main features is not absolute, for one occasionally sees phthisis associated with congenital heart disease.

I have had no experience in this method, but will quote the conclusions arrived at by Miller⁸ who has put this method to a fair test. He says that his experience has not equalled that of Bier, as most of his cases were afterwards treated by other means and could not under the rules of the hospital be allowed to remain a sufficient length of time in the wards. In summing up he comes to the conclusion that the new method can not in the majority of cases take the place of amputation, excision, scraping nor of immobilization, but that combined with immobilization it is undoubtedly an aid in the treatment of these affections.

A limb with a tubercular joint has smaller arteries and is in consequence inadequately supplied with nutriment. May it not be that the diseased part is on account of its malnutrition unfavorably situated as regards its contest with the tubercle bacilli, and that the congestion of the neighborhood assists in the destruction of the bacilli and the throwing off of the disease by bringing more blood and serum (pabulum) to the fighting tissue?

⁸ Edinb. Medical Journal, February, 1894, p. 702.

THE OPERATIVE TREATMENT OF TUBERCULOSIS OF JOINTS—(EXCISION).

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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The question of the operative treatment of joint disease should involve the discussion of several procedures; excision, arthrectomy, incision and ignipuncture. The limits of this paper, however, compel the writer to confine his attention to the consideration of the place of excision in the treatment of tuberculous joint disease. On this subject there is a wide range of opinion in the surgical world. Some surgeons advocate early excision as a routine treatment in tuberculous joint disease; others would never excise at all, because they consider the operation as rarely necessary, and as dangerous; and a third faction believes that excision is to be kept in the background until conservative measures (*i. e.*, mechanical treatment) have had a faithful trial.

Mechanical treatment is a term which has been often applied to the loosest and most incomplete imitations of proper conservative measures. Consequently, when one attempts to define the sphere of operative measures, contrasted with mechanical ones in joint tuberculosis, it must be understood that by mechanical treatment is meant here the intelligent and systematic application of suitable apparatus by surgeons of special training; not the reference of a patient to an instrument-maker with the order for a "hip splint." This is not the mechanical treatment which yields good functional results.

There are two dangers from excision of joints: 1, loss of life; 2, generalization of the tuberculosis.

1. Excision of even the larger joints is not an operation which is accredited with a high death rate. Of late years the mortality has become much less, but the immediate mortality is of little significance compared with the remote, of which we know very

little; for few figures deal with the latter. Immediate results in these cases show very little, because relapse and generalization of tuberculosis occur later, and are the really significant factors. Just as any statistics of operation for cancer of the breast, which only dealt with the three months after operation, would be of little or no value in determining the value of the operation as a cure of cancer. As an example of the very favorable aspect of operative treatment considered (as usually is the case) in the light of immediate results, the following figures are of interest, taking a group of the latest results in excision of the knee for instance:

Lücke¹ reports 101 excisions of the knee with 85 per cent. of good results; Lucas-Championniere² 44 excisions without a death; Thompson³ reports 50 knee excisions without a death; in 287 cases in adults, reported by Schüller⁴ 12.5 per cent. died, and in 274 cases under 20, 10.9 per cent. died. In 129 excisions, reported by Bothe, there was no death⁵; Zeuge-Mauteuffell⁶ had 11 per cent. of deaths in 55 cases done at the Dorpat clinic.

In Lücke's cases there were 60 per cent. of cures; in a series of 48 excisions in children, reported by Angerer⁷, below the age of puberty, there were 70 per cent. of total recovery; in the series of 561 cases, reported by Schüller, which have been already alluded to, 63.8 per cent. were cured. In the last 61 operations, of the 131 reported by Boeckel⁸, union without fistulæ occurred in 82 per cent. In the fifty-five cases operated on at the Dorpat clinic, union by first intention occurred in 71 per cent. As was said by Verneuil, at the Congress for Tuberculosis: "We have reason to be optimistic when it concerns immediate results."

Turning to remote results there are fewer figures. Korff⁹ reports the final results in 104 cases of general resections, with a mortality of 37.5 per cent.; Boeckel relates 127 resections of joints in general. There were sixteen deaths soon after operation (nine from tuberculosis), and fourteen late deaths (eleven from tuberculosis); a mortality of 24 per cent. at least.

The class of cases from which these statistics are drawn is not one from which the remote results can be well estimated, so easily do they escape from observation. In the more inaccessible joints, such as the hip, the results are not as favorable as to recovery rates. In 2,461 cases of hip excision, collected by G. A. Wright¹⁰, the mortality was 34 per cent.

2. Generalization of tuberculosis. This danger demands serious consideration, because it is a danger which the improvement of antiseptics has not tended to diminish. Wartmann¹¹ analyzed 837 resections and found that 10 per cent. of all deaths were the result of rapid miliary tuberculosis. And Mr. Barker, a radical advocate of excision, stated in a lecture before the Royal College of Surgeons in 1888, that in 10 per cent. of all deaths following excision, "rapid miliary tuberculosis came on in such a way as to suggest strongly, if not to prove, that the surgical interference was the cause of the generalization

¹ Deutsch z. für Chir., xxix, H. 4.

² La Semaine Medicale, Aug. 6, 1891.

³ Dublin Journal Med. Science, December, 1889.

⁴ Deutsch z. für Chir., xxx, p. 285.

⁵ Schmidt's Jahrbuch, June, 1891.

⁶ Deutsch z. für Chir., xxix, p. 113.

⁷ Wein Med. Wochensh., June 21, 1891.

⁸ La Semaine Medicale, April 12, 1892.

⁹ Deutsch z. für Chir., xxii, p. 149.

¹⁰ Hip Disease in Childhood, London, 1887.

¹¹ Deutsch z. für Chir., xxiv, 435.

of the disease." In thirty deaths occurring in 151 resections, reported by Boeckel, 20 were from generalized tuberculosis. In 39 deaths occurring in 104 resections, reported by Korff, 34 were from tuberculosis. Sherman¹² reported 106 cases of hip disease, of which 42 were treated conservatively, and 64 were excised. Of the sixty-four cases excised, the present condition is known in fifty-six, thirteen died—ten of tuberculosis, a mortality of 23 per cent.

In a series of cases of hip disease at the Alexandra Hospital¹³ in London (occurring from 1867-1879), which were treated conservatively, there were 384 cases of hip disease treated, and only 23 deaths (6 per cent.) from tubercular meningitis. König¹⁴ reported that of twenty-one hip excisions, 47.6 per cent. died of tuberculosis inside of four years.¹⁵ Caumont treated twenty-six cases of bad hip disease by conservative measures, and found that 20 per cent. died of tuberculosis, while in twenty-two similar cases which were resected, 33 per cent. died of generalized tuberculosis. These are only some of the writers who believe that operative measures in tuberculous joint disease cause tubercular generalization. This question was discussed at the Société de Chirurgie as early as 1883 by Verneuil, Trelat, Berger and others, who agreed that tubercular meningitis could develop after the slightest intervention in the treatment of these affections. Metaxas and Vêrchère¹⁶ claim that more than one-half of the cases of tubercular meningitis are caused by operation for tubercular bone disease.

FUNCTIONAL RESULTS.

The successful results after resection of the joints must needs be inferior, in most instances, to the successful ones brought about by mechanical treatment in a similar grade of cases. Resection implies some destruction of sound tissue. No surgeon attempts to remove only diseased bone; he must go further and remove a layer of sound tissue with it. Nature cures by the absorption or elimination of the diseased products alone. On general principles a joint mutilated by surgical interference is not likely to be as useful as a joint cured by assisting nature. In the hip, resection means the removal of the head of the bone, and often the neck and trochanter major, perhaps part of the shaft also. Shortening is a necessity; important muscular connections are severed, and an unstable and flail-like joint may result. Wright reported 100 cases of excision of the hip. There were,

Soundly healed	17
Unhealed	57
Dead or dying	18
In bad condition	3
Amputated	4
Recent case	1

100

In short, about 20 per cent. were satisfactory cases, and of the whole 100, in 30 the excision was done within nine months of the beginning of the disease, representing the most favorable condition for its performance. In Sherman's very favorable group of thirty-four recoveries out of sixty-four excisions, sixteen were reported in two years or less after operation,

so that they are hardly remote results. Of the twelve cases where three years or more had elapsed since operation, two walked with a crutch five and seven years after operation; in two more, Dr. Sherman noted the limp as bad; in two as medium and in five as slight. Yet these are, so far as the writer knows, the best statistics yet presented in favor of hip excision.

Excision of the knee leaves a stiff joint, no matter how successful the case. After mechanical treatment successful cases have motion. A foot which has successfully recovered from ankle joint disease without operation is manifestly a better one than when bone has been removed.

No attempt will be made here to define or defend mechanical treatment. Considering briefly what is expected from mechanical treatment in its best aspect, the group of results in hip disease referred to¹⁷ are a sufficient warrant for the statement that in skilful hands, modern conservative treatment yields, as a rule, good results in the case of children before puberty. All surgeons agree that unnecessary operating is to be avoided; all surgeons would agree that, other things being equal, non-operative measures should precede operative ones where there was a chance of their success. Here comes the struggle, however, that advocates of excision decry persistence in conservative measures as useless.

In this connection the experience of the Children's Hospital, Boston, may be of interest in the matter of hip disease. From 1878 to 1892, inclusive, there have been some seven hundred and fifty admissions to the wards for hip disease, many of the cases having been admitted twice, so that the number of patients is not quite so large. Of these cases only thirty-seven have been excised. It may be added that the surgeons of the Hospital have not been specialists, but general surgeons, holding appointments in general hospitals. To show more accurately the number of cases under treatment it may be stated that in the last nine years of this period (from 1884 to 1892 inclusive) 718 new cases of hip disease have applied at the out-patient department for treatment. Some of these were admitted afterward to the wards, while others were treated as out-patients. All were treated by conservative measures except in very severe cases. Briefly, in several hundred hip cases, many of which were severe at the time of application, only thirty-seven have required excision.

These figures will serve to show the practice of those surgeons who believe in mechanical treatment, namely that excision should be regarded in children as a measure to be reserved until mechanical treatment has failed. This is done on the ground that operation is in most cases unnecessary; that it is attended by certain risks which have been pointed out, and lastly that it yields, on the whole, inferior results to conservative measures. Excision is therefore necessary in children when efficient mechanical treatment is not obtainable, and when mechanical treatment has failed.

The evidences of the failure of mechanical treatment.

¹⁷ C. F. Taylor, Boston Medical & Surgical Journal, March 6, 1879.
V. P. Gibney, N. Y. Med. Record, March 2, 1878.
Cazin, Statistique de Coxalgie suppurée, Bull. de la Soc. de Chir.
Cazin, Medical Times & Gazette, May 20, 1876.
Marsh, British Medical Journal, July 20, 1889, p. 121, p. 5, 1876.
Shaffer and Lovett, N. Y. Medical Journal, May 21, 1887.
H. L. Taylor, Philadelphia Medical News, March 23, 1881.
John Ridlon, N. Y. Medical Journal, Oct. 4, 1890.
Jones Limepool, Med. Clin. Journal, July, 1888.

¹² Sherman, Trans. Am. Orthopedic Ass'n, Vol. vi.

¹³ British Med. Journal, Aug. 3, 1889.

¹⁴ Archiv. für Klin. Chir., xxvi, 822.

¹⁵ Deutsch z. für Klin. Chir., xx, 344; also Elben, Cent. für Clin., ii, 77.
Grosch, 1882, 14, p. 229.

¹⁶ Etude, sur la Tuberc. p. 520.

ment are these: When in spite of good care, joint swelling increases, dense induration comes on with discharging sinuses, the granulations become flabby and inactive, and when, most important of all, the general condition of the child has begun to fail, the time for operation has manifestly come. Certain painful cases, which are rare, demand excision as soon as it has been demonstrated that mechanical measures have failed to control the pain.

The chief index, however, in the care of children is failure of the general condition along with a bad condition of the joint. Either alone is incomplete. This states only the view of those surgeons who are familiar with and believe in mechanical treatment. The loud advocates of operation are, as a rule, those surgeons at home and abroad who know little or nothing of the best conservative measures. In adults, tuberculous joint disease is from the beginning a more serious matter than in children. The process is more acute; it is not so amenable to mechanical measures; the systemic infection is more, and in cases of even moderate severity, excision is, as a rule, the best treatment. The results of mechanical treatment are not satisfactory except in mild cases, nor should mechanical treatment be persisted in for more than a brief time if progress is unfavorable. Nor are the results of excision so successful as in children, although the perfection of operative methods have tended to improve the death rate and the results.

The writer has avoided burdening this paper with masses of comparative statistics bearing upon the results to be obtained by mechanical and operative measures. A list of recent and important references is appended.

BIBLIOGRAPHY.

- Hip, Culberson's Tables (excision) Trans. Am. Med. Ass'n, 1876, 142.
 New York Med. Journal (Bradford) April, 1879.
 Leisrunk, Archiv. für Klin., xii, 177.
 Grosch Cent. f. Clin., 1882, xiv, 229.
 Elben, Cent. f. Clin., 1882, 2, 77 & 1879, ii.
 Holmes, Med. Times & Gazette, Nov. 3, 1877.
 Barker, Brit. Med. Jour., June 9, 1888.
 Trans. of the Clinical Society, Vol. xiv.
 Volkmann, Verbal a Deutsch G. für Clin., 1877, p. 59.
 Körff, Deutsch z. für Clin., xxii, 149.
 Krause, Archiv. f. Clin., xxix, p. 466.
 Sayre, Trans. Int. Med. Congress, 1881.
 Schmid, Monnard.
 Baehr, (excisions) Deutsch z. für Clin., xxx, 349.
 Howse, (knee excisions, 180) Gay's Hosp. Reports, London, 1893, 49.
 Scudder, (elbow) Boston Med. & Surg. Journal, cxxiv, 375.
 Macon, contribution a l'étude des résultats de la resection de la genou, Paris, 1891, G. Steinhell.
 Pescatore, über die endergebuesse der Resectionen des Ellbocugen-tes, Berlin, 1892, G. Schade.
 Lustig, zur Frage naeb der endresultaten du knegelenk—resectionen bei kinsern, Freiburg, 1893, G. Lehmann.
 Ollier, Lyon Médicale, 1888, p. 497.
 Hitzgerad, unte aus der Chir. Klinik zu Kiel, B., iv.
 Hoffa, Archiv. f. Klin. Chir., xxxii, 4.
 Manley, Medical & Surgical Reporter, Feb. 20, 1893.
 Cristovitch (knee) Bull. gen. de Therapeutique, April 15, 1892.
 Isler, (ankle) Deutsch z. für Chir., xxi, 213.
 Barber, A. E., (knee) Clin. Journal, London, 1892, 3, i, 229.
 Miller, (knee excisions) Lancet, 1893, i, 237.

SECTION ON SURGERY AND ANATOMY.

SECOND DAY, JUNE 6.

Papers on "Early Symptoms and Diagnosis of Tubercular Joint Disease" were read by Drs. EMMET RIXFORD, San Francisco, and A. J. STEELE, St. Louis, Mo. A paper by Dr. A. B. JUDSON, New York on the same subject, owing to his absence, was read by the Secretary.

"Conservative Treatment of Tubercular Joints," papers by Drs. R. H. SAYRE, New York, and HARRY M. SHERMAN, San Francisco, were read by the authors, and one by Dr. JAMES E. THOMPSON, Galveston, Texas, in the absence of its author, was read by the Secretary.

Dr. ROBERT W. LOVETT's paper on "Operative Treatment of Tubercular Joints" was also read by the Secretary, its author being absent.

"Treatment of Tubercular Joints by Injections of Iodo-

form," was a paper presented and read by Dr. STANLEY STILLMAN, San Francisco.

"Treatment of Tubercular Joints by Injections of Corrosive Sublimate," by Dr. R. H. PLUMMER, San Francisco, was read by title and referred for publication, as was also a paper by Dr. A. E. HOADLEY, Chicago, on "Common Errors in Prescribing and Applying Mechanical Apparatus."

DISCUSSION.

Dr. MEYER, of San Francisco—I take the pleasure of introducing a patient with tuberculosis of the elbow joint, treated by combining operative (incision and scraping) with Bier's method of constriction. The wound apparently healed quicker; while it has quite dangerous symptoms as to discoloration, it is noticed that a line of demarcation forms, a slough is thrown off, and the wound apparently heals quicker than by other treatment. This case is only put on exhibition as a suggestion to those members present who have an opportunity to try this new method and report at subsequent sittings, or at some future association as to the value of this treatment. While with the regular incision for resection of the elbow joint there may be considerable of the humerus scraped out, the wound here cicatrized in less time than usual, taking in this case only five weeks. And for that reason I would recommend to surgeons, who have an opportunity, to try and see whether by this method we make more headway than by iodoform and other treatment with operative interference.

Dr. H. M. SHERMAN, San Francisco (introducing three patients)—I wanted to give as nearly as I could an example of a later result of hip resection, to show what the work is. This child has been operated on now, I think it is something like four years. For the last two years she has used no support in the way of a crutch or a stick, for her limp; the shortening is accurately corrected by the shoe. Her limp is the lateral list, the unavoidable mechanical result of removal of the neck of the femur. She has perfect support and a very good functional result in being able to move the limb around in almost any way she wishes. The lateral list is practically the only thing she has and there is very little of that. In making a table of cases, she would be put down as a child having a very slight limp; and technically it is not so—her limp is a list.

It is seven years since this boy's hip was removed. He had also at that time a dorsal spinal tuberculosis, and was wearing a leather appendage, and a little apparatus to carry his head. His limp is less than the other, but that is because he can not make the lateral sway; his spine is too rigid.

I think it is nearly three years since this young gentleman's hip was removed. He ordinarily uses simply this cane. The shortening is made up by one of those patent boots, in the position of extension, so that nothing shows. Now that is a bad limp, but this gentleman was older than the children when he was operated upon. And with his stick on the other side that limp becomes insignificant. His hip had become ankylosed so that there was abscess; the bone was really in a very bad condition, and he elected himself to have the operation done so that he could go hunting, and riding on horseback, which he could not do very well with an ankylosed hip. He spends a good part of his time on horseback, and does everything that anybody else could want to do.

As regards what Dr. Rixford said about the diagnosis, and postponing the beginning of treatment until he is sure of his diagnosis, I must object to that. If a child comes to me and I suspect there is tuberculosis of the bone, I begin treatment at once. Afterward if I find out that I was mistaken I have done no harm, and am very glad, indeed, under the circumstances to be mistaken and to have made an error in diagnosis; but I do not want to wait, to be absolutely sure that there is tuberculosis of the bone, before beginning my treatment, and let the disease get ahead of me. I took a splint off of a child the other day for hip joint disease, where she had worn it only a year, and where she had apparently no remnant of the disease at all, and I told the mother I doubted very much if the child had had tuberculosis of the bone; she had gotten well too quick.

Then, as regards the iodoform injections. In the first place, it is as well perhaps for us to remember that it is not an emulsion, it is a suspension of iodoform in whatever vehicle you choose, but it is not an emulsion. I am disappointed in the treatment. I have had a series of cases at the Children's Hospital which have been watched very carefully, the injections have been made, and I have failed to see that they in any way affected the progress of the cases. In no instance

did it do the child any harm, but I do not think that it has made the recovery any more rapid, or that there has been any effect from it.

A tissue that has been infected by the bacillus tuberculosis is destroyed; it has to be removed, and the injection of iodoform will not postpone the removal of it. Nature will do that in those cases that do not suppurate, by the absorption of the infectious tissues and their replacement by cicatrix. When suppuration takes place the staphylococcus thrives on the infected tissue, and it is broken down and runs out through the sinus. I do not see how, when once it is firmly established, the injection of iodoform, even into the tissue itself can in any way facilitate that process. It might perhaps kill the bacillus tuberculosis, but then its effects are still there in the shape of tissue that was infected, and that, either potentially or actually is dead tissue.

DR. L. SCHOOLER, Iowa—The general tendency of Dr. Sherman's paper was in favor of conservative treatment. In the treatment of hospital cases, and where the patients can be kept constantly under the observation of the attending surgeon, I grant that the statistics are better under that class of treatment than under the operative. In private practice, and in consultation work, both in your cities and country towns such as many surgeons are engaged in, I conceive that the difficulties of conservative treatment are in many cases insurmountable, and I am of the opinion that in the great majority of cases under these circumstances the operative system will give better results, and will save long suffering to the patient. Operative treatment, if effectual at all, effects a rapid amelioration and cure of the disease. Tentative treatment, conservative treatment, by injection of different substances and by the application of mechanical apparatus, is in a great majority of cases tedious, and in the class of cases to which I refer extremely unsatisfactory in my estimation.

DR. J. B. EAGLESON, Washington—The gentleman has said exactly what I wished to say. I will simply add one word to what he has already said; that the ability of the average practitioner, scattered about the country in isolated places, to try the conservative methods of treatment must certainly be limited always. I care not how thorough the discipline the person has been subjected to, if he is placed where he will see one of these cases once a year, or twice a year, or half a dozen times in a lifetime, his ability to handle them, from the conservative standpoint must be minimized, to say the least. Hence I say that the dealing with this class of cases must be looked at from the standpoint of the operation done under those circumstances, and if dealt with from that standpoint, then I say that the necessity for early interference is all-important. It is little less than criminal, it is cruel to watch the progress of a case for months and months, and perhaps for years, with the promise that at some time you will interfere to give possible relief by operation. I believe that an early operation in these cases is the resort of such persons under such circumstances. I believe that can not be emphasized too strongly.

DR. KURTZ, California—It is too late to enter into any close discussion on this subject. I simply want to direct your attention to two points. In the first place it seemed to me that there was a discrepancy in the papers in regard to early diagnosis. Perhaps it is trifling, but I think it is of considerable importance. The first reader, I believe Dr. Judson, of New York, pointed out that we have, as a first symptom, pain. I think that is certainly incorrect, according to my experience and according to my study. It is not the pain that first appears, but it is lameness, and that should be well remembered, for it is of very great importance. A child will drag his leg, it will slightly limp and that limp of the patient with hip disease is very characteristic; he drags the whole leg, not one part as in other diseases, and if you examine that, you will find neither pain nor limited motion, but you have that peculiar dragging limp, probably for a month or two months before the subsequent symptoms, the pain sets in. The same reader also made the remark that we should be perfectly satisfied in preliminary diagnosis before instituting treatment. Really, if we want to wait for the pain that he points out as being the first symptom, I think it will be too late. We should rather make a mistake on the safe side and put our patient in bed with his lameness for a week, or a month, or six weeks, or even more, and see if we can not overcome that condition. If we put a child unnecessarily in bed for a month or two months what does it matter? He will not suffer from it. So I say, begin the treatment as soon as you notice his dragging limp. Dr. Sayre in his very able paper seemed to lay great emphasis on the absolute rest cure in

cases of spinal disease; he lays great stress, I say, on the absolute rest cure. This would be the ideal means of treatment; to place your patient on a hard bed, as he says, or board, and keep him there, with or without a bed. I say if we once put a child on a hard bed, with extension, we need no apparatus at all. We all agree that it takes from two to four or six years to cure any of those cases of Pott's disease, or coccyxitis, or any tubercular disease of the joint, with the exception of the smaller joint. So I say it is rather a risky thing to lay a child on his back that long. Give that child a comfortable splint, give him a Bostwick splint, or some modification of it, and you will have fully as good results. That is my experience. I prefer a living slightly deformed child to a straight dead one.

DR. LYON, Conn.—It seems to me that this case, (referring to the case exhibited by Dr. Meyer) is proper to illustrate the subject before us, and I wish to make one remark in reference to it. He tells me that he was injured eleven years ago by the crushing of this elbow joint. He has now a well-nigh useless arm, but he has a valuable forearm and hand if he could make it available. Now if that elbow joint had been taken out, two to four inches of it, he would have had, not a useful forearm and hand, but he would have had a useful arm. That interference with the nutrition of the arm made it a proper site for the infection of other diseases. He has now a wasted arm, but if that had been taken out, I venture to say, from two to four inches, and allowed the bone to come together, this lad would have had a useful forearm and hand.

DR. MEYER—I wish to say that this case was under my treatment only since June, 1890; that I had nothing to do with the primary injury, as eleven years ago I never thought of the study of medicine even. I only take this case to illustrate what can be done by combining the treatment by constriction in operative cases, and showing what can be done in a comparatively short time, in six weeks after the operation was closed. He was very much emaciated then, but is now better in that respect, and I intend to make a typical resection of the elbow joint, trying to get a movable elbow. Eleven years ago I did not have this case.

DR. THOMAS, Pa.—With regard to the statement that pain is not the first symptom of disease of the joint, I think that the child who is too small to let us know the fact that he has pain will limp; that very limp is an indubitable sign of pain; it can't be otherwise.

DR. GEORGE F. SHIELS, San Francisco—Apropos of this point concerning pain, I think that this word, pain, is merely a word to express an idea. No matter what we call it, a feeling of weakness in the bone, carrying to the individual the idea that it is not strong enough to support the body, will cause him to limp to save that bone. If the individual feels that there is a weakness in that joint and that he must protect it in such a way as to relieve it, and thereby causing a limp, I think it is a very small matter to argue about whether it is a limp or a pain. It is certainly something by which the patient is made aware of the fact there is a weakness in that joint and that it has to be protected by walking in a particular manner, which produces what we call a limp.

DR. R. H. SAYRE, New York—There are one or two points that have been made to-day which I would like to dwell on. I fully indorse the remarks of Dr. Shiels, and also in that connection I would like to say that when Dr. Rixford says he does not get pain in these cases it is probably because he does not cause sufficient pain in the child for the child to cry out and complain. The truth, however, is that it has a little spasm of the muscles, that there is a twitching of these muscles under his hand, as he moves his hand up and down; however the child may say it does not hurt. You will find sometimes these children say it does not hurt, while they cry. Very often they are too little to understand enough of your language to express their feelings properly, and you must be guided by their faces and see if they express sensitiveness in the eyes and mouth; then they have pain, although they very likely tell us they have no pain. And Dr. Shiels is perfectly right when he says that the involuntary protection to the joint which the child gives by its limp, by its little muscular spasm is a symptom that it has pain. I think that to avoid the beginning of treatment till the child has a marked limp, has deformity, a hump in its back which makes you positive that your diagnosis is correct, is a distinct mistake. If you wait until that time you will never get an absolutely good result in your treatment. You have passed the time. You might as well expect a man who has a little hacking cough in the morning, who has slightly elevated temperature, who gives a

little bronchial breathing in the upper part of his lung, to wait until he has a large hemorrhage in his pulmonary cavity, and expect to cure him of his consumption, as to wait until this child has a hump in his back and a limp, rather than confine him for a few weeks at the beginning, for fear it may prove ultimately to have been unnecessary. Sometimes pain is due to an involvement of the cartilage. In many cases we have a marked presence of the disease before there is acute pain. Unless there is an abscess forming or the cartilage is involved, very often there is a distinct disease before there is alarming pain. But a little pain is what we want to find. We want to be able to take this thing in its incipency.

In regard to these statistics which Dr. Sherman read, that no case recovers which is over 40 years of age, that I know to be a distinct mistake. I have seen cases of tuberculosis over 40 years of age which have recovered. I know of a number of cases in my father's practice, and several in my own, where the patients were over 40 at the time of their first symptoms and they have gotten well, or, at any rate, they have lived in a comparatively good state of health, well to all appearances for varying periods until they died of old age later on.

The mechanicalist of which the Doctor speaks as a necessary consequence of removal of the head of the femur, I do not think is always present. It depends upon how much bone is regenerated after the removal of the head and neck of the femur. It does not always follow because you have removed a couple of inches of bone that you have a couple of inches of shortening. If the cavity is packed and the periosteum left open, there is very often a large amount of bone regenerated, and it may be sufficient in character and sufficient in size to prevent the limp. I think the cases Dr. Sherman showed here are remarkably good, but I think it is not always a fact that we have a limp after the removal of the neck of the femur. I have seen one or two cases where that limp was not present, and where there was a very little amount of shortening, although extensive bone removal had been practiced.

In regard to the gentleman who remarked that he preferred a living deformed child, crooked, to a straight dead one, I would also, but I do not think that to confine a child to a comfortable cuirass or keeping it in bed for even two years, or more is going to be necessarily followed by death. We see that the Indians carried their children around on a board in the way I have suggested when they are small, and there are a great many Indians in the world yet. And the fact that a child has an inflamed spine, and is six months or a year old, I think is a very good indication for putting that child in bed, in a little portable bed, and keeping it at rest. The point I made was that a little child who had an insufficient pelvis on which to get a basis of support, to put his spine at rest ought to be treated in a recumbent position. If they are big enough to run around, all right. But I see lots of children fastened up in apparatus which is simply hung on their shoulders, and they have to lug around that weight in addition to their body and bones. If these children were put in bed they could be transported by their parents, and when they get better they can be put in apparatus.

One gentleman has said that in country practice it is not practicable to practice conservative surgery. The object I had in my paper was to show that apparatus and the instrument-maker were not necessary always to the practice of conservative surgery in treatment of joint diseases. If you should put the joint at rest by your own intelligence and the work of a blacksmith, carrying out the principle which I treat and lay down in my paper, by such means as you may have in your bureau, plaster-of-paris and so on, and even resort to the blacksmith's shop for apparatus, I think that you can in any part of the country get a good result in these cases, if you will attend to the diagnosis and take the abscess before it has made vast strides. There is no doubt that in our large centers we have a great many opportunities which the men in the country towns do not have, but to say that these cases must be subjected to early treatment with the knife because they have tuberculosis is in my judgment a great mistake.

The papers of Dr. James T. Jelks, of Hot Springs, Arkansas, on "The Causation and Prevention of Hernia," of Dr. L. Emory Lanphear, Kansas City, Mo., of Dr. C. M. Fenn, San Diego, Cal., on the "Management of Reducible Hernia"; of Dr. James D. Eagleson, Seattle, Wash., on "The Treatment of Irreducible Hernia," were read by title and referred for publication.

REDUCIBLE HERNIA.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY C. M. FENN, M.D.

SAN DIEGO, CAL.

In response to the courteous invitation of our Chairman, I have recently been endeavoring to recall the number of times the errant gut has yielded to my manipulations, and the *modus in quo*. The record enumerates thirty-five reductions since 1865, most of them implicating the inguinal region, and apparently confirming the statement that 80 per cent. of hernias affect that site. It appears further, in comparison with Dr. Dallas' estimate of 3,500,000 cases of hernia in this country alone, that the writer has measurably exceeded the ratio to each practicing physician. So large a number of successful replacements, some of them following the failure of other measures, may seem to warrant a brief consideration of the method of procedure; and as I may not rightfully invade the domain of those who have been delegated to speak to you of the etiology, pathology and surgery of ruptures, my remarks will be confined to the technique of reducible hernia. Not a few of the intestinal aberrations noted, occurred in the person of the same individual who, though for more than forty years a victim to those serious types of hernia known as left, oblique, incomplete, inguinal and right scrotal, attained the ripe old age of 79 years. We shall refer to his interesting case further on.

At the inception of this discussion, I venture the assertion that hernias are not merely mechanical displacements of the intestine, but often simulate neuroses, which strangely enough are not limited to the ruptured patient. The latter, if a novice in hernial accidents, or if his unaided efforts have failed to placate his ancient enemy, is frequently overwhelmed with fear of strangulation and impending death. His dyspeptic, flatulent and neurotic habit, added to the emotional excitement of such occasions, causes a rapid accumulation of flatus, which in local excess arrests normal peristalsis, and with the concomitant paralysis of the gut, presents one of the obstacles to its restoration. Hence, also, constipation due to paralyzing effects upon the visceral nerves. This, you are aware, may often follow incarceration of the omentum alone, of the appendix, or of a small knuckle of the bowel, and in the entire absence of any contraction of caliber or impediment within the canal. Furthermore, as showing the assistance during taxis to be derived from intestinal motion, to which we shall refer further on, a recent writer¹ suggests utilizing the cough, which sometimes produces the rupture—an application possibly of the Latin aphorism, "*Capilla ejusdem canis*"—the hair of the dog cures the bite. The enterocele, also, is often typical of the condition within the abdominal cavity, becoming "smaller after fasting and the use of purgatives, and larger when the tube is distended with food, gas or fecal matter," and hence presents one of the indications for treatment.

And how shall I describe the anomalous symptoms of the medical attendant who, at the outset of his career, if not always, seems to approach such cases with illy-disguised trepidation, his brain filled with phantasms of adherent and necrotic tissues, of abnormal epigastric arteries, and other pathologic phe-

¹ Geo. Wherry, F.R.C.S., England.