

DRAWINGS,  
PHOTOGRAPHS AND LITHOGRAPHS  
ILLUSTRATING THE HISTORIES  
OF  
SEVEN SURVIVORS  
OF THE  
*Operation of Amputation at the Hip-Joint,*  
DURING THE WAR OF THE REBELLION,  
TOGETHER WITH ABSTRACTS OF THESE SEVEN SUCCESSFUL CASES.

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COLLECTED AND COMPILED UNDER THE DIRECTION OF THE SUR. GEN'L BY

GEORGE A. OTIS,

ASS'T SURGEON & BT. LT. COL. U. S. ARMY.

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SUR. GEN. OFFICE, WASHINGTON, D. C.,

DEC. 1867.

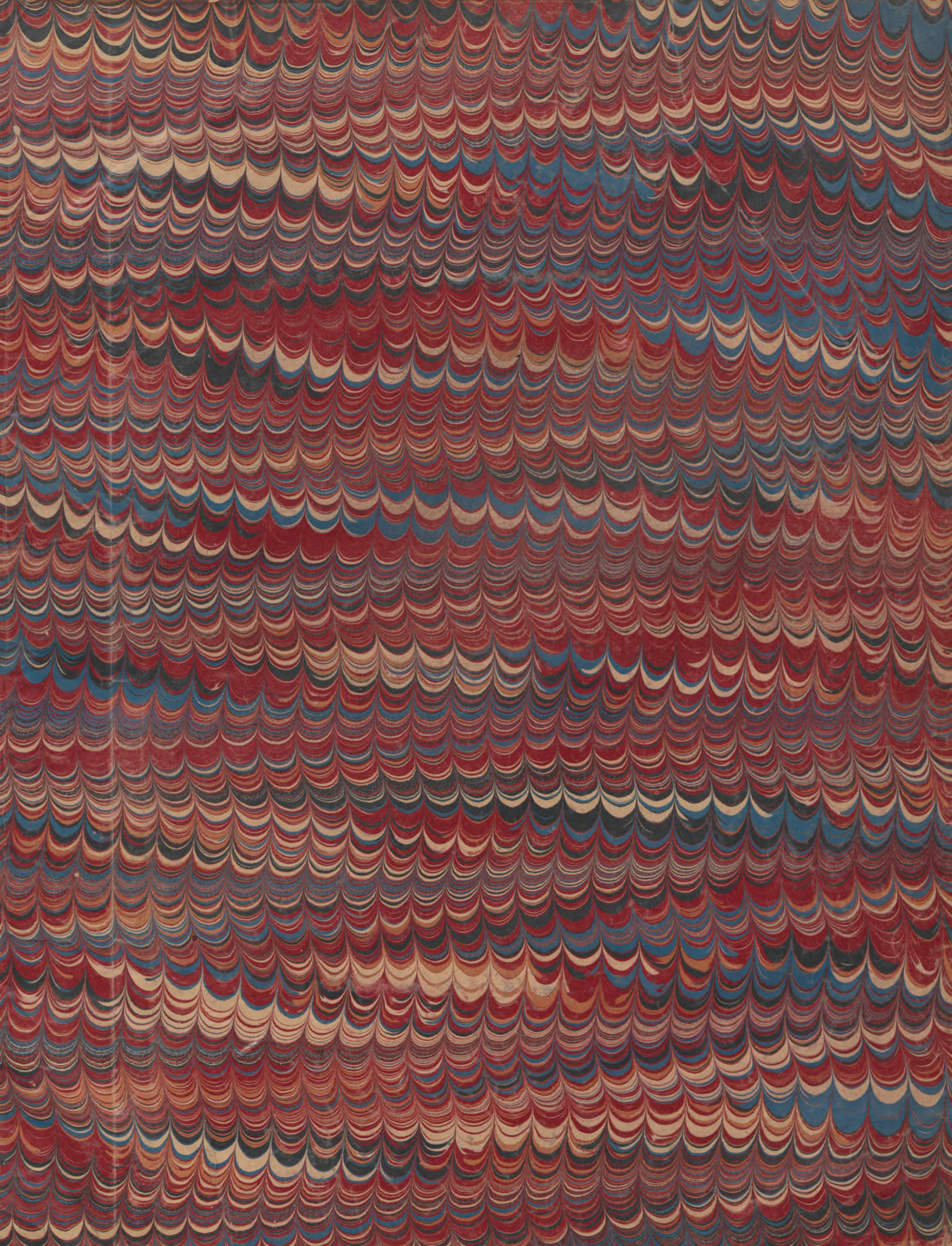
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COLLECTED AND COMPILED UNDER THE DIRECTION OF THE SURGEON GENERAL BY

GEORGE A. OTIS,

ASSISTANT SURGEON AND BREVET LIEUTENANT COLONEL, U. S. ARMY.

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SURGEON GENERAL'S OFFICE, WASHINGTON, D. C.,

December, 1867.

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Operation of the Ship-Joint

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## SUCCESSFUL PRIMARY AMPUTATION AT THE HIP-JOINT.

BY SURGEON E. SHIPPEN, U. S. V.

Private James E. Kelly, Co. B, 56th Pennsylvania Volunteers, aged twenty-eight years, was wounded at about nine o'clock of the morning of April 29, 1863, in a skirmish of the First Division, First Corps, on the Rappahannock, nearly opposite Pratt's house, two miles



FIG. I. Fracture of the femur by a musket ball.—Spec. 1148, A. M. M.

below Fredericksburg. A conoidal musket ball, fired from a distance of about three hundred yards, entered the upper part of his left thigh in front, fractured the femur, and passed out at the posterior part of the thigh. The ball struck the femur four inches below the great trochanter and fractured it somewhat obliquely, but with less comminution than is usual. A long fissure extending however to the level of the trochanter minor. (See FIG. II.) The important vessels and nerves were uninjured. Surgeon Edward Shippen, U. S.



FIG. II. Posterior view of the same specimen, exhibiting a fissure running to the trochanter minor.

Volunteers, Surgeon-in-chief of the First Division, consulted the senior medical officers

of the brigades attached to the division, and it was decided that in order to give the man a chance for his life amputation at the hip-joint should be performed. At four o'clock, seven hours after the reception of the injury, the patient was placed fully under the influence of chloroform, and Surgeon Shippen commenced the operation, assisted by Surgeons G. W. New, A. W. Preston, Browne and Murdock. The patient's nates were brought well over the edge of the operating table, and the femoral artery was compressed at the groin. A ten-inch catling was then introduced about midway between the trochanter major and the anterior superior spinous process of the ilium, the point at first directed slightly upwards in order to open the capsule of the joint; then the handle was raised and the point made to come out about an inch in advance of the tuberosity of the ischium. A large flap was then cut from the anterior and inner side of the thigh, about six inches in length; the hæmorrhage being controlled by Surgeon James B. Murdock, 24th New York Volunteers, who grasped the flap and compressed the femoral artery before it was cut. The heel of the knife



was then placed where the point came out, and the points of entrance and exit were connected by an incision cutting to the bone. Part of the capsule being opened by the first incision, the remainder of it was divided, the round ligament cut, and the head of the femur removed from the acetabulum. The hæmorrhage was then arrested, the femoral artery being tied last. The loss of blood was very slight, less even than in an ordinary amputation of the thigh. The stump having been dressed, the patient was placed in an hospital tent, and remained under Dr. Shippen's charge for three days. The operation was admirably borne, and the case was progressing most favorably on May 2d, when the patient was transferred to the Corps Hospital at the Fitzhugh House, under charge of Surgeon A. W. Whitney, 13th Massachusetts Volunteers, in consequence of the movement of the First Division to the battle of Chancellorsville. No unfavorable symptoms occurred. The patient improved daily, the stump granulating finely. He had an excellent appetite, and was quite content with the soldier's ration. But Dr. B. A. Clements, Assistant Medical Director and Dr. Taylor, Medical Inspector, visited him and provided that he should be furnished with such delicacies as the resources of the hospital could not supply. In the latter part of May, Surgeon Shippen having returned from Chancellorsville, saw the patient frequently, and removed the ligatures, until, on May 28th, the last had come away. The case continued to progress favorably until June 15th, when the greater portion of the Army of the Potomac having moved northward, the wounded and sick at the Fitzhugh House were captured by the rebels. Kelly was taken to Fredericksburg in a wagon, and thence to Richmond by rail, and was incarcerated in Libby Prison. The extraordinary nature of his case appears not to have procured for him any modification of the amenities of that place of confinement. According to his report, he lay upon the floor on his blanket, and received a diet of diluted tea, and corn bread, and twice a week a bowl of soup. He was not subjected to any surgical attendance. After a week of the prison regimen, the wound became gangrenous and a troublesome diarrhœa supervened. On July 14th the prisoner was exchanged. He was sent to Annapolis, and entered the hospital there in an exhausted state. His normal weight before the removal of the limb was one hundred and fifty-five pounds; he now weighed sixty-three pounds. There was a sloughing sore extending from the upper outer angle of the wound downwards over a space larger than the hand. There was profuse diarrhœa. He was ordered to take pills of opium and bismuth, with tincture of sesquichloride of iron, and beef essence and rice jelly for nourishment. Bromine was applied to the sloughing parts on three successive days, but without apparent benefit. A dilute lotion of chlorinated soda was then substituted. On July 24th the slough separated, leaving a clean, healthy, granulating surface. On August 19th, Acting Assistant Surgeon Stovell, who had immediate charge of the case, reported that the patient had steadily improved since his admission and



might be considered out of danger. On September 17th, Surgeon T. A. McParlin, U. S. A., reported that Kelly was rapidly improving; that the wound was healed, except at a point where there was a slight purulent discharge and over an ulcerated space as large as a walnut, which was granulating kindly. The patient had been removed to the tent colony or camp of convalescents. On December 23, 1863, the wound had entirely healed, and Kelly visited Washington and obtained his discharge from service and a pension of one hundred and eighty dollars a year. He then went to his home near Black Lick post office, Indiana county, Pennsylvania. His general health was then good and his weight had increased to one hundred and twenty-four pounds. In the autumn of 1863, before the wound had completely cicatrized, the excellent picture of Kelly, in water color, was made by Mr. Stauch, under the direction of Surgeon J. H. Brinton, U. S. V., Curator of the Army Medical Museum. It is the first of the accompanying series. In December, 1864, Medical Inspector G. K. Johnson, U. S. A., procured a satisfactory ambrotype of Kelly, from which the second water color drawing was executed by Hospital Steward Baumgras. In the Spring of 1868, the Surgeon General made provision from a fund for the relief of disabled Volunteers, for sending Kelly to New York, that an attempt might be made to supply him with an artificial limb. At the same time two of the other survivors of the operation were placed in the New York Hospital, Broadway, New York City, and Assistant Surgeon George A. Otis, U. S. A., went to New York and conferred with Dr. E. D. Hudson in relation to the best mode of supplying these men with artificial limbs. It was decided to secure to the pelvis an artificial gutta percha stump by means of a strong chamois-lined canvass band, and to apply to this the ordinary artificial limb for the stumps of Dr. Hudson's model. This expedient was found to answer admirably. Kelly, as well as Lemon and Smith, whose cases will be hereafter related, was enabled to walk briskly without the aid of a cane, quite as well as the majority of men amputated low down in the thigh. The appearance of the stump and of the apparatus at this period is shown in the photographs.





SHIPPEN'S SUCCESSFUL PRIMARY AMPUTATION AT THE HIP - JOINT.







Baumgras pinxit.

SHIPPEN'S SUCCESSFUL PRIMARY AMPUTATION AT THE HIP-JOINT.





**SHIPPEN'S SUCCESSFUL PRIMARY AMPUTATION AT THE HIP-JOINT**

PHOTOGRAPH TAKEN MORE THAN 4 YRS. AFTER OPERATION.

Apparatus suggested by Asst. Surg. G. A. Otis, U.S. Army.





SHIPPEN'S SUCCESSFUL PRIMARY AMPUTATION AT HIP-JOINT.

ARTIFICIAL LEG APPLIED.



## SUCCESSFUL SECONDARY AMPUTATION AT THE HIP-JOINT.

BY SURGEON E. BENTLEY, U. S. V.

Private George W. Lemon, Co. C, 6th Maryland Volunteers, aged thirty years, had his left femur fractured, at the junction of the middle and upper thirds, by a conoidal musket ball, at the battle of the Wilderness, May 5, 1864. He was left in a shelter tent on field,



FIG. III. Consolidated gunshot fracture of the left femur. Spec. 4306, A. M. M.

and fell into the hands of the enemy. On May 13th, he was recaptured, and was sent to Fredericksburg, and thence to Alexandria, where he was received at the Third Division Hospital, on June 14th. When admitted he had diarrhoea, and was greatly emaciated. There was a bed-sore, four inches in diameter, over the sacrum, and smaller sores over the prominences on the spine and scapulæ. The lower end of the upper fragment of the femur protruded from the wound, from which there was a profuse offensive ash-colored discharge. To check the diarrhoea, to administer suitable nourishment, and to take pressure from the bed-sores by supporting the body on air cushions, were the first matters attended to. Then moderate extension was applied to the injured limb, and a tolerably good position was maintained by means of pillows and cushions. In three weeks the bed-sores were healed, and there was a slight improvement in the general constitutional condition. Extension of the limb causing pain, it was discontinued. For the next ten or twelve months the patient clung to life by the slenderest thread. Detached fragments of bone frequently gave rise to inflammatory swelling, abscesses in the thigh, and profuse suppuration. Yet the appetite and digestion continued to be good, and the great drain upon the system was supported unusually well. In May, 1865, it was found that the fracture was quite firmly consolidated. The patient now occasionally sat up in a chair, but every attempt of the sort was followed by acute inflammation of the thigh, with increased suppuration. It was decided that the patient must ultimately sink under the profuse suppuration, and that an operation should be performed as soon as it was opportune, and that every effort should be made to put the patient in a condition to support this shock. On October 12, 1865, Surgeon Edwin Bentley, U. S. V., proceeded to amputate at the hip-joint. Chloroform was administered; the external iliac artery was compressed at the pubis, anterior and posterior semilunar flaps were formed by transfixion, and the femur was disartic-





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ulated. The hæmorrhage was inconsiderable, and the patient reacted soon and satisfactorily. From the day of the operation he steadily improved, with scarcely an untoward symptom. On November 15th, Dr. Bentley reported that the ligatures had all come away, and that the wound was granulating kindly. In December, the stump was healed, and the patient began to get about on crutches. At this time, Hospital Steward Baumgras was sent to Alexandria, and prepared the water-color drawing which follows this abstract. The fracture of the exarticulated femur was found to be imperfectly but quite firmly united, with great antero-posterior angular deformity and shortening. The bone was sent to the Army Medical Museum, where it is preserved as *Specimen 4386*. A posterior view of it is given by the wood-cut, and a lateral view in the lithograph and photograph immediately following the water-color drawing. On January 31, 1866, a photograph of the man was taken, which is the fourth of the appended series. Lemon was then transferred to the Harewood Hospital, at Washington. He was then quite well, and able to go where he chose on crutches. The cicatrix was firm and healthy. On February 3, 1866, he was discharged from the Hospital, and from the service of the United States, at his own request. He went to his home at Bird Hill, Carroll county, Maryland, and resumed his trade of shoemaking. He was granted a pension of fifteen dollars a month. On April 26, 1867, a letter was received from him, in which he stated that his health was excellent; that he weighed ninety-nine and a half pounds, an increase of twelve and a half pounds from the date at which he left the hospital; and that he had been able to walk to the village of Westminster, a distance of seven miles, without fatigue. In 1868, Lemon was placed in the New York Hospital and Dr. E. D. Hudson adjusted an artificial limb with which the mutilated man was able to walk with rapidity unaided by a cane. A plaster-cast of his stump was taken at this time, (*Specimen 5040*, A. M. M.) and also the three photographs which terminate this series.





BENTLEY'S SUCCESSFUL SECONDARY AMPUTATION AT THE HIP-JOINT.





Wm Bell Phot.

J. Bien lith.

**DISEASED FEMUR PARTIALLY UNITED AFTER GUNSHOT FRACTURE.**

SPECIMEN 4386 ARMY MED. MUSEUM.

*From Dr. Bentley's Successful Secondary amputation at Hip Joint.*





Wm Bell Phot.

PHOTOGRAPH FROM WHICH THE PRECEDING LITHOGRAPH WAS MADE.







**BENTLEY'S SUCCESSFUL SECONDARY AMPUTATION AT HIP-JOINT**

4 MONTHS AFTER OPERATION.





**BENTLEY'S SUCCESSFUL SECONDARY AMPUTATION AT HIP JOINT.**

30 MONTHS AFTER OPERATION.





**BENTLEY'S SUCCESSFUL SECONDARY AMPUTATION AT HIP-JOINT**

30 Mos. AFTER OPERATION.

Adaptation of Apparatus suggested by Asst.Surg.G.A.Otis,USA.





**BENTLEY'S SUCCESSFUL SECONDARY AMPUTATIO AT HIP-JOINT.**

30 Mos. AFTER OPERATION.

Artificial leg applied.





## SUCCESSFUL SECONDARY AMPUTATION AT THE HIP-JOINT.

BY BRIGADE SURGEON GEORGE C. BLACKMAN.

Private Woodford Longmore, a rebel soldier, twenty-five years of age, a robust, healthy man, was wounded at a skirmish at Cynthiana, Kentucky, on June 11, 1864. A ball from a Belgian rifle, at short range, passed through his right thigh, shattering the shaft of the femur. There was profuse hæmorrhage and the shock was alarming. He remained almost insensible for three or four days, and for a fortnight there was extreme prostration. He was placed in a rebel field hospital, and the injured limb was put in a fracture box, with which was connected a crutch piece extending to the axilla. On the evening of the reception of the wound, numerous detached bony splinters, a handful almost, were extracted. For six weeks, extension and counter extension were maintained, but so much suffering arose from this treatment that it was discontinued, and the limb was simply supported in a comfortable position. The patient was confined to his bed for eight and a half months. In the middle of March, 1865, he was removed to Florence, Kentucky, seven miles from Cincinnati, and Dr. George C. Blackman, professor of surgery in the Medical College of Ohio, was consulted in the case. There was a profuse discharge of offensive pus, and the patient's strength seemed to be failing under the protracted irritation and spoliation. There had been frequent recurrences of abscesses in the thigh, attended with excessive pain and swelling, and followed by the elimination of fragments of necrosed bone. Ever since the reception of his injury the patient had taken morphia very freely. Evidently there were still loose sequestra and diseased bone with which sinuses communicated, and Dr. Blackman proposed to remove these sources of irritation. On April 23d, the patient consented to an operation, and a number of necrosed fragments were extracted with much relief to the local irritation and benefit to the general health. During the autumn, however, evidences of extensive destructive inflammation of the shaft of the femur became unmistakable, and, in December, a second operation for the removal of fragments was performed without advantage. The discharge became more offensive and sanious, and the strength of the patient rapidly gave way. In January, 1866, his condition became almost hopeless, and the removal of the diseased limb was determined on. The operation was performed on January 18th. Ether was administered and the lower extremities were kept elevated for a few minutes before the incisions were made. Then the right femoral was compressed at the groin, and the disarticulation was rapidly effected by Lacauchie's method. A circular cut through the skin was made at the



junction of the upper third of the thigh; then the integuments were retracted and the muscles were divided circularly down to the bone. A vertical incision was now made on the outer side of the limb, commencing a little above the trochanter and joining the first incision. The head of the bone was then exarticulated. There was but little hæmorrhage, and the patient rallied from the operation remarkably well. The following day he suffered greatly from nausea, which he ascribed to the use of the ether. This distressing complication soon subsided, however, and thenceforward there was no unpleasant symptom, and the patient progressed rapidly towards recovery. In February, 1867, Longmore reported himself to Dr. Blackman as in excellent health, and as having recently married. In the latter part of June, 1867, seventeen months after the operation, Dr. Blackman again saw him and found that his general health was good, and that his stump was sound, though subject to occasional attacks of neuralgia of extreme severity. He was accustomed, in these attacks, to alleviate his suffering by taking large doses of morphia. An examination of the limb after its removal showed that the entire shaft of the femur had been affected by osteomyelitis. The specimen, with its delicately encased sequestra and fragile deposits of new bone, was destroyed by an unskilful preparer. A water-color drawing by a Cincinnati artist and an elaborated copy by Mr. Herman Faber illustrate the appearance of the stump.





**BLACKMAN'S SUCCESSFUL SECONDARY AMPUTATION AT THE HIP-JOINT.**





**BLACKMAN'S SUCCESSFUL SECONDARY AMPUTATION AT HIP-JOINT.**







Wm. Bell Phot.

Fig. I.

Fig II.

J. Bien lith.

**Fig. I. DISEASED STUMP OF RIGHT FEMUR** SPECIMEN 81. ARMY MED. MUSEUM.

*From Dr. Packard's successful Re-amputation at Hip-Joint.*

**Fig. II. UPPER HALF OF LEFT FEMUR FRACT'D. BY CONOIDAL MUSKET BALL** SPEC. II-48. A.M.M.

*From Dr. Shippen's successful Primary amputation at Hip-Joint.*



## SUCCESSFUL RE-AMPUTATION AT THE HIP-JOINT.

BY DR. J. H. PACKARD.

Private Eben E. Smith, Co. A, 11th Maine Volunteers, aged 19 years, was wounded on August 16, 1864, in one of the engagements following Major General Hancock's movement upon Deep Bottom, on the left bank of James River. A musket ball passed through the right leg from within outwards, fracturing the head of the tibia.



FIG. IV. Orifice of exit of a musket ball through the external tuberosity of the tibia. Spec. 3709, A. M. M.

The wounded man was conveyed to the Field Hospital of the First Division of the Tenth Corps, where it was determined that an attempt should be made to preserve the limb. Constant cold applications were made to the wounds. After a few days the patient was sent to the North on an hospital steamer, and, on August 22d, he was received at the U. S. General Hospital at Beverly, New Jersey. On admission, he suffered but little pain though the knee-joint was considerably swollen. On September 14th, secondary hæmorrhage occurred, and it was deemed advisable to remove the limb. The amputation was performed by Acting Assistant Surgeon J. C. Morton, at the lower third of the thigh, by the circular method, the patient being anæsthetised by chloroform. On examining the seat of the injury, it was found that the fissure ran through the external tuberosity of the tibia and the external articular surface, and that the bone was carious in the vicinity of the fracture. The preparation was forwarded to the Army Medical Museum by Assistant Surgeon C. Wagner, U. S. A., and is numbered *Specimen 3709*. The case progressed favorably until October 17th, when there was hæmorrhage from the stump to the amount of twelve ounces. The stump was in a sloughing condition, and it was therefore determined to tie the femoral artery in Scarpa's space, which was done by Dr. Morton. The ligature came away on November 1st. The wound remained in an unhealthy condition, with a copious foetid suppuration, and the necrosed extremity of the femur protruded from the upper angle of the wound. On November 5th, the soft parts were retracted, and four inches of the shaft of the femur were resected by the chain saw. After this the stump became much swollen, frequent abscesses formed, and it was finally decided that necrosis involved the femur quite up to the trochanters. This conclusion was verified by an exploratory incision made on January 19, 1865, when it was determined to proceed at once to amputate at the coxo-femoral articulation. The operation was performed by Acting Assistant Surgeon John H. Packard. The patient being



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already under the influence of chloroform, the femoral artery was exposed and tied just below Poupart's ligament. Anterior and posterior flaps were then formed and disarticulation effected. Some difficulty was experienced in securing an artery supposed to be the *comes nervi ischiadici*; but the quantity of blood lost in the operation was not considered large. There was extreme depression after the operation, and the patient was kept on the amputating table for two or three days, lest an attempt at removal should prove fatal. Large quantities of stimulants and concentrated food were administered, and artificial warmth was applied to the surface of the body. Eight days after the operation, hæmorrhage to the extent of six ounces occurred, and a ligature was placed upon the external iliac artery by Dr. J. C. Morton. The ligature separated on February 17th. On the 19th, there was profuse bleeding from the point of ligation, which was controlled by pressure. Direct compression was maintained for fourteen days. After this the patient rapidly improved, and by the end of March he was quite well. On April 12th, Smith was transferred to the White Hall Hospital, near Bristol, Pennsylvania. On May 27, 1865, Assistant Surgeon W. H. Forwood, U. S. A., reported his discharge from service with a sound stump and robust health. After his discharge, Smith went to his home at Eastbrook, in Maine, and was granted a pension of fifteen dollars a month. On February 27, 1867, and again on March 9th, he wrote to this office that his general health was excellent, but that the cicatrix of his stump was painful. In May, 1867, he was admitted to the eastern branch of the U. S. Military Asylum for disabled volunteer soldiers, at Togus Springs, near Augusta, Maine. On May 12th, the surgeon of the asylum, Dr. B. B. Breed, wrote that he "was apparently in perfect health, and complained only of congestion of the stump after standing for some time." An attempt was proposed to adapt an artificial limb to the stump. A preparation of the exarticulated portion of the femur was forwarded to the Army Medical Museum by Assistant Surgeon C. Wagner. It is numbered *Specimen* 81 of the Surgical Series, and is well represented in the accompanying lithograph. In April, 1865, Hospital Steward Baumgras was sent to Beverly and prepared a water-color drawing of the patient, which is the first of the following series. The second was made a few months later by Mr. Hermann Faber. The succeeding photograph was taken a year subsequently when the patient was an inmate of the asylum near Augusta, Maine.





*Reumatisches pinxit*

**PACKARD'S SUCCESSFUL RE-AMPUTATION AT THE HIP-JOINT**







PACKARD'S SUCCESSFUL RE-AMPUTATION AT THE HIP-JOINT.





**PACKARD'S SUCCESSFUL RE-AMPUTATION AT HIP JOINT**

30 Mos. AFTER OPERATION.



## SUCCESSFUL RE-AMPUTATION AT THE HIP-JOINT.

BY DR. A. M. FAUNTLEROY.

Private R. A. Vick, Co. E, 43d North Carolina Infantry, aged thirty-seven years, received a gunshot wound of the knee-joint at the battle of Cedar Creek, October 19, 1864, and underwent primary amputation at the lower third of the right thigh. On December 19th



FIG. V. Diseased stump of femur — From a photograph sent by Dr. Fauntleroy.

he was sent to the General Hospital at Staunton. On January 1, 1865, the stump had almost cicatrized, but there were two small apertures through which foetid pus issued, amounting daily to four or five ounces. On February 15, 1865, the daily discharge from the openings had considerably increased in quantity. An exploration with a silver probe revealed bone denuded of periosteum and much roughened. Another aperture led to a somewhat superficial fistulous track of six or eight inches. It was evident something must be done for the relief of the patient, and it was determined to open the face of the stump, with a view to the removal of the diseased bone. The operation was performed on March 11, 1865, by the surgeon in charge of the hospital, Dr. A. M. Fauntleroy, assisted by Drs. T. W. Glocker and R. K. Carter. The patient took a stimulant, and chloroform was administered. A transverse incision was then made over the face of the stump. At the exposed extremity of the femur was a redundant mass of new bone, which was sawn off. It was then found that the carious shaft of the bone was encircled by a soft porous osseous deposit. About six inches of this formation was stripped off by the gouge, yet the limits of morbid action had not been reached. The carious condition of the shaft was evidently peripheral in origin, as the periosteum was in a state of fatty degeneration, whereas the medullary membrane was comparatively healthy.

It was determined to extend the exploration until sound bone was reached. With this view, an incision on the outer side of the thigh, between the vastus externus and biceps, was gradually extended upwards to a point between the great trochanter and the anterior iliac spine, and revealed the fact that the entire femur was diseased. It was now decided to disarticulate at the hip-joint. The femoral artery was compressed upon the pubic bone, and anterior and posterior flaps were formed, the arteries being secured as they were cut. The loss of blood was trifling. The cotyloid cavity was healthy. The flaps were brought together by silver sutures, and the stump was dressed with dry lint. As soon as conscious-



ness was restored, the patient was freely stimulated by whisky, and warm bricks were applied to the surface of the body; patient rallied completely in a few hours, and drank, during the day, nearly a pint of cream, and ate two soft-boiled eggs. The whiskey was exhibited every half hour during the evening, and every hour during the night. At bed-time his pulse numbered 120 beats. He stated that, normally, his pulse was very frequent and quick. On the following morning the patient was doing very well; he ate three soft-boiled eggs for breakfast, and batter cakes, and drank nearly half a pint of cream. Pulse still the same in quickness and frequency. He was ordered to take half an ounce of whisky every hour during the day. On March 13th, during the evening, his condition was satisfactory; his appetite was remarkably good; he ate during the day seven soft-boiled eggs, batter cakes, and drank largely of rich milk. Suppuration having commenced, cold water was directed to be constantly applied to the stump to lessen the secretion of pus. Whisky was continued in same amount, and at like intervals as on the previous day, and he was ordered twenty drops of the tincture of the sequichloride of iron thrice daily, and ten grains of Dover's powder at bed-time. Whisky was only to be given in the event of his waking during the night. Suppuration amounted to half a pint during the day. On March 20, 1865, he was still doing well. Suppuration was diminished in quantity and was laudable. Sutures were removed, and adhesive strips used to support the flaps and maintain them in apposition. The patient's bowels had been regular since the operation. His tongue had at no time been furred. On March 26th, the patient had three dejections, caused, probably, by imprudence in eating cabbage, for which he had a craving desire. This diarrhoea was checked by a pill containing two grains of acetate of lead and half a grain of opium, given at bed-time, and repeated on the 27th. The stump was doing well. The discharge had abated to three or four ounces. The patient was very cheerful. March 28th, the progress of patient was highly favorable. In addition to the iron, an ounce and a half of cod liver oil, with an ounce of whisky, was ordered to be taken an hour after each meal. March 29th, the patient's condition was comfortable and favorable; the cod liver oil agreed with his stomach; his appetite continued remarkably good; he ate seven eggs daily. The stump along the lower surface seemed to have united firmly; on the side, granulations were healthy; the pus discharged was laudable. From this time forward the patient steadily improved. Not a single untoward symptom arose to retard recovery. On April 24th, the face of the stump had entirely healed. There was still a granulating sore at the outer angle. On July 18, 1865, the patient started for his home, near Tarborough, in Edgecomb, North Carolina. He was in excellent health, and walked about on crutches with facility. A year subsequently he was in Lynchburg, Virginia. Since that date no intelligence has been received from him, and it is not known whether he still survives. The photograph of the patient after recovery was forwarded by Dr. Fauntleroy.







Morgan phot.

**FAUNTLEROY'S SUCCESSFUL RE-AMPUTATION AT HIP-JOINT.**



## SUCCESSFUL RE-AMPUTATION AT THE HIP-JOINT.

BY DR. T. G. MORTON.

First Sergeant Edwin D. Ulmer, Co. G, 15th New Jersey Volunteers, aged twenty-one years, was wounded at the battle of Cedar Creek, October 19, 1864, by a conoidal musket ball, which entered the inner face of the left thigh, fractured the bone, and lodged under the



FIG. VI. Comminution of the lower extremity of the femur by a musket ball. Spec. 3734, A. M. M.

skin on the outer side of the limb. The femur was badly comminuted, fissures extending into the knee-joint and upwards for seven inches. (See FIG. VI.) There was but little hæmorrhage at the time of the injury. The ball was readily extracted at the Field Hospital of the First Division of the Sixth Corps, and it was determined to attempt to save the limb. The wounded man was conveyed to Baltimore, and received at Jarvis Hospital on October 24th. The train of symptoms consequent upon gunshot injuries implicating the knee were soon developed. Intense arthritis supervened, with deep dissecting abscesses in the thigh. On November 14th, twenty-six days after the injury, hæmorrhage to the extent of twenty-five ounces took place from both orifices, which were in a sloughing condition. The patient was put under ether, and amputation at the middle of the thigh was performed by Acting Assistant Surgeon Edward G. Waters, anterior and posterior flaps of integument being formed, and the muscles being divided circularly.



Fig. VII. Cylindrical sequestrum from femur stump.—Spec. 107, A. M. M.

The patient was very weak and nervous at the time, but he rallied promptly after the operation and convalesced rapidly, and in a few weeks was able to get about on crutches. Yet the stump continued open and painful, and the extremity of the femur was found to be necrosed. In march, 1865, it was found that a cylindrical sequestrum was loose. This was removed on March 8th, by Acting Assistant Surgeon B. B. Miles, with forceps. The patient's general condition rapidly improved after this operation. On May 29, 1865, he was discharged from the service of the United States, the stump still discharging slightly. On the following day, he started for Philadelphia, and, unfortunately, on the journey he fell with violence upon the stump. After this, there was increased suppuration, with deep-seated pain in the stump. On the 22d of January, 1866, fifteen months after the original injury, while dressing the part as usual, a hæmorrhage occurred from one of the fistulous openings



at the end of the stump, amounting, according to his statement, to at least a pint. On account of this hæmorrhage, he was admitted into the Pennsylvania Hospital. The usual local remedies were applied to guard against its return; he was put upon a stimulating



FIG. VIII. Necrosis of the femur following osteomyelitis. From a photograph by Willard.

treatment, with the best diet. The stump presented the following appearances: The edges of the flaps were ulcerated, inverted, and covered with fungous granulations, which were red, painful, and disposed to bleed on the slightest probing. No examination of the bone was made for fear of exciting hæmorrhage. On the outside of the stump, which was swollen, sinuses were found, the mouth of each being surrounded by puffy, pale, granulating tissues. The femur seemed much thickened, could be felt through the integument, and was very painful to pressure; but no examination of the bone was made through the fistulous tracks. The head of the femur seemed also involved on account of the pain about the region of the socket, and his inability to allow much motion in the joint. He was greatly prostrated from the long continued drain, and lastly from the hæmorrhage. The history of the case, and the present appearances of the

stump, clearly indicated the existence of osteomyelitis, with necrosis of the neck, and probably ulceration of the head of the bone. The risk of recurrence of dangerous hæmorrhage, and the extensive disease of the femur, obviously demanded operative treatment; the removal of the stump at the coxo-femoral articulation offered the only chance for recovery. The patient's general health improved, and there was no further hæmorrhage until about the 15th of February, when the discharge again became mixed with blood. On the 17th, in the hospital amphitheatre, before the clinical class, the patient being etherised, an exploratory operation was made by Dr. Thomas G. Morton. An incision upon the outer side of the thigh revealed a diseased condition of the bone as high as the neck. Amputation was decided upon in consultation with Drs. Hunt and Agnew. The abdominal tourniquet having been applied, antero-posterior integumentary flaps were dissected up; the femoral artery, which was exposed with some difficulty on account of the hardened and altered condition of the tissues, consequent upon the previous inflammation of the soft parts, was then tied. The muscles having then been cut, circularly, close to the pelvis, the head of the bone was readily disarticulated. The aorta was so completely controlled by the tourniquet of Mr. Syme, that no arterial jet was observed during the operation; the loss of blood being very trifling, hardly amounting to three ounces. About sixteen ligatures were applied. The flaps were approximated with adhesive plaster, no sutures being deemed necessary. The subsequent dressings consisted of lint soaked in pure laudanum, until the parts had almost healed, when simple cerate dressing was substituted. The patient was much prostrated by the operation, but



reacted well. The discharge was very profuse; and during the first week the edges of the flaps appeared a little sloughy. Under vigorous stimulating treatment and the local application of permanganate of potash in solution he rapidly recovered. No other unfavorable symptoms having occurred, and the ligatures being all away by the end of the second week, two small openings in the stump alone remaining, he left the hospital March 27th, thirty-eight days after the operation, for his home in the northern section of the city. The exarticulated portion of the femur presented a characteristic example of necrosis following osteomyelitis. A long, loose sequestrum was found encased in a new deposit of porous bone, and was not limited to the diaphysis, but extended quite into the neck, and then projected through the ulcerated capsular ligament. The head of the femur was ulcerated. The acetabulum was healthy. On May 10th, the patient was able to get about town on crutches. On the 20th, he left for New Jersey to fill a situation as telegraph operator. On July 24th, he sent a letter to this office from Milford, New Jersey, announcing that his health was excellent, and a few weeks subsequently he corroborated this statement by transmitting his photograph. On October 27, 1866, he was supplied with an artificial limb by Clement, of Philadelphia. On June 28, 1867, Mr. Ulmer wrote to this office that he had never had a day's illness since the hip-joint amputation was performed, and had never been in better health than then. He was stouter than ever before, weighing one hundred and seventy-five pounds, or twenty-five more than his average weight when he had both lower extremities. His stump was firm and solid and gave him no pain or inconvenience. He considered his artificial limb an excellent one, and could walk on it "right well," but found it inconvenient at his work, which required him to sit all day on a high stool. The photograph transmitted in 1866 was copied in water color by Mr. Schultze. Following this water color sketch will be found a photograph representing Mr. Ulmer's appearance eighteen months after the operation.







Schultze del.

MORTON'S SUCCESSFUL RE-AMPUTATION AT THE HIP-JOINT.





Wm. Bell phot.

**MORTON'S SUCCESSFUL RE-AMPUTATION AT THE HIP-JOINT.**

*Photo. taken eighteen mos. after operation.*



## SUCCESSFUL RE-AMPUTATION AT THE HIP-JOINT.

BY SURGEON A. B. MOTT, U. S. V.

Private Lewis Francis, Co. I, 14th New York Militia, aged forty-two years, was wounded July 21, 1861, at the first battle of Bull Run, by a bayonet thrust, which opened the right knee-joint. He received not less than fourteen other stabs in different parts of the body, none of them implicating the great cavities. He was taken prisoner, and conveyed to Richmond and placed in hospital. One of his wounds involved the left testis, which was removed on July 24th. On October 28, 1861, his right thigh was amputated at the middle, on account of disease of the knee with abscesses in the thigh. The double-flap method was employed. The stump became inflamed, and the femur protruded. An inch of the bone was resected, and the flaps were again brought together. In the spring of 1862, the patient was exchanged and sent to Fort Monroe. Thence he was transferred to a Washington Hospital, and thence, in March, 1862, to his home in Brooklyn. There was necrosis of the femur, and in May, 1862, its extremity was again resected by a civil surgeon. On October 28, 1863, Francis was admitted to the Ladies' Home Hospital, New York. Necrosis had apparently involved the remaining portion of the femur. On May 21, 1864, Surgeon A. B. Mott, U. S. Volunteers, laid open the flaps and exarticulated the bone. The patient recovered rapidly and had a sound stump. He was discharged August 12, 1864. On October 1, 1865, the photograph from which the accompanying water-color drawing is copied was taken, and forwarded by Surgeon Mott to the Army Medical Museum. Dr. Mott reported that the pathological specimen of the exarticulated femur was stolen from his hospital. For some months after his discharge Francis enjoyed good health; but then the cicatrix became unhealthy, pus was discharged through several sinuses, and there was bleeding from the slightest irritation. In March, 1867, a messenger was sent to his residence, 54 Hamilton Street, Brooklyn, and found him in very poor health. He had been unable to leave the house since November, 1866. On April 12, 1867, he was visited by Dr. E. D. Hudson, who reported him as then confined to his bed. There was a large ulcer at the upper outer angle of the cicatrix, which communicated with extensive sinuses; there was a fistula in ano also. The pus from the different fistulous orifices was thin, oily, and ichorous. There could be little doubt that there was disease of some portion of the innominatum. The patient was much emaciated, and had a cough with muco-purulent expectoration. His pulse, however, was not frequent, and he had a good appetite. In May, 1867, it was reported that his general condition had somewhat improved.





MOTT'S SUCCESSFUL RE-AMPUTATION AT THE HIP-JOINT.











