of glasses.

Range of vision. The ability to read or see near objects; the greatest and shortest distance at which the patient can see letters of a given size. Men are permitted to wear glasses to perfect their range of vision, should it be found defective.

A great many devices have been suggested for the ready detection of color defect. Colored worsteds, colored glass, colored letters. Lanterns, flags and the spectroscope have all been used and have their advocates. In my experience the Thomson color stick, as we have it here, will answer every purpose in the hands of the lay examining committee. It is easily understood, and not so confusing to the one examined as many of the devices, and, what is of still greater importance, the test can be made with a great deal more dispatch. This is a consideration when you have 5,000 men to examine. The woolens are all tagged or numbered. The large test skein may be shown the applicant and he be then asked to select all the colors on the stick that match it. Record the colors selected under the proper heading. He need not name the various shades of color that he selects. Repeat this test with the green, pink and red. Soiled flags are then shown and the applicant is asked the name of the color, what it means, and match the flag with colors on the

stick. The skeins are numbered from 1 to 40. In the series from 1 to 20 the odd numbers are green, and the even, gray and brown; from 21 to 30 the odd numbers are pink and the even blue, while from 31 to 40 the odd numbers are red and the even numbers are brown. Here now it becomes possible for even the non-professional man to detect color blindness, since, if anything but odd numbers are chosen in any of these tests there is a defect. If you object to the regularity of the arrangement of the colors, thinking that the test is thereby weakened, unlock the stick and rearrange the colors to suit yourself or unhook them and put them in a heap before the patient. A mere glance by an expert at the record of a man tested in this manner would show him that there is a defect; whether it is only a weak color sense or is complete color blindness remains to be seen. In the cases that were found defective the man was at once ordered to report to the expert for special examination. Here the Thomson test was gone through with again and followed by a test with the Donders lantern, made for me by Queen & Co. of Philadelphia.

Donders' instrument has a standard candle in a dark cylinder, with a wooden disc, and pieces of red, green, blue and white glass, so arranged as to be revolved in turn in front of the flame. There is also a metallic slide, with perforations ranging from one to twenty millimeters in diameter. The man is placed five meters away, and while the colors of the light are changed by rotating the disc, he is challenged to designate the colors of the transmitted light. The normal eye recognizes them through the 1 mm. opening at 5 m.; or, better still, the candle is so placed that the examiner with normal color sense just perceives the color through 1 mm. opening at 5 m. The color blind individual may fail through a series of openings until the 20 mm. one is presented. He may still call white green and red green. If so, he is asked the significance of the green, and answers "caution." He is then requested to approach the light slowly, and as he does this, he may perhaps at one meter or one-third of a meter, by its intensity or size, recognize and call it red. Using the ratio for his color blindness as we employ for his acuteness of vision, we can reason thus: Full color sense enables one to see the lights promptly



at 5 meters through the 1 mm. opening; if the man sees them only after the apertures have been increased, his color sense must be defective. Thus, if an opening of 20 mm. is needed, the color sense equals 1-20; should the man fail with the 20 mm. opening at 5 m. he is told to approach it, and if he sees it one-third of m., or one foot, he has only at 1 m. he has 1-100 of color sense, and if at 1-300 of the normal power.

By means of this instrument we are enabled to quickly, and positively, convince friends and officials of the man's ability to recognize colors, which is a very frequent necessity. I have not found an instance where the result of the tests with the lantern and the yarns did not agree. Whenever an individual cannot recognize these different colors, or cannot distinguish between them, he is not a safe man to put in charge of a train. Lastly, the original "Holmgren test" was resorted to.

When men are found not to be color blind with the above three tests, we are safe in permitting them to return to their work.

Hearing should be tested with a stop watch, which should be heard at a distance of five feet. The conversation test is the most practical, and on this the question of hearing should be decided. A man should be able to hear an ordinary conversation at a distance of at least 15 feet with each ear. Every test should be made in private, so that men do not become confused. The blanks when filled out by the examining committee are at once sent to the expert, who should look them over carefully. Those that fulfill every requirement are approved and returned to the superintendent, who then issues his certificate. Such as fall below the standard requirements in any part of the examination are sent for and tested by the specialist. Men are protected from the errors of the lay examining committees and do not lose their places until pronounced deficient by the expert. We can safely say, that a layman can detect color blindness, but he might treat some men unfairly who are fit, or who can be fitted by treatment.

I next formulated a standard of requirements for the employes of the various departments, that was adopted by the management of the Big Four Railway System. I beg to read such parts of these requirements as would interest the medical man, and invite criticism

by those who are familiar with the practical part of this subject.

#### ENGINEMEN.

1. Must have perfect color sense both for day and night signals.
2. Must not use glasses in the cab except for reading purposes.
3. Must be able to read test cards 20-20 (perfect) with one eye and 20-50 with the other.
4. An employe otherwise thoroughly competent, with one perfect eye, may be continued in the service, but must be examined every six months by the company's oculist, and if deemed necessary by the division superintendent he may call for further examinations in addition to those already provided for. It is incumbent upon the division superintendents to see that semi-annual examinations as herein provided, are made.
5. Must be able to read and write the English language.
6. Must be able to hear with each ear an ordinary conversation at a distance of fifteen feet.

#### FIREMEN.

1. Must have perfect color sense both for day and night signals.
2. Must not use glasses.
3. Must be able to read test card 20-20 (perfect) with one eye and 20-50 with the other.
4. An employe otherwise thoroughly competent, who has lost the sight of one eye in the service of the company, may be continued in the service if the other eye is perfect, but must be examined as required by rule No. 4 under the head of "Enginemen."
5. Must be able to read and write the English language.
6. Must be able to hear with each ear an ordinary conversation at a distance of fifteen feet.

#### CONDUCTORS.

1. Must have perfect color sense both for day and night signals.
2. Must be able to read test cards 20-20 (perfect) with one eye, and 20-50 with the other, or 20-40 with each eye.
3. May use glasses to bring their vision up to the above standard.
4. An employe otherwise thoroughly competent, with one perfect eye, may be continued in the service, but must be examined as re-



quired by rule No. 4 under the head of "Enginemen."

5. Must, with the use of glasses if necessary, have perfect near vision enabling them to read and write the English language readily and distinctly.

6. Must be able to hear with each ear an ordinary conversation at a distance of fifteen feet.

#### TRAIN BAGGAGEMEN.

1. Must have perfect color sense both for day and night signal.

2. Must be able to read test cards 20-20 (perfect) with one eye and 20-50 with the other, or 20-40 with each eye.

3. May use glasses to bring their vision up to the above standard.

4. An employe otherwise thoroughly competent, with one perfect eye, may be continued in the service, but must be examined as required by rule No. 4 under the head of "Enginemen."

5. Must, with the use of glasses if necessary, have perfect near vision enabling them to read and write the English language readily and distinctly.

6. Must be able to hear with each ear an ordinary conversation at a distance of 15 feet.

#### BRAKEMEN.

1. Must have perfect color sense both for day and night signals.

2. Must not use glasses.

3. Must be able to read test cards 20-20 (perfect) with one eye and 20-50 with the other.

4. Must be able to read and write the English language.

5. Must be able to hear with each ear an ordinary conversation at a distance of 15 feet.

#### YARD FOREMEN, CONDUCTORS AND BRAKEMEN.

1. Must have perfect color sense, both for day and night signals.

2. Must not use glasses.

3. Must be able to read test cards 20-20 (perfect) with one eye and 20-50 with the other.

4. Must be able to read and write the English language.

5. Must be able to hear with each ear an ordinary conversation at a distance of 15 feet.

#### OPERATORS OR EMPLOYES PERFORMING THE DUTIES OF AN OPERATOR.

1. Must have perfect color sense, both for day and night signals.

2. Must be able to read test cards 20-20 (perfect) with one eye and 20-50 with the other, or 20-40 with each eye.

3. May use glasses to bring their vision up to the above standard.

4. An employe otherwise thoroughly competent, with one perfect eye, may be continued in the service, but must be examined as required by rule No. 4 under the head of "Enginemen."

5. Must be able to hear with each ear an ordinary conversation at a distance of 15 feet.

#### TRACK AND BRIDGE FOREMEN.

1. Must have perfect color sense, both for day and night signals.

2. Must be able to read test cards 20-20 (perfect) with one eye and 20-50 with the other, or 20-40 with each eye.

3. May use glasses to bring their vision up to the above standard.

4. Must be able to read and write the English language.

5. Must be able to hear with each ear an ordinary conversation at a distance of 15 feet.

6. Will be held responsible for the proper use of signals in the hands of employes whom they send out to do the flagging.

#### GENERAL.

1. All applicants for promotion or employment must have perfect color sense for both night and day signals.

2. Must be able to read test cards 20-20 (perfect) with each eye.

3. Must be able to read and write the English language.

4. Must be able to hear with each ear an ordinary conversation at a distance of fifteen feet.

5. Regular examinations must be made during July of every second year.

6. Semi-annual examinations, as hereinbefore provided, must be made in January and July of each year.

7. Examination papers must be forwarded promptly to the company's oculist for approval. If approved they will be returned to the division superintendent direct. If not approved they must be forwarded to the general superintendent.

8. Certificates will not be issued by superintendents until the examination papers have been approved.

9. Nothing in the foregoing rules shall pre-



vent the promotion of employes who are defective in sight or hearing, and otherwise competent, to positions in other departments where the use of the signals are not required.

Governed by the above rules, about 5,000 men were examined and made to comply with the standard adopted by the management. The result was that nearly 8 per cent. of this number were found to be defective according to the papers of the lay committee. These men were now called to my office and examined carefully in every detail. I found 67 cases reported color blind. Out of this number there were 48 real cases; the other 19 were errors, a little less than 1 per cent.; 10 cases of defective hearing were reported, 2 of which were real and 8 apparent; 254 cases were reported for defective vision, 95 were errors, while 159 had some defect. Out of this whole number 69 men were discharged, 48 for color blindness, 2 for defective hearing, and 19 for defective sight. All of the color blind cases were re-examined at a subsequent time, but in not a single instance was the first record reversed. In the beginning of this work there was a great deal of opposition on the part of the men, but that gradually wore away, and at the present time I am safe in saying that no one is opposed to it. You not infrequently hear the statement made that there is no case on record where a wreck or damage resulted because of the color blindness of an employe. In the first place this statement is not correct, and in the second place, even if we could not show a case of this kind, no sane man would advocate the retention in service or the employment of an engineer who is positively color blind and not able to quickly and correctly recognize the signals on which the safety of the train depends. If this is true of an engineer, it is equally as dangerous in the instance of any man who has anything to do with the giving or recognition of signals by day or night.

#### DISCUSSION OF DR. TANGEMAN'S PAPER.

Dr. J. M. Ball: I believe there are several gentlemen here much more competent to discuss this excellent paper than myself. The subject of color blindness is one of great interest, and has been thoroughly covered by two or three of the papers which we have had at this meeting.

Dr. C. D. Wescott: I have been very much

interested in the paper to which we have just listened, and I admire the Doctor's system of making the examinations. It seems to me that when it is possible for the laity to commit as many errors as reported by the Doctor in these examinations, that that alone is an indication that the primary examinations should not be intrusted to laymen. I think the local surgeon should make the first examination, and if possible he should have experience in ophthalmic work. I was very glad to notice the plan the Doctor suggests for measuring roughly the field of vision. We all know that the applicant may have most excellent central vision, yet a defective field will make him a dangerous man. That is a very important test, and it is not usually applied.

In regard to the matter of glasses there has been a good deal of discussion. I feel that the Doctor is very fair in the allowance he makes in this direction. I do not believe any engineer or fireman should be employed who must wear glasses for distant vision. I know that it works great hardship to discharge a conductor who must wear glasses in order to have good vision, but he should doubtless have 20-40 vision in one eye without glasses. On some roads these men are not permitted to wear glasses while on duty. I know a conductor on the Rock Island road who has vision without glasses equal to 21-100 in each eye, and with glasses about 20-30 with each eye. He wears glasses constantly when off duty, but does not dare to be caught on duty with these glasses. With such defective vision there might arise an occasion when he would be a dangerous man without glasses. I do not think a man should be employed unless he has 20-40 vision in either eye without glasses.

The apparatus which the Doctor has shown for the measuring of color sense is as simple a scheme as we have. I think, though, that the apparatus which Dr. Williams showed us a year ago is a more practical one. If we use lanterns, such as are in daily use on the track, for tests, we must have some means of varying the degree of light.

Dr. Tangeman (closing): There is very little I have to say in closing this discussion. First, with regard to glasses, and compelling men either to lose their job or being able to see



a certain amount, it seems a hardship, it is true, but the reason why the management of this road ruled out glasses was this: A brakeman, for instance, has an important position, particularly a freight brakeman. He is exposed to more or less danger in climbing up on the freight cars. Accidentally he loses his glasses after being accustomed to the use of them and learning to depend on them to see at a distance. Everyone of you have lost your glasses and know the inconvenience, but a freight brakeman is more liable to lose his glasses than you are, because of the kind of work he has to do. Are we to endanger the safety of a train or crew because of the retention of one single employe who may be defective in vision? The company can better afford to put some of these men on the retired list and pension them for life, than to retain them if they are dangerous men. No man but the operator, the baggageman and conductor are permitted to wear glasses, and they begin to wear them as soon as vision is defective. If he goes without them he is afraid he will be discharged; he should be supplied with two pairs, so that he has another pair with him should he lose the other. One of our rules is that no man (making an application for a position) shall be accepted unless he has absolutely perfect vision in both eyes—20-20—it makes no difference what position he applies for. In this way we will have a good body of men after a while. You will have noticed from the statistics that have been read that the percentage of color blind cases in this test is very low. I presume because all of these men had at some previous time been examined by a lay committee.

I agree with Dr. Wescott that it is absolutely essential to take the examination of the eyes out of the hands of a lay committee and put it into the hands of the expert surgeon. This should be done because of errors and misunderstanding, and the only thing that would answer instead, it seems to me, is the preliminary examination of these men by a lay committee. Then refer all of the papers or examination blanks to an expert for approval.

Such an aversion and contempt for all manner of innovators, as physicians are apt to have for empirics or lawyers for pettifoggers.—Swift.

## THE DEFLECTED SEPTUM AND ITS SURGICAL TREATMENT.\*

By JNO. A. JAMES JAMES, B. SC., M. D.

Professor of Diseases of the Ear, Nose and Throat in the St. Louis College of Physicians and Surgeons. Laryngologist and Rhinologist to the Missouri Pacific Railway Hospital, to the St. Louis Baptist Hospital, etc.

In choosing a subject for a paper before your association, I have been guided by the knowledge that it was to be read before an assembly of practical surgeons—before a body of men whose daily work lay in the performance of formidable and serious operations. I feel that it is largely due to the influence of the general surgeon that the treatment of the obstructive diseases of the upper respiratory tract has been rescued from its former thralldom in the hands of specialists whose endeavors were limited to ringing long and wearying changes upon various sprays and other local applications, which left the patient, at the end of his treatment, exactly where he was at the beginning. We have come to realize that upon active surgical intervention depend most of the successful results of treatment in this special field of work. This fact has been particularly apparent in the matter of deformities of the nasal septum, and it is to this purely surgical matter that I invite your attention this afternoon.

If we inquire into the causes of deflection of the septum, we are struck by the number and variety of agencies asserted to cause the deformity. Among these are many utterly unworthy of serious consideration. Indeed, when one studies his cases, he is soon convinced by an almost unvarying history of an injury to the nose that the cause of the deflected septum may be said to be almost always purely traumatic. In the majority of cases the history is a clear one. In others it is not. Yet these latter are easily accounted for when we consider the number of bumps and falls that attend our early attempts at walking. An injury too slight to injure an adult nose may easily produce a slight deflection in that of a child, which, increasing with time, becomes a marked deformity as manhood is reached. Indeed, so common are these deformities that it is extremely rare to find an adult male with an entirely normal septum; and a close inspec-

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tion of the half dozen noses nearest us will show that perhaps not a single one of them occupies the exact median line of the face.

Just what deformity of the septum will result as the effect of the injury inflicted must depend upon the character and point of application of the blow. We see those cases wherein, as the result of a powerful blow, not only the cartilaginous, but the bony portion of the septum has been forced to one side. Others again show only a displacement of the cartilage of the septum at its lowermost point, the sharp border of the cartilage projecting into,

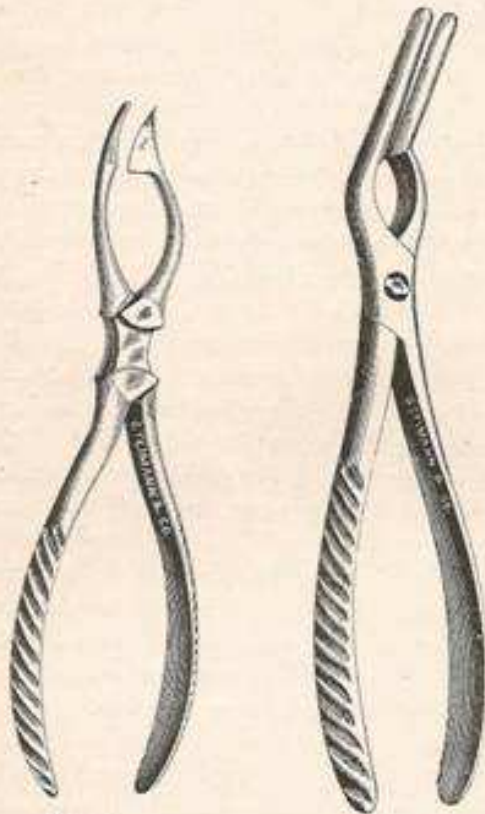


FIG. 1.

FIG. 2.

the lumen of one of the nostrils, producing more or less occlusion on that side. In the majority of cases, however, of true deflection, we are concerned with the deformity which involves the entire cartilaginous part of the septum, the deviation involving but slightly the upper and bony portion. With the various forms of septal spurs, ridges, etc., it is not the purpose of the present paper to deal.

A well defined deflection of the septum sufficient to occlude one or both of the nostrils even a portion of the time, is fraught in the vast majority of cases with a long trail of evils, which it is our purpose briefly to notice. A septum

may be forced to one side and in contact with the turbinate bodies of one of the nostrils. This, while it occludes the one nostril, leaves an excess of space on the other side. Nature abhors a vacuum. She attempts to fill up the vacant space. The turbinates undergo a compensatory hypertrophy on that side, and, in a varying length of time, both nostrils are partially or completely obstructed. Let us study some of the effects of this interference with nasal respiration. We are likely, from our long continued habit of regarding the nose mainly as an organ of smell, to forget its far more important and necessary functions, namely, those of moistening and warming the inspired air, and of assisting in voice formation. We find, then, depending upon the degree of nasal obstruction, a more or less completely enforced habit of mouth-breathing, both when asleep and awake. The inspired air, not properly moistened, passes over the mucous surfaces of the fauces, larynx and bronchii, drying them and rendering them irritable and inflamed. Meanwhile, the natural drainage being interfered with, the patient finds himself annoyed by the presence of an excess of mucus. The usual attempt to dislodge this is by a vigorous blowing. To blow an obstructed nose with all the force of a powerful pair of lungs, is to force the air somewhere; and the eustachian tube feels the force of a strong blast of air as often as the obstructed nose is vigorously blown. Conversely, at each effort to swallow, as all of us may feel by pinching our nostrils together and swallowing, there is a rarefaction of the air in the eustachian tube and the tympanic cavity. In other words, a continued performance of the so-called Toynbee's experiment, broken at intervals by a Valsalvan inflation when the patient blows his nose. The inter-dependence of nasal obstruction and middle-ear disease is too well known to be further referred to. When we add to the above results of nasal stenosis, the frequent existence of severe headaches of clearly demonstrated nasal origin, the loss of purity of certain tones of the voice from the same cause—when we consider at once the discomfort of the individual and the harmful results that accrue from a neglect of this condition—we cast about us for the best means for relief from the trouble.

It is not my present purpose to recite to you



the various and widely differing operations that have been put forward for the relief of the deflected septum. The very variety of the procedures tells in unmistakably clear language how unsatisfactory they have all proven. I wish to call your attention to an operation which does result in a satisfactory cure of the condition, and a relief from the deformity and inconvenience that arise from the existence of the trouble. This procedure has become known as the Asch operation, having been devised by that well-known operator and modified by his associate, Dr. Emil Mayer. The instruments, which are somewhat elaborate and, for intranasal work, I must admit, somewhat formidable, are before you, and the steps of the operation are as follows: The patient is given a general anæsthetic and the angular shears, (not illustrated. Like Fig. 1, but bent at right angle.) of which you observe there are two pairs, according as the convexity of the



FIG. 3.

septum is toward the right or left, are introduced and the septum cut entirely through at its point of greatest prominence. The scissors are now turned and another incision made at right angles to the first. The forefinger is now introduced into the obstructed side and an attempt is made to push the softened septum over to the median line. Several prominent angles will be found projecting into the lumen of the nostril. These are reduced by the use of the straight-cutting scissors (Fig. 1), of which you observe two sizes, a large and small pair. When the septum has become entirely and completely plastic, it is placed in the median line by the use of the Mayer straightening forceps (Fig. 2), the operator assures himself that the passageway back to the pharynx is clear and free from synechia on both sides, and the drainage tubes (Fig. 3), are inserted. The hemorrhage, which, up to this point, has been very free, is at once entirely controlled by the slight pressure exercised by the tubes. You will observe that the drainage tubes are of red vulcanite, smoothly polished and perforated at numerous

points. These tubes are made in varying sizes to fit nostrils of different capacity. I have had them made by an ingenious dentist friend by furnishing him with plaster of Paris models of the necessary forms and sizes. The reaction following the operation is usually not great, and the after-treatment consists in the frequent removal of the tubes and the flushing or spraying of the nose with some simple detergent solution. The tubes are then reinserted. Should this cause pain, a ten per cent cocaine solution may be sprayed into the nostril before restoring them to place. In a few days the shattered septum will have acquired a fair degree of firmness. The patient continues to wear the tubes, however, until the septum is firm and strong, a time lasting from three to six weeks. This entails but little inconvenience, since their presence is not painful at this stage, nor are they as noticeable as would be supposed.

I have already alluded to a compensatory hypertrophy of the turbinates on the side of the concavity of the septum. Before beginning the operation proper, just described, these hypertrophies should be thoroughly reduced by the galvano-cautery or removed by the cold snare, lest, when the septum is restored to the median line, the stenosis be simply transferred from the one side to the other.

If the details of this operation are properly carried out, the result is an eminently satisfactory one. Faulty results are most likely to occur from a too timid use of the scissors, and a consequent insufficient breaking up of the septum. In such cases the septum resists its reposition in the median line, and the tubes are retained with greater pain and difficulty. The greatest objection that can be urged against the operation is its somewhat formidable and sanguinary character. But this is more apparent than real, and is not a valid objection to the operator accustomed to making serious operations. It is not an operation which requires special knowledge of intranasal work, and since it is successful in its object of relieving nasal stenosis and its consequent train of evils, I urge that it is the best and the most practical operation we possess for the cure of the deflected septum.

It has happened to me on one occasion that the angular scissors broke in attempting to perforate a septum, the deflection of which was



unusually high up and composed largely of bone. I am indebted to Dr. Outten, who was present, for a suggestion of great practical value in such cases, namely, that the scissors be constructed with the Henckel joint, like the powerful pair of plaster scissors I have here, the gliding motion of the blade adding immensely to their strength.

2836 Lafayette Ave.

#### The Indications and Modes of Drainage After Abdominal and Vaginal Section.

The following from the pen of Nicholas Senn, M. D., of Chicago, is interesting and valuable:

Drainage of the abdominal cavity is an expression of the present imperfect state of surgery. It is often an unavoidable evil. It should be limited to appropriate cases, and it is, therefore, well that the indications for it should be laid down clearly, so that we may have eventually some definite rules that will guide the surgeon in his abdominal work. There are now no fixed rules. Some surgeons avoid drainage wherever possible; others drain as a rule. If I were permitted to pass my judgment on this question as a whole, I would say that the surgeon who has the ambition to operate quickly, to make an impression on the bystanders, should drain frequently; while, on the other hand, the surgeon who proceeds with his work carefully, step by step, with plans well laid out, with his practical knowledge resting on a firm pathological basis, will only drain in exceptional cases. After opening the abdomen the surgeon has frequently to deal with affections that absolutely call for drainage. There is no other course to pursue. He meets with pathological conditions that cannot be successfully removed; he meets with cavities, the walls of which it is impossible to extirpate, and consequently he proceeds to establish an abdominal fistula, a great consolation to the operator, because it enables him to do something, so that probably during the course of time Nature will come to his rescue, taking advantage of the temporary drainage, and eventually closing the cavity where drainage was established. One of these conditions is met with in a distended or diseased gall bladder. It is my firm conviction that the best success obtained in cases of disease of the gall bladder requiring opening of the organ, in the absence of a permanent occlusion of the common duct, is the establishment of an external fistula. This operation shows the greatest success, is attended by the least danger—in fact, it is almost devoid of danger if the sur-

geon is careful to prevent infection of the peritoneal cavity during the operation.

The next condition—one that is not so frequently met with (but there are now forty or sixty cases on record)—is cyst of the pancreas. A few bold surgeons have made the attempt and in a few isolated cases have succeeded in extirpating pancreatic cysts with a mortality of more than 50 per cent. Statistics show that the formation of a fistula usually results in a permanent cure in the course of a few weeks, and that a permanent fistula is the exception.

Very often the surgeon makes a mistake in diagnosis, opens the abdomen for a supposed ovarian cyst or an ovarian tumor of some kind, and is astonished, when he has exposed the abdominal organs, to find a retroperitoneal cyst, a hydronephrotic kidney. Many surgeons under such circumstances have resorted to the formation of an abdominal fistula, thus draining the distended pelvis of the kidney—a very unwise procedure, because a lumbar fistula will accomplish the same object, the formation of which is attended by less danger, and eventually, if it should become necessary, a nephrectomy is attended by a great deal of difficulty if previously the organ has been attached to the abdominal wall. So that I should lay down the rule that in hydronephrosis, whether diagnosed before or during the operation, the surgeon should make a lumbar nephrotomy.

Then comes that large class of pelvic abscesses without removable walls; abscesses which have had their origin in the pelvic removable walls; abscesses which have had their origin in the pelvic connective tissue, perimetritic abscesses; abscesses originating within the fallopian tubes, and abscesses within or around the ovary, but in which the careful surgeon will make the most scrutinizing examination before he attempts the work of enucleation. If he finds enucleation impossible—it would have been vastly better if he had dealt in a more conservative manner with his patient, and had resorted to abdominal drainage as taught us by Mr. Tait.—*Am. Gyn. and Obstet. Jour.*, March, 1896.

#### Novel Method of Disposing of Neuromata.

It has been found that neuromata after amputation almost always appear in scar tissue, and are especially fixed against the sawn end of the bone. Senn endeavors to obviate this by amputating the nerve high up in the tissue, and then cutting a V-shaped wedge out of the distal end, uniting the two flaps with sutures so that none of the interior of the nerve-trunk is exposed—all nerve tissue is covered in by the endothelial sheath.—*The Medical Age.*



# The Railway Surgeon

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## THE RAILWAY HOSPITAL.

We publish in other columns a good paper by Dr. Chaffee of Brooklyn, in which he discusses at length the Railway Employees' Hospital Association and its benefits, especially to the injured and sick employes. We can hardly conceive the possibility of a difference of opinion among surgeons as to the desirability of the railway hospital system, and it seems to us that this paper of Dr. Chaffee's should be enough in itself to convince the most prejudiced railway man of the advantage both to the employe and to the management of such a scheme.

As Doctor Chaffee says, accidents upon the railway are inevitable, and we must have railway surgeons, and while we are all prepared to prove that good surgery can be done at the cross roads, there is no necessity for proof that railway surgery can be best done in well ordered hospitals, and if a road can own and manage its own hospital, or have a system of hospitals distributed along the line, all under one chief surgeon, and arranged and conducted after the same general plan, it must of necessity be productive of the very best work in the care of the sick and injured.

As to the economical side to the question, we believe it has been quite sufficiently demonstrated that, all things considered, this method of caring for those injured on the track is by far the best and cheapest.

While we are aware that on some roads the proposition to establish such a system and to assess employes for its support has met with opposition among the men, we believe it has always been due to a misunderstanding, because of faulty presentation of the plan and a misconception on the part of the employes of what was desired of them and what the benefits were to be.

Referring again to the paper of Dr. Chaffee, there is abundant proof such as he furnishes in the form of letters from railway men who have been patients in the hospitals, that when the system is fully comprehended and its benefits experienced by the men, all opposition on their part ceases and they are loud in their praises of the method.

We can conceive of nothing more desirable or more humane than the transfer system which Doctor Chaffee suggests, looking to the exchange of patients by various railway hospitals situated in the different parts of the country, and trust that the subject will be agitated until such a system is established. It is certainly a perfectly feasible thing, and, we believe, would so shorten the term of hospital life in many cases as to make it a real economy, as well as a true beneficence.

We have just received a reprint of an article by Dr. Frank H. Caldwell, chief surgeon of the Plant System, entitled "Transportation of Injured Employes," in which he gives a very good description of the hospital car used upon the Plant System for transporting patients from one hospital to another, and also from the scene of an accident to the nearest hospital. This seems to leave almost nothing to be desired for the immediate and continuous care of persons injured upon the railway. He says:

"It has been conclusively demonstrated that injured persons, except when suffering from severe and extensive injuries to the head, spine, thoracic and abdominal cavities, or in a state of profound shock, may, when properly handled, be transported almost an indefinite distance without endangering life or increasing the extent of injury. And it has been further shown by actual experience that a large percentage of the exceptional injuries above men-



tioned can be safely handled if proper transportation facilities are provided. In cases of lighter forms of injury, as a crushed limb, how should they be transported to the hospital in order that shock may not be induced or increased, or the already mangled parts be further injured?

"The nearest surgeon is sent for, and under no circumstances should the patient be carried to him. The messenger informs the surgeon as nearly as possible of the nature and extent of the injury, so that he may come prepared, for not all surgeons have emergency cases, ready for every kind of accident. The surgeon, upon his arrival, controls hemorrhage, anticipates or combats existing shock, and adjusts a temporary dressing. Briefly, he prepares the patient for his journey, whether it be long or short. After due preparation, the patient is lifted gently a few inches from the ground or floor, and a stretcher slipped under him, and he is lowered into it and made comfortable. He is then carried into a coach or baggage car of the first passenger train going in the desired direction. An injured man should never be transported by a freight train. If no passenger train is available in a reasonable time, a "special" should be provided. If the surgeon in attendance fears for the safety of his patient, the chief surgeon should be notified of the fact, and he should instruct the surgeons along the line to visit the patient as the train passes their stations and renders any assistance necessary.

"As a rule, upon arrival at the hospital, you will find your patient in condition to submit to any operation required for his relief. The plan above outlined in this class of cases, is the one practiced on the system which the writer represents, and furnishes the patient almost constant attention from the receipt of injury until he arrives at the hospital; the greatest distance between surgeons being forty miles, and usually but twenty.

"The comfort and safety of the patient will depend very much upon the stretcher in transporting him. The writer spent several years experimenting before one was secured which answered the purpose to the satisfaction of himself and patients. Photographs of the ones that have been in use upon our system for the past eight years are submitted for your inspection. It is made of cypress; a light, springy, yet strong, native wood. The stretcher will pass easily through a car door, and two standard car cushions placed end to end, fit it exactly, and can be used as additional protection when required. The bottom of the stretcher is of wire netting, two-inch mesh, and is covered with eight-ounce duck. The netting and duck are fastened to the frame with strips of wood which are screwed on, and enabling us to easily clean or repair the wire

and duck. The legs fold under, and have heavy, corrugated rubber tips. This stretcher is light, strong, durable, and easily kept clean. It has sufficient elasticity to prevent undue jolting, but not enough to give pain. The writer has personally tested it, and can certify to its comfort.

"There have been several plans of ambulance cars proposed from time to time, but they have, in the writer's opinion, been too elaborate, entailing a large expense upon the company, the officials of which could not see a proportionate benefit; and in my judgment they have taken the correct view of the case. What we need is a strong, stiff car, with first-class trucks, furnished in the simplest style, without upholstery of any kind. We need a transportation room, an operating room, and a small consultation room.

"The transportation room is furnished with wrought-iron beds, with woven wire springs. Heavy, corrugated rubber tips are on the legs, which prevents slipping, and breaks the jar to a great extent. When not in use, these beds are fastened against the walls of the car, and are entirely out of the way. In addition to these, we have an air bed, which, when not in use, is folded into a very small compass, and packed into a closet. It takes but a moment to inflate it with air. Lastly, there is a hammock arrangement made to suspend from the roof of the car by strong straps. This hammock has a device of short, strong, spiral springs, which absolutely prevents any jolt or jar being communicated to the patient.

The operating room is supplied with an iron, glass-top table, and all necessary appliances for the treatment of shock, and for the performance of perfectly aseptic operations. Sterilizers, etc., are stored beneath the water tank, which is kept filled with sterilized water. All bedding, etc., are packed in the corner cupboard. Bandages, bottles containing chloroform, ether, etc., are in the center cupboard.

The car is painted with a specially prepared paint, which may be scalded without injury, and will stand disinfection by means of superheated steam or air."

Physic is of little use to a temperate person, for a man's own observation on what he finds does him good, and what hurts him is the best physic to preserve health.—Bacon.

A doctor is a man whom we hire for the purpose of telling stories in the chamber of a sick person till nature effects a cure or his medicine kills the patient.—Seward.

Some persons will tell you, with an air of the miraculous, that they recovered, although they were given over, whereas they might, with more reason, have said, they recovered because they were given over.—Colton.



## Notes of Societies.

The French Surgical Association will hold its tenth annual meeting in Paris during the week ending October 24, 1896, under the presidency of Professor Terrier. The two subjects for set discussions are "The Surgical Treatment of Clubfoot," to be opened by M. Forgue of Montpellier, and "The Treatment of Pro-lapse of the Genital Organs," to be opened by M. Bouilly of Paris. The secretary-general of the association is M. Lucien Picqué, No. 8 Rue de Pisly, Paris.

The American Public Health Association will hold its twenty-fourth annual meeting at Buffalo, September 15 and 18. The following are the subjects proposed for discussion: The pollution of water supplies; the disposal of garbage and refuse; animal diseases and animal food; the nomenclature of diseases and forms of statistics; protective inoculations in infectious diseases; national health legislation; the cause and prevention of diphtheria; causes and prevention of infant mortality; car sanitation; the prevention of the spread of yellow fever; steamship and steamboat sanitation; the transportation and disposal of the dead; the use of alcoholic drinks from a sanitary standpoint; the centennial of vaccination; the relation of forestry to public health; transportation of diseased tissues by mail; river conservancy boards of supervision.

### The American Electro-Therapeutic Association.

The sixth annual meeting of the American Electro-Therapeutic Society will be held in Alston Hall, Boston, Mass., September 29 and 30, and October 1, 1896.

Dr. Robert Newman, New York, president; Dr. R. J. Nunn, Georgia, treasurer; Dr. Emil Huel, 352 Willis avenue, New York, secretary; Prof. A. E. Dalbert, Tuft's College, Mass., chairman of the committee of arrangements. The following is the scientific program:

Address of the President, Dr. Robert Newman, New York City, "The Want of Education in Electro-Therapeutics in Medical Colleges."

#### REPORTS OF COMMITTEES ON SCIENTIFIC QUESTIONS.

"On Induction Coils and Alternators," Mr. A. E. Kennelly, Philadelphia, Pa.

"On Meters," Dr. M. A. Cleaves, New York City.

"On Static Machines and Condensers," Dr. W. J. Morton, New York City.

"On Constant Current Generators and Controllers," Dr. W. J. Herdman, Ann Arbor, Mich.

"On Electrodes," Dr. C. R. Dickson, Toronto, Canada.

"On Electric Light Apparatus for Diagnosis and Therapy," Dr. J. H. Kellogg, Battle Creek, Mich.

#### PAPERS.

"What Can be Done by Means of the Use of Electricity to Avoid Surgical Operations," Dr. G. Betton Massey, Philadelphia, Pa.

"Electricity in Chronic, Non-Suppurative Affections of the Uterine Appendages," Dr. F. Shavoir, Stamford, Conn.

Discussion by Dr. G. Betton Massey, Philadelphia, Pa.

"Electricity in the Treatment of Diseases of the Throat and Nose," Dr. O. B. Douglass, New York City.

"Electricity in the Treatment of Diseases of the Larynx," Dr. W. C. Phillips, New York City.

"Accidents and Risks in the Use of Street Currents. How Far are They Practicable and Safe in the Use of Electro-Therapeutics?" Mr. J. J. Carty, E. E., New York City.

Discussion by Mr. John J. Cabot, E. E., Cincinnati, O.

"Accidents and Risks in Using Electricity, Generated at Central Stations and Transmitted Over Underground and Overhead Wires to Operators in Electro-Therapy."

"Danger to Patients and Operators and How Prevented. Also Liability of Physicians Using the Same," Mr. John J. Cabot, E. E., Cincinnati, O.

"Experiments Upon the Effects of Direct Electrization of the Stomach," Dr. Max Einhorn, New York City.

"Electricity in Diseases of the Stomach," Dr. David D. Stewart, Philadelphia, Pa.

"The Static Current in the Post-Apoplectic State," Dr. John Gerin, Auburn, N. Y.

Lecture I: "The Electrical Principles Generally Used in Medical Treatment," Prof. William L. Puffer, Boston, Mass.

Lecture II: "The Relation of Physics to Physiology," Prof. A. E. Dolbear, Tuft's College, Mass.

"Electro-Therapy in the Treatment of the Nervous," Dr. W. S. Watson, Fishkill-on-Hudson, N. Y.

"The Role of Electricity in the Treatment of Uric Acid Diathesis," Dr. J. G. Davis, New York City.

"Some Observations in Electro-Therapeutics," Dr. D. R. Brower, Chicago, Ill.

"The Physics of the Production of the X-Rays," Mr. Edwin Houston, Ph. D., Philadelphia, Pa.; Mr. A. E. Kennelly, F. R. A. S., Philadelphia, Pa.

"Treatment of Strictures by Electrolysis versus Any Other Treatment," Dr. F. H. Wallace, Boston, Mass.

"The Newman Method of Urethral Electrolysis." Its advantages and reasons why some operators fail. Dr. Francis B. Bishop, Washington, D. C.



"Faradism in Gynæcology," Dr. R. J. Nunn, Savannah, Ga.

"The Motor Dynamo—Adapted to Electro-Therapeutic Work," Dr. W. J. Herdman, Ann Arbor, Mich.

Discussion by Mr. Edwin W. Hammer, E. E., New York City, and Dr. G. J. Englemann, Boston, Mass.

"The Application of Electricity to Surgery," Dr. J. W. Herdman, Ann Arbor, Mich.

"A Summary of the Ultimate Results in 80 Fibroid Tumors, Treated by the Apostoli Method," Dr. G. Betton Massey, Philadelphia, Pa.

"Some Experiences and Experiments in the Construction of High Tension Coils and Electrodes," Dr. Frank W. Ross, A. M., Elmira, N. Y.

"Electricity Considered in Its Relation to Surgical Gynæcology," Dr. O. S. Phelps, New York City.

"A Clinical Report of Case of Rectal Phlebitis Treated with Galvanism," Dr. D. B. D. Beaver, Reading, Pa.

"On the Electro-Therapeutics of the Constant Current," Mr. A. E. Kennelly, F. R. A. S., Philadelphia, Pa.

Title to be announced, Dr. M. A. Cleaves, New York City.

Title to be announced, Dr. Fred. H. Morse, Melrose, Mass.

#### Closing Arterial Wounds by Suture.

Dr. Heidenhain, in the *Centralbl. für Chir.*, No. 49, 1895, cites two previously recorded cases, involving in one instance the common femoral, in the other the common iliac. He also reports a case of his own, in which during the removal of some cancerous glands from under the armpit, and after necessary resection of a portion of the axillary vein, a wound about an inch and a half in length was accidentally made in the main artery. The bleeding was arrested by digital compression and the edges of the arterial wound were brought together by a continuous suture of catgut. The bleeding was thus completely arrested. The lumen of the vessel was not apparently diminished. The sutures held firmly in spite of strong arterial pulsation. The patient made a good recovery, and when last seen, seven months after the operation, was quite free from relapse. The axillary artery could be felt pulsating along the whole extent of the armpit.—*The Medical Record.*

I think you might dispense with half your doctors if you would only consult Doctor Sun more, and be more under the treatment of these great hydropathic doctors, the clouds.—Beecher.

## Extracts and Abstracts.

### How to Prevent Anæsthetic Vomiting.\*

By THOS. W. MUSGROVE, M. D., FAIRHAVEN, WASHINGTON.

Of all creatures known to science man is the most given to vomiting. Every organ of his body is connected by alarm nerves with the vomit center. A sudden injury to any important or vital organ will produce vomiting. In many persons a disagreeable thought, a disgusting sight, a fright, a chill, or anything that impresses the vomit-center that there is something obnoxious in the system, produces a contraction of the diaphragm, reversed peristaltic action of the stomach, with ejection of its contents; or, if the stomach be empty an attempt to vomit the stomach itself. This safeguard of life is so finely adjusted—set with a hair trigger, as it were—that vomiting frequently becomes one of the most annoying and even dangerous complications of disease in many patients. Vomiting may be a simple regurgitation, or it may be of so severe a character as to resemble the throes of parturition.

The vomiting of pregnancy, the nausea of intestinal disorders of children, the uncontrollable vomiting of meningitis, of intestinal obstruction, are all sufficiently distressing to the patient and troublesome to the physician, to try the courage and skill of the best of us. But none are more annoying and obstinate than the vomiting produced by anæsthesia.

Nearly all patients who are deeply narcotized by any of the popular anæsthetics suffer more or less from nausea and vomiting. I believe fully ninety per cent of all persons who are kept under an anæsthetic more than half an hour are made sick. If ether is used, about 60 per cent vomit. If chloroform, about 40 per cent. If nitrous oxide, not more than 10 per cent, but it is very seldom that anyone is kept under gas half an hour.

In abdominal surgery, the vomiting during and after the operation is often exceedingly troublesome, and sometimes dangerous.

These statements are so well known to the profession that I need not elaborate or quote authorities to prove them. We all know them unpleasantly well. The question is how to prevent anæsthetic vomiting. As both the etiology and process of vomiting is very complex it is plain that there is no simple method of preventing it. The only rational method is to keep in mind and etiology and physiological process of vomiting, and put the patient in a

\*Read before the Washington State Medical Society, May 19, 1898.



condition as far from that which produces it as possible. Consequently, only by attending to all the details of preparing a patient for an operation can vomiting be reduced to a minimum.

1st. The preparation of the patient.

2nd. The selection of the proper anæsthetic for each patient.

3rd. The method of giving the anæsthetic.

4th. After-treatment.

Every patient who has to undergo a severe operation, especially an operation of election, should be especially prepared, both mentally and physically, to withstand shock and pain.

Many surgeons have given years of patient and intelligent investigation to the best methods of preparing patients for operations under anæsthetics, yet we have not a system that is fully satisfactory and generally adopted by all surgeons. All agree on a few things. No surgeon will give an anæsthetic to a patient except in a grave emergency, soon after eating solid food. Six to eight hours is considered sufficient time after a meal. Twelve or more hours is apt to leave the patient hungry and less able to stand an operation. My own method is to empty the alimentary canal thoroughly the day before the operation, and give liquid food only the night before and malted milk or soup four hours before the operation. An especial effort should be made to have the stomach and bowels free from gas.

Few patients should have morphia in any form before giving an anæsthetic. Morphia often aggravates the nausea. Whiskey does the same thing and should not be given before the operation. In fact, all depressing anti-pyretic drugs should be avoided. Keep the patient's mind as cheerful as possible, and the strength as great as possible. Keep the patient warm. The rapid evaporation of all anæsthetic cools both the patient and the surrounding atmosphere, and many a lung complication has been produced by the great reduction of temperature rather than by any other factor in the operation.

A very warm room—about 80 degrees F.—warm, dry flannel clothing, kept in close contact with the patient's skin, and as small a field for the operation as possible exposed to the air, will prevent shock and chill and thereby counteract the tendency to vomit after the operation.

2nd. Selection of anæsthetic.

After using pure ether—as I was taught at Harvard by the renowned Bigelow—for ten years, and then having associated with surgeons who were educated in Edinburgh, under the influence of the celebrated Sir James Y. Simpson, I used chloroform mostly for five years, but the surgeons from whom I learned the use of chloroform having a very sad death from it in the hospital, the board of directors

passed a resolution prohibiting the use of chloroform in that institution, except in especial cases. I began the use of the A. C. E. mixture about ten years ago, and have used it almost entirely ever since with the utmost satisfaction.

The A. C. E. mixture is composed of one part of pure 95 per cent alcohol, two parts of pure chloroform, and three parts of pure ether, by volume. This mixture keeps well in the dark. It should be given on a hollow sponge, covered with a leather case, with an opening in the top that can be opened or closed, as the surgeon giving the anæsthetic deems necessary.

3rd. Method of giving an anæsthetic.

Begin with a half a drachm of the A. C. E. mixture on the sponge and let the patient inhale it slowly. The more through the mouth at first the better. Take at least ten minutes to bring the patient fully under its influence. During the operation give just enough of the anæsthetic to keep the patient quiet. Many patients are so saturated with the vapor that it is no wonder they vomit and have no rest for many hours after the operation.

4th. After-treatment.

If the method just outlined be skillfully carried out, there will be but few cases requiring special after-treatment.

Vomiting will be reduced to a minimum. But in the cases where shock and the anæsthetic have produced nausea and vomiting, there is nothing better than one drop doses of wine of ipecac on the tongue every half hour for two or three hours. If there be much pain a hypodermic of morphia will often relieve the patient, but in abdominal operations the less morphia used the better as a rule.

Ice has not been of much use in my experience. It does for a little while, but in one or two hours the tongue glazes and the stomach becomes uncomfortable. A mustard plaster on the back of the neck often relieves the patient. The skin should not be blistered. Over medication is sometimes the cause of vomiting. The hypodermic injection of digitalis, ether, strychnia and whiskey is often so heroically employed that the brain centers are driven to the utmost exertion of their power to expel so much poison from the system by vomiting.

The tendency of the surgeon is to conclude that so long as his treatment does not kill the patient, that nothing he does causes any harm. Unfortunately, the human mind is so constituted that any man is liable to fall into error regarding his most cherished work, consequently we fall into habits of dosing that are often unnecessary and sometimes injurious. The simplest medication is surely the most scientific, and the complex is so difficult to fully understand that no one can be absolutely sure



that he knows the post hoc from the propter hoc.

For the sake of brevity, I have not made quotations or referred to authorities, but simply put the conclusions of my studies and practice of twenty-five years in as small a space as possible. I have never had a death in my practice, nor under my care from an anæsthetic. I have given anæsthetics in many cases, for all kinds of operations, and never had but one fright in all of them. A young woman came to me to have some teeth extracted. She disliked ether so much that I gave her chloroform, and if I had not been on the alert, she would have died in the chair. By quick work

The new building was erected by the funds of the A. T. & St. F. Hospital Association, completed and turned over to the board of trustees on May 21 of the current year, and by them immediately turned over to the chief surgeon, Dr. Geo. W. Hogeboom, for equipment and opening. It was partially equipped and opened on the 22d of June, in immediate charge of the superintendent of hospitals for the association, Dr. J. R. Fay.

Its construction is sandstone from Flagstaff, Ariz., for the first story, and for the stories above pressed brick. Its capacity is from 75 to 100 patients. There are three general wards with a capacity of 18 beds each, three



NEW HOSPITAL OF THE A. T. & S. F. HOSPITAL ASSOCIATION AT TOPEKA, KAN.

I lowered her head and pulled out her tongue, and she began to breathe again and soon recovered. So I would say never give chloroform to a patient in a dentist's chair, with his clothes on, and no preparation.—Medical Sentinel.

#### The New Santa Fe Hospital at Topeka.

The engraving presented herewith shows the exterior of the new hospital erected at Topeka, Kan., by the hospital department of the Atchison, Topeka & Santa Fe Railroad. This is the fifth hospital of the system. The other four are located at Ft. Madison, Ia., Ottawa, Kan., La Junta, Colo., and Las Vegas, New Mexico.

small wards of 4 to 6 beds, and the balance single rooms. This capacity can be safely increased one-third if necessary to do so. Its interior construction is of the most modern type. Its heating and ventilating is of the Sturtevant system, by fans propelled by electricity, by which the air in the entire building can be changed in 10 or 12 minutes, without the stirring of a feather held in midair in any room; and in each ward or room occupied by patients the heat is controlled by the Johnson automatic heat control, by which the temperature can be maintained at any desired degree. Since its opening it has administered to a daily average of from 20 to 25 patients, which is constantly increasing. Its patronage from out-



side patients has been at the rate of \$150 per month, which is also increasing. It is in universal favor with the profession, especially for its capacious and well-equipped operating room.

In reference to the utility of the Railway Employes' Association, the chief surgeon says that this association was organized in 1884 and since that time to date the evidence has been complete and conclusive of the good effects and results of such association, both to the employe and the railway company; and he earnestly urges all railway companies to favor such organizations.

**Fracture of the Os Calcis, with Report of a Case of Comminuted Fracture with an Unique Method of Treatment.\***

Dr. Henry M. Joy of Grand Rapids, Mich., reports the following interesting and instructive case in a recent issue of the *Annals of Surgery*:

Fracture of the os calcis of any variety, notwithstanding the peculiar liability of this bone to injury from its location, may, I think, be classed among the rare fractures with which the general surgeon has to deal, and there exists, I think, a corresponding scarcity of literature upon the subject.

The os calcis may be fractured either by muscular action, in which case the lesion is immediately below the insertion of the tendo Achillis and is accompanied with marked upward displacement of the fragment due to muscular contraction, or the injury may be caused by direct violence, as from a fall upon the foot. Fractures due to a fall are usually comminuted, and may be diagnosed by the flattening and broadening of the sole and heel, which is observed when comparison is made between the injured and the sound foot.†

Crepitus may or may not be present, but if present is most readily obtained by rotating the foot and at the same time holding the heel, or by holding the heel and flexing the ankle. The treatment of these injuries will be referred to in connection with the following case:

Mr. B., aged twenty-one years, while suffering from an attack of delirium tremens, jumped from a second story window in his stocking feet to the frozen ground,—a distance of about twenty feet,—he landed squarely on his feet, then fell forward onto his face.

Notwithstanding the injury sustained he succeeded in rising and ran some thirty or forty yards before being captured and returned to the hospital.

Examination showed the presence of a transverse fracture immediately below the in-

sertion of the tendo Achillis, due probably to muscular action in the attempt to prevent falling forward after striking the ground.

Evidence of flattening and broadening of the sole of the injured heel, when compared with the sound side, led me to suspect a fracture of the subastragaloid portion of the bone, though no crepitus could be obtained.

The action of the tendon was so marked that the upper fragment was separated about two inches from the lower portion of the bone, with the skin tightly stretched over it, and attempts at reduction either by manipulation or position with flexion of the leg and over-extension of the foot being unsuccessful, an operation was deemed advisable. An incision was made in the median line of the plantar surface of the heel extending over the heel and about three inches along the course of the tendo Achillis, which was exposed by the incision. After the incision was completed, a large quantity of effused blood escaped from the wound, when it was seen that the subastragaloid portion of the bone was crushed into three fragments of different sizes.

The extensive comminution rendered the use of either nails or the ordinary method of wiring impossible, and a somewhat unique method of treatment was adopted. The tendon was first severed by an oblique incision, beginning at the outer side one inch above its insertion into the bone and ending on the inner side about two inches above the starting point. It was then easy to slip the upper fragment with its attached portion of tendon down into place.

A medium-sized silver wire was then passed through the tendo Achillis at its insertion, then through the tissues immediately surrounding the various fragments, returning to the point of insertion, thus fixing the fragments at the periphery of each, so that when the suture was completed the fragments were inclosed in a loop which, when drawn taut, brought the parts into perfect apposition. A few turns were then taken in the wire and the ends cut off. The severed tendon was next united with fine silk, the wound closed with silkworm-gut and dressed, and a plaster-of-Paris cast applied with the foot in an over-extended position to secure as much relaxation of the tendon as possible, and thus avoid any tendency to separation of the fragments or of the ends of the divided tendon from tension.

The wound was first dressed and stitches removed on the eleventh day, when primary union of the cut surface was found complete. Second cast was applied at this time with the foot still over-extended.

Fearing lest too firm adhesion might form between the tendon and the surrounding tissues the cast was removed at the end of two weeks, making in all about four weeks that the

\* Read before the Grand Rapids Academy of Medicine.

† American Text-Book of Surgery.



foot had been immobilized. Much to my gratification, there had apparently been no inflammatory action whatever, as the function of the tendon was as perfect as in the sound foot, with no evidence of any formation of adhesions.

The treatment advocated for these fractures varies according to the location of the injury. In cases where the fracture is subastragaloid the use of splints will usually be unnecessary. The leg should be placed in a comfortable position and cold lotions applied until swelling has subsided, after which an immovable dressing should be applied and the patient allowed to get about on crutches (Agnew).

For fractures of the posterior portion of the bone (immediately below the insertion of the tendon), the application of a side or anterior splint with the foot over-extended or the use of Monroe's modification of Thillaye's apparatus—a device for securing this position, is sometimes used. When the injury is of this nature, I do not believe it possible if there be much muscular contraction to secure enough relaxation of the tendon by position alone to obtain sufficiently perfect coaptation of the fragments, and though there is danger of death of the fragment when tenotomy is practiced, the upper portion of the os calcis being largely dependent for its vascular supply upon the tendon, I believe the dangers of a useless foot are less when an open, oblique tenotomy is made and perfect coaptation of the fragments obtained followed by immediate suture of the tendon than when an attempt is made to keep the parts in position by the use of a splint or any apparatus which has as yet been devised.

#### (22) Passage in the Treatment of Joint Fractures.

Pello (Archiv. di Ortoped, An. 13, fasc. 3, 1896), draws attention to the value of early massage and passive movement in the case of intra-articular fractures. He believes that the usual method of treatment by prolonged fixation delays recovery, and only too often leads to ankylosis. He then reports three cases where massage was practiced at once, and where the only fixing apparatus was a starched bandage freely cut away so as to allow of the massage. The first case was that of a boy, aged 6, with intra-articular fracture of the trochlear process of the right humerus. Light massage was practiced at once, and gave much relief to the pain; the joint was put up in a starched bandage. The next day a good part of the bandage was cut off, and twenty minutes' massage practiced. On the fifth day slight passive movement of the joint was commenced. On the tenth day the bandage was discarded; at the end of a month the elbow was as free in its movements as before

the fracture. The second case was that of a man, aged 38, with Colle's fracture, treated in a similar way and completely cured, with free movement and no deformity, on the fifteenth day. The third case was that of a man, aged 40, who fractured his tibia and patella. The tibial fracture was treated in the usual way; the patellar fracture was unrecognized at the time, and after seventy days' treatment, when the patient was first seen by the author, although the tibial fracture was healed, the patient's limb was useless, as the patellar fragments were distant 2 centimeters, and only worked by weak fibrous union. Massage was practiced, and after fifteen days the patient could walk with crutches, the oedema disappeared, and flexion of the knee (previously rigid) could be obtained. At the end of a month the patient could walk well with a simple stick; in two months he could walk upstairs, so that no one would suspect any injury to the limb.—British Medical Journal.

#### Changes in the Spinal Cord Following Amputation.

Dr. Alfred W. Campbell detailed the changes found in three cases,—one an amputation below the knee and two amputations through the upper arm. For purposes of comparison sections of a spinal cord from a case in which the entire brachial plexus had been injured in early life were shown. In all cases marked changes in the spinal cord were found in those segments which receive the sensory nerves from the skin and give off the motor nerves to the muscles removed. These changes were hemiatrophy, with universal reduction in size of gray and white matter, without definite sclerosis of special tracts, and a numerical deficiency of the nerve cells in the cornua, but especially in the postero-lateral group of the anterior cornu, all on that side corresponding to the amputation. In the case where the leg had been amputated there was a reduction in the number of the nerve cells in Clarke's column, in the lower dorsal and upper lumbar segments. The peripheral nerves above the site of operation revealed marked atrophic alterations and a filling up of the intervening spaces between bundles by large quantities of fat. The ganglia on the posterior roots presented atrophy of some nerve cells. In the brachial plexus case the hemiatrophy was not so marked and the posterior cornua were symmetrical, a condition which might be due to the skin being left intact. Reference was made to Sherrington, Head, and Thorburn's work on "spinal localization," and the wonderful accuracy of the results of these observers as confirmed by these cases was commented upon.—Universal Medical Journal.



## Miscellany.

### Management of Cases Immediately Following Operations.

Sir Thornley Stoper (*British Medical Journal*) writes as follows: "If I may reduce to formula the matters I have referred to, I would put them thus: (1) That the tendency to prolong operations must be carefully guarded against, as it is a grave cause of danger. (2) That in the treatment of shock and vomiting following operation we get no help from the stomach, and must rely on the rectum as its substitute. (3) That heat, alcohol and opiates are our best remedies; and that the latter are well borne, and must be intelligently used to their full effect. (4) That drugs of the class ordinarily used to check vomiting are of little or no use in the cases under consideration. (5) That ice does not relieve thirst, and does harm by introducing water into the stomach and so provoking vomiting."—*The Medical Record*

### The Management of Railway Hospitals.

It may not be uninteresting to the readers of the *Fortnightly* to give a cursory idea of the management of hospital departments upon railways as at present constituted. At the head of the department presides its chief executive, known as the chief surgeon, medical director or general surgeon. The chief surgeon has complete control and directs the management and disposition of cases, causes reports to be made, has charge of all hospitals and appoints all surgeons, renders personal injury reports to claim and legal departments, and causes to be kept a current history of every case treated. The chief surgeon directs the expenditure of bills incurred in conducting the department, vouching all accounts, selects experts for the company in damage suits and adjusts all disputed points pertaining to the department. The general manager is the only officer of the road to whom the chief surgeon reports and they alone are authorized to incur expense. The chief executive of the hospital department is held responsible for the proper performance of all its work and general efficiency, and therefore seeks to improve his department in every detail and being thoroughly cognizant of all that pertains to his department becomes an important factor in railway management. Local surgeons are appointed at every town of any importance and at large division points, where many employes are engaged, two surgeons are stationed. Most roads average one local surgeon for every twenty-five miles represented.

The railways employ more members of the medical profession than any other industry;

some of our large systems have as many as 325 surgeons in their employ. Local surgeons are supplied with printed instructions, covering all accidents that might occur, and in the event of an accident no misunderstanding nor confusion arises. All superintendents, train masters, conductors, engineers, brakemen, agents, road masters, section foremen and others have essentially the same printed instructions how to proceed in case an accident occurs and where to find the nearest local surgeon. All time-cards in force contain these directions and in addition thereto is printed the names and locations of all company surgeons of that particular division upon which they operate. When an accident occurs upon some portion of the road the chief surgeon or assistant chief surgeon is immediately notified by wire by the local surgeon and also by the superintendent, conductor or agent, detailing where, how and when it occurred, and the extent of injuries; the local surgeon is then directed regarding the disposition of the case and the advisability of transporting the same. Stretchers are placed at stations where local surgeons are stationed, and upon all baggage and wrecking cars, hence cases can be shipped with celerity. Notification is sent when a case is to be shipped and hospital ambulances meet the train. Should a passenger train be wrecked not only all local surgeons in the immediate vicinity are called, but invariably relief surgeons and surgical supplies are sent from hospitals. Instructions are likewise printed for the guidance of employes in case of sickness. Everything is explicitly stated regarding proper certificates of admission, character of cases admitted and requests for medicines and treatment through the mails. Records of all personal injury cases are filed in the chief surgeon's office. Thus, upon the Missouri Pacific the chief surgeon has over 30,000 reports of personal injuries on record for reference. At the hospital, a personal bedside history is taken daily by the attending surgeon. We have, therefore, not only a record of the injury, but a daily history from the time of the injury until settlement is made. These departments never lack patronage. The Missouri Pacific hospital department, including two hospitals and five emergency stations, treats nearly 30,000 employes annually, and it is computed that the various hospital departments of the United States treat from 165,000 to 185,000 annually.

A hospital department as at present constituted consists of the following medical officers: Chief surgeon, house surgeons, consulting surgeons and specialists, oculists, aurists, throat and lung specialists, dermatologist, neurologist, bacteriologist and pathologist and consulting electro-therapeutist.

The rapidity of growth of these departments



has been substantial, and their results of cases treated will bear the closest scrutiny.—The Medical Fortnightly.

#### A Neat Spherical Gauze Sponge.

In a recent number of the New York Medical Record, Dr. G. W. Perkins of Ogden, Utah, says:

Since the general use of heat for sterilization, gauze has largely replaced marine sponges in surgical work. Flat pads made up of several layers of gauze, and spherical sponges made by enclosing masses of loose gauze or absorbent cotton in an envelope of gauze, are the forms in which it is usually employed.

The flat pads are easily folded in such a way as to place all raw edges of the fabric in the inside of the pad, and a few long stitches serve to keep them there. The spherical sponges which I have seen described and figured have been made by simply tying the enveloping layer of gauze and cutting off the excess a short distance beyond the ligature, thus leaving this cut surface with threads of the gauze projecting. This seems to me undesirable, because some portions of these threads might become detached and be left in the wound or cavity in which the sponge had been used.

In casting about for a way to obviate this disadvantage, I first made the sponge as above described, but went one step farther by carrying around the projecting stump a circular purse-string suture, and in tying this pushed the stump into the center of the sponge, thus burying it out of sight. This answered very well, but left a hard lump at one side of the sponge, which sometimes interfered with grasping it in a spongeholder. I next tried the following maneuver, by which I succeeded in making as neat and satisfactory a sponge as one could wish for. Instead of ligating the pedicle of the envelope of gauze, I twisted it once or twice and grasped it with a small hæmostatic clamp; then cut away the excess close to the outer side of the clamp and placed my purse-string circular suture about half an inch distant from the stump, and as I tied it pushed the clamp holding the stump of the pedicle into the sponge, disengaging and withdrawing the clamp just before the suture was drawn tight.

The result is a symmetrical, sub-spherical mass of loose gauze, without raw edges on its surface and without hard lumps in its substance, which has in my hands admirably answered its purpose.

This is merely an adaptation of the Dawbarn method of inverting the unligated stump of the appendix into the cæcum, and I dare say has been used before by other surgeons; but as I have never seen it in print, I offer the suggestion for what it is worth.

## Notices and Reviews.

### Book Notices.

Lea Brothers & Co. of Philadelphia announce a new edition of this well known text book, to be issued during the present month, and in which such changes have been made as are necessary to represent the advances in anatomical knowledge and anatomical teaching. The sections on the brain, spinal cord and viscera have been entirely rewritten, and new matter and new engravings added.—The Medical Age.

### BOOKS AND PAMPHLETS RECEIVED.

"Wharton's Minor Surgery and Bandaging," by Henry R. Wharton, M. D.

"The Newer Remedies," by Coblenz; D. O. Haynes & Co., publishers, New York.

"Transportation of Injured Employes," by Frank H. Caldwell, M. D. Reprinted from the Journal of the American Medical Association, February 29, 1896.

"Eye Symptoms in Nephritis, as Seen With the Ophthalmoscope," by William Cheatham, M. D. From the American Practitioner and News, August 22, 1896.

"Report of Relief and Hospital Department of the Plant System."

"A Contribution to our Knowledge of Albumosuria," by M. L. Harris, M. D. Reprinted from the Chicago Medical Recorder.

"Abscess of the Lung, with Report of Seven Cases," by E. Fletcher Ingals, M. D. Reprinted from the Journal of the American Medical Association, August 22, 1896.

"Hypertrophy of the Pharyngeal or Luschka's Tonsil," by E. Fletcher Ingals, M. D. Reprinted from the Journal of the American Medical Association, September 29, 1894.

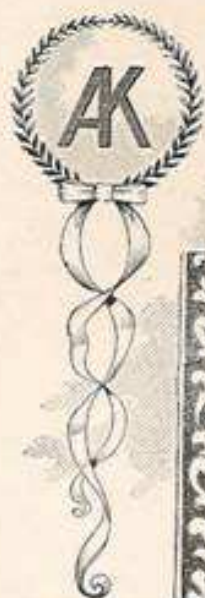
"Operations Performed in the Eye Department of the Medico-chirurgical Hospital," by L. Webster Fox, M. D. Reprint from the Ophthalmic Record.

"Choice of Methods in Performing Hysterectomy," by Fernand Henrotin, M. D. From the American Journal of the Medical Sciences, October, 1895.

"Anti-toxin; Some Practical Remarks in Regard to Its Use," by G. F. Washburne, M. D.

Plato said very well: "Physicians were the only men that might lie at pleasure, since our health depends upon the vanity and falsity of their promises.—Montaigne.





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