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SURGICAL CASES

CHARLES B. BRIGHAM, M. D.

1876

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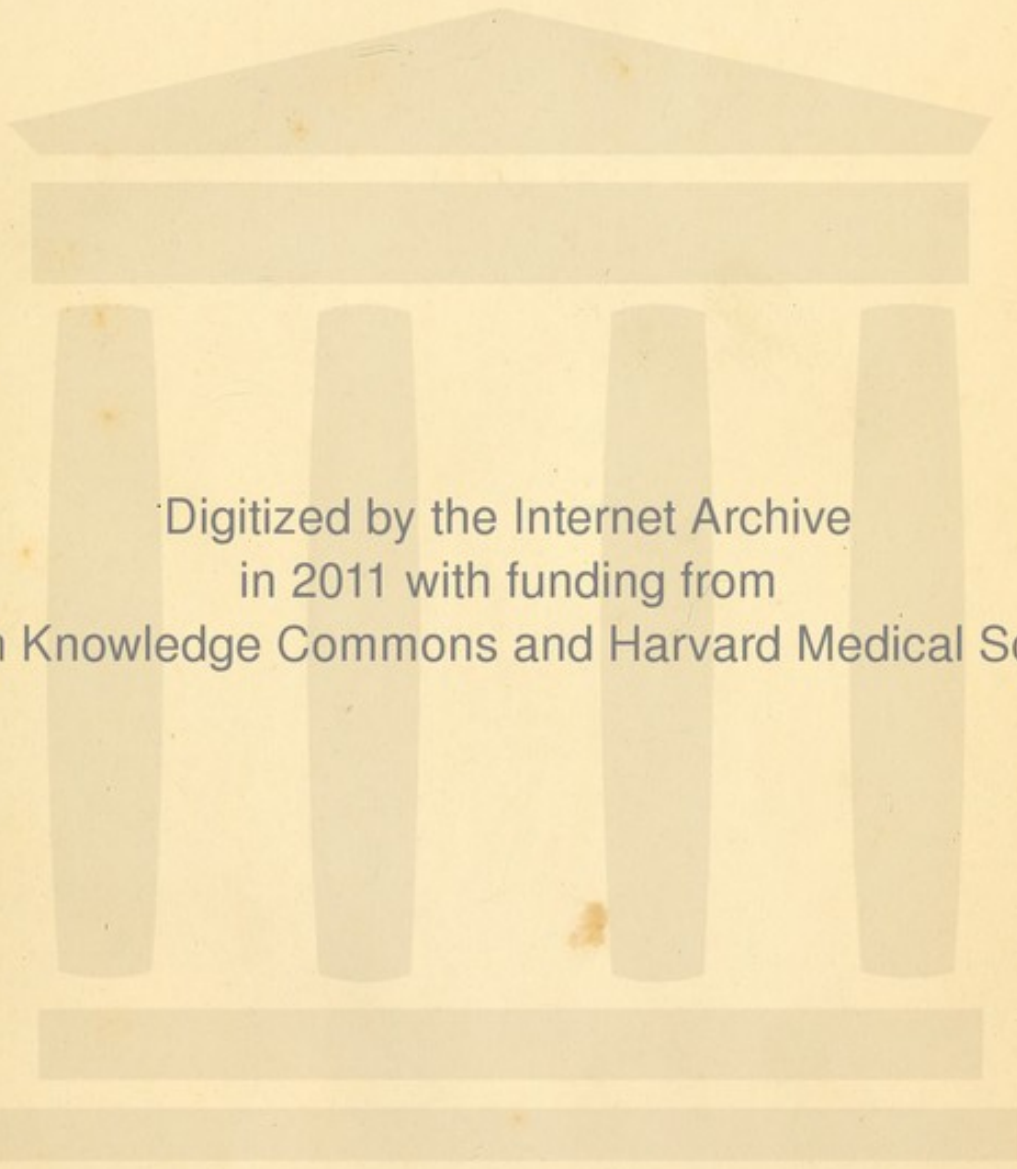
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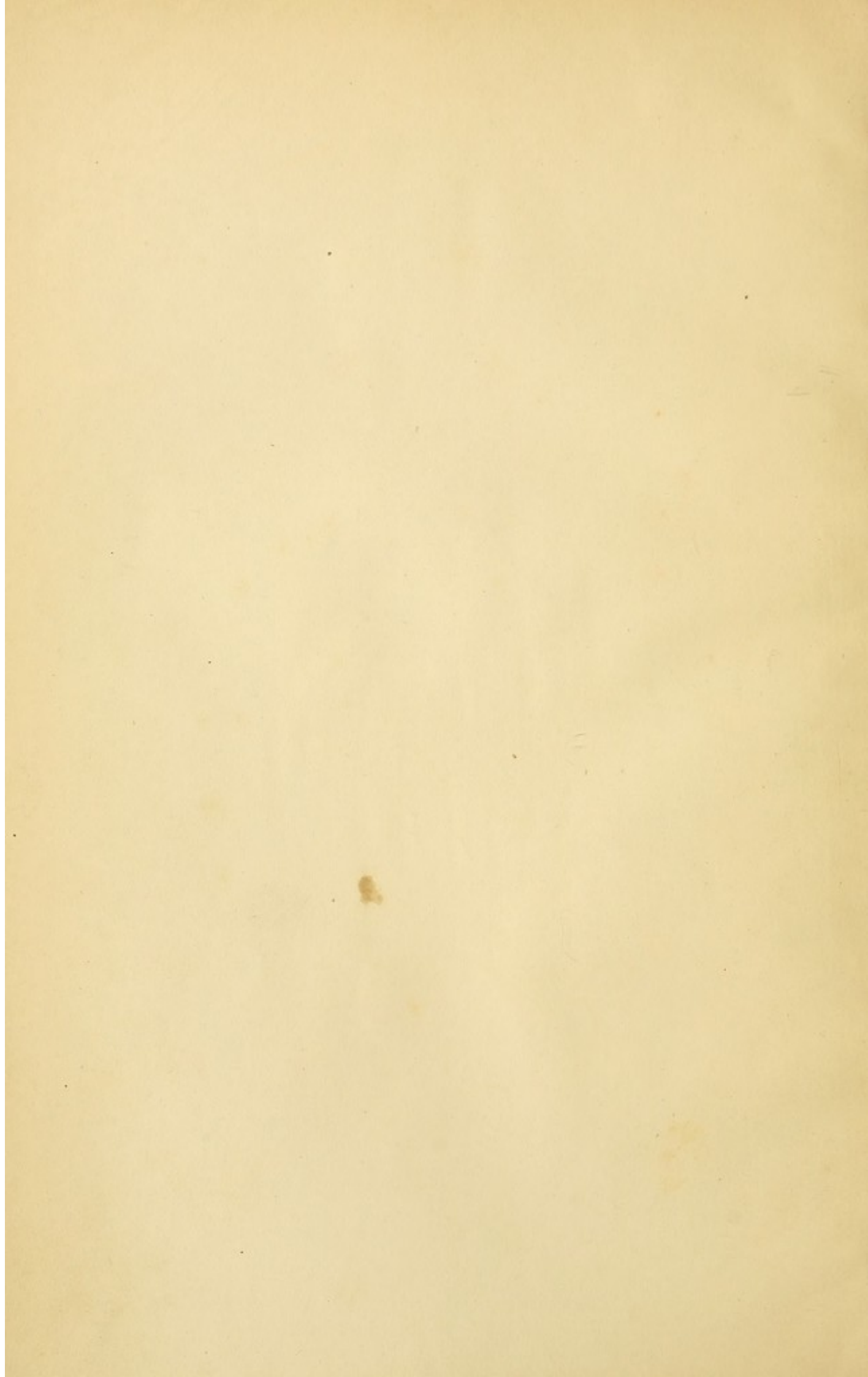
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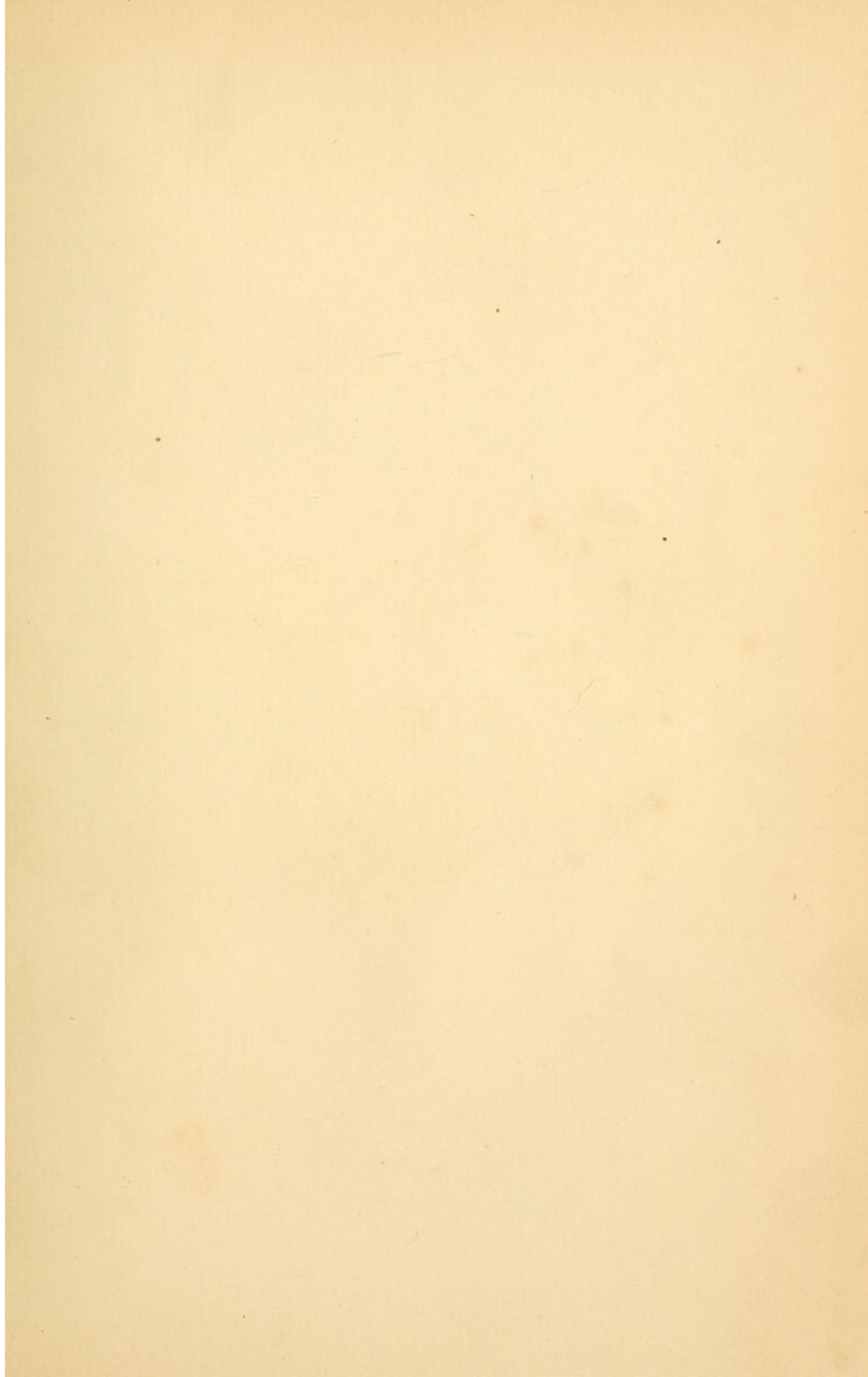
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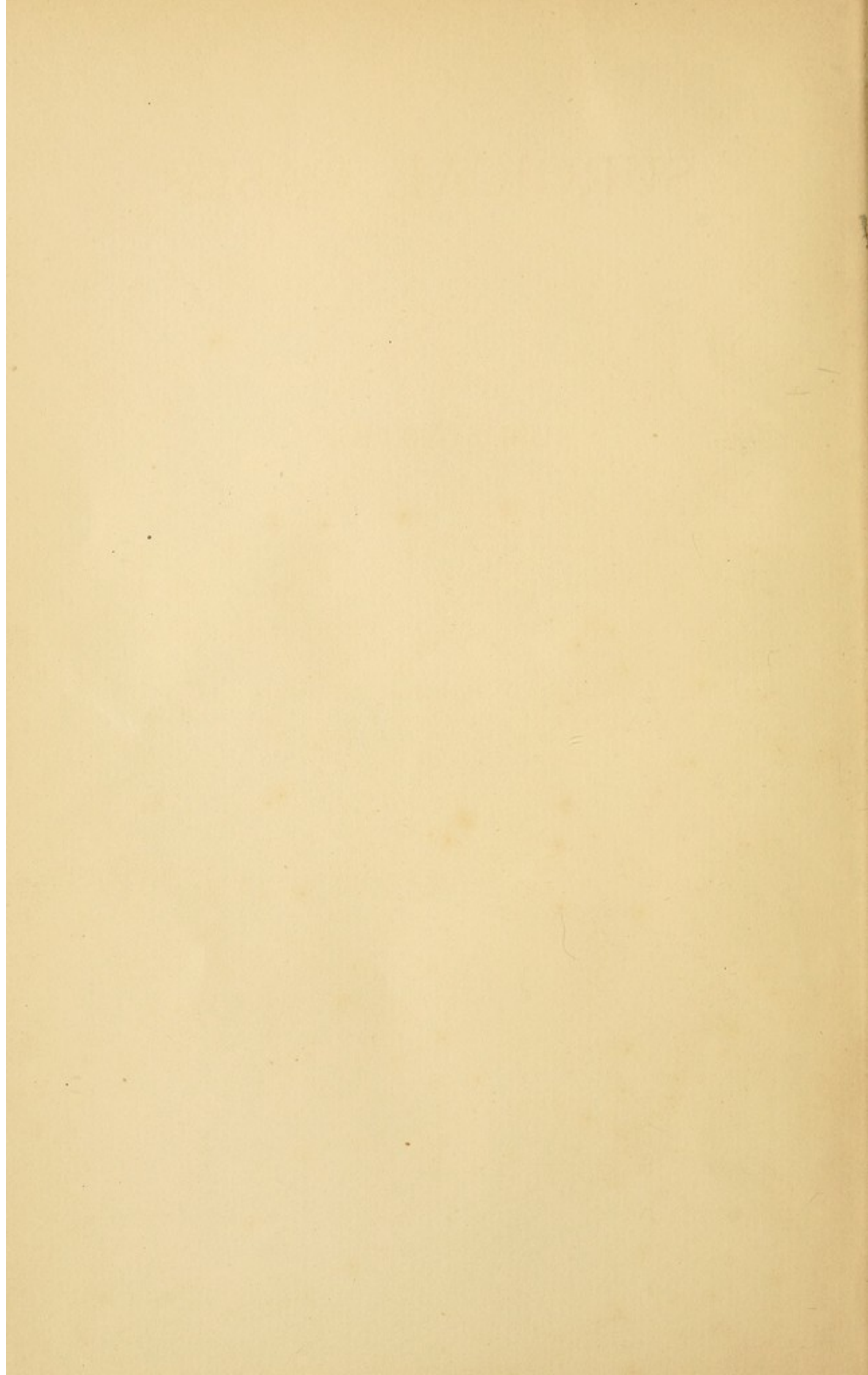
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SURGICAL CASES

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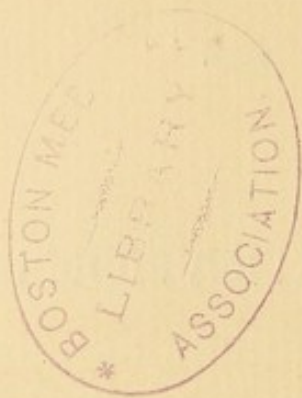
ILLUSTRATIONS

BY

CHARLES B. BRIGHAM, M. D., HARV.

SURGEON TO THE FRENCH HOSPITAL AT SAN FRANCISCO, MEMBER OF THE CALIFORNIA STATE
MEDICAL SOCIETY, CHEVALIER OF THE LEGION OF HONOR

1876



RIVERSIDE, CAMBRIDGE:
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THE following cases, with two exceptions, have been treated in the three years of my practice at San Francisco. They have been published with the hope that they would prove interesting to the Medical Profession.

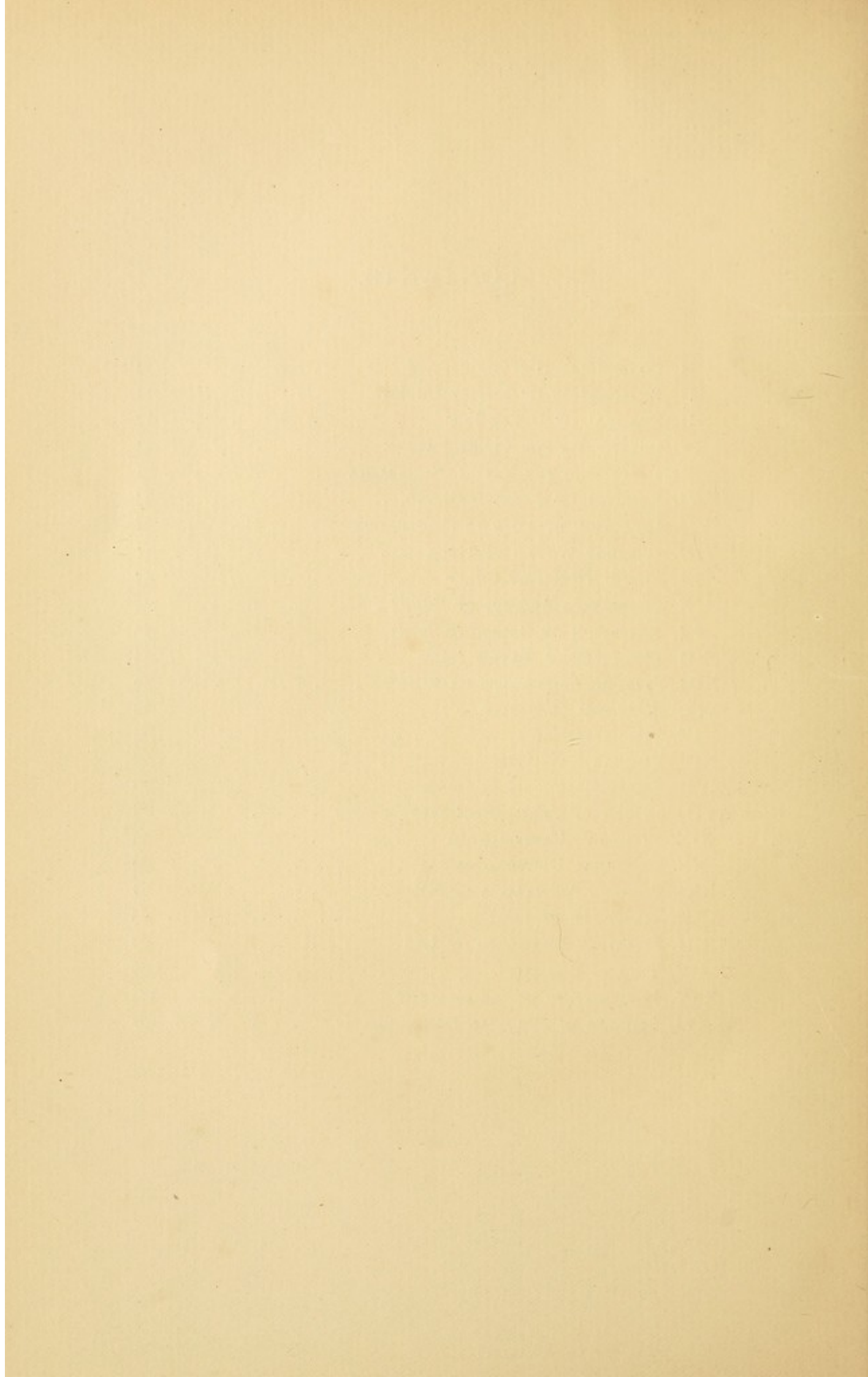
The illustrations have necessarily been reversed in the process of heliotyping, but if this is borne in mind in Plates 1, 2, 4, and 5, no confusion need occur.

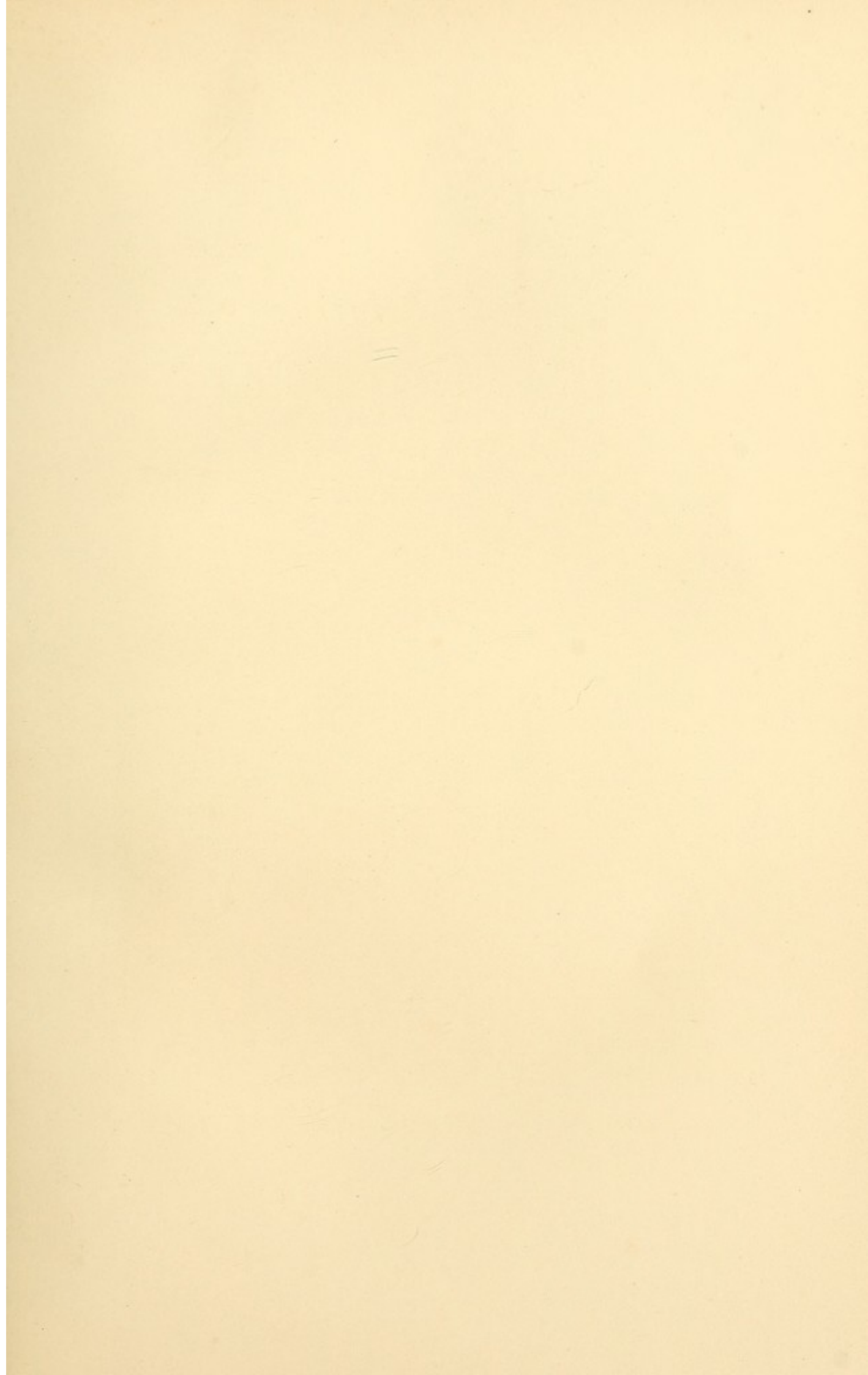
To the case on page 32 the following correction should be made: the pain returned after twelve months, but was much lighter and not continuous. To the succeeding case it may be added, that in February, 1876, when last heard from, there had been no return of the pain.



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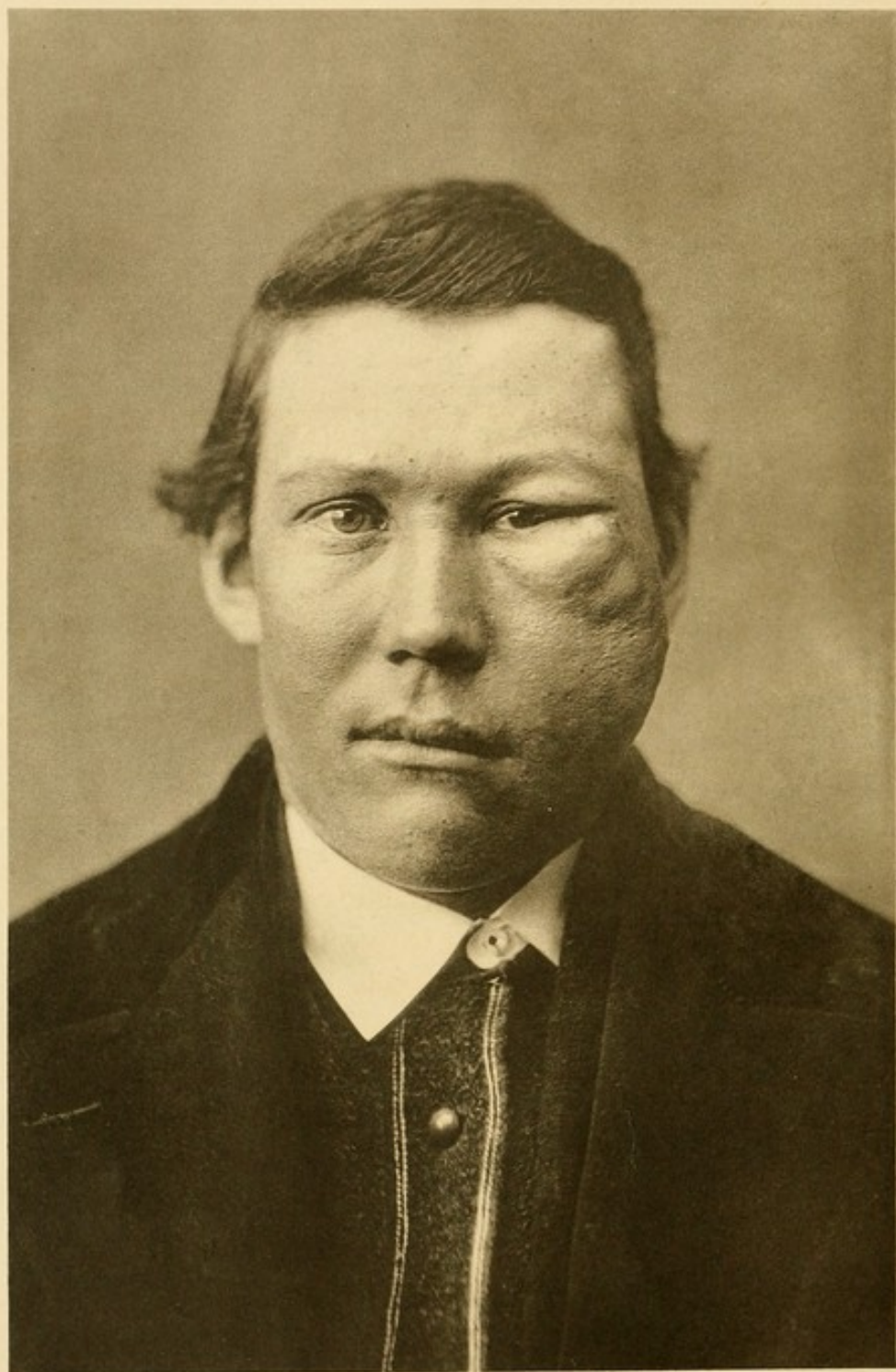


PLATE I. CONGENITAL NÆVUS OF FACE. I.



SURGICAL CASES.

I.

A LARGE PULSATING NÆVUS OF THE EYELID AND FACE
WHOLLY OBLITERATED BY SUBCUTANEOUS INJECTIONS
OF NITRATE OF SILVER.

* JAMES T., æt. 22, single. The patient had a congenital nævus of the right lower eyelid, and upper three fourths of the cheek, as represented in the plate. The superficial congestion was great, and the pulsations were easily visible. On placing the hand over the tumor an aneurismal thrill was felt; it was most marked over the molar process of the upper maxilla. The entire nævus extended over a space of four inches and a half in length and width, and by bulging out made a great deformity of the face. It was resolved to try Dr. H. J. Bigelow's method of injecting subcutaneously a few drops of a solution of equal parts, by weight, of nitrate of silver and water. This was done on the 22d of January, 1876, three drops of the solution being injected into the centre of the nævus. The surrounding tissue was firmly compressed against the bone and held so during two minutes; immediately after the injection was given, the patient complained of acute and almost unbearable pain in the cheek. The thrill disappeared in a few seconds; there were no pulsations felt in the cheek after the fingers were removed from the puncture, but the lower eyelid still pulsated feebly. There was but little change in

the pulse, until towards evening, when it fell from 72 to 60; the temperature was at 99. On the 23d, the cheek was somewhat swollen; there was no pain whatever; the eyelid still pulsated, and on the 24th four injections were made deeply through the lid. Some difficulty was experienced with the syringes, the caps becoming unglued, and the needles clogged from the force of the injection. The pain, after these injections, was intense but transitory.

January 25. The right side of the face is much swollen; there is but little pain; the right eye is closed; pulse 72, temp. 99.

January 27. The lower eyelid is hard without pulsations; the right half of the face was covered with oiled silk; pulse 72, temp. 98.

January 29. All the five points where the injections were made are suppurating slightly; the nævus has the appearance of a large anthrax; there is no pain; the eye is still closed; the purple color of the cheek is disappearing at its lower third. On the 4th of February a flaxseed poultice was applied to the right half of the face. It was interesting to see how continuous and abundant the discharge was; the patient had no pain, and slept and ate well. The color of the nævus grew lighter daily; the discharge continued to be free. On the 1st of March, redness of the skin was almost gone; the growth had much diminished in size and was wholly free from pulsations. There was still much discharge, giving a good prospect of a further diminution of the swelling of the cheek.

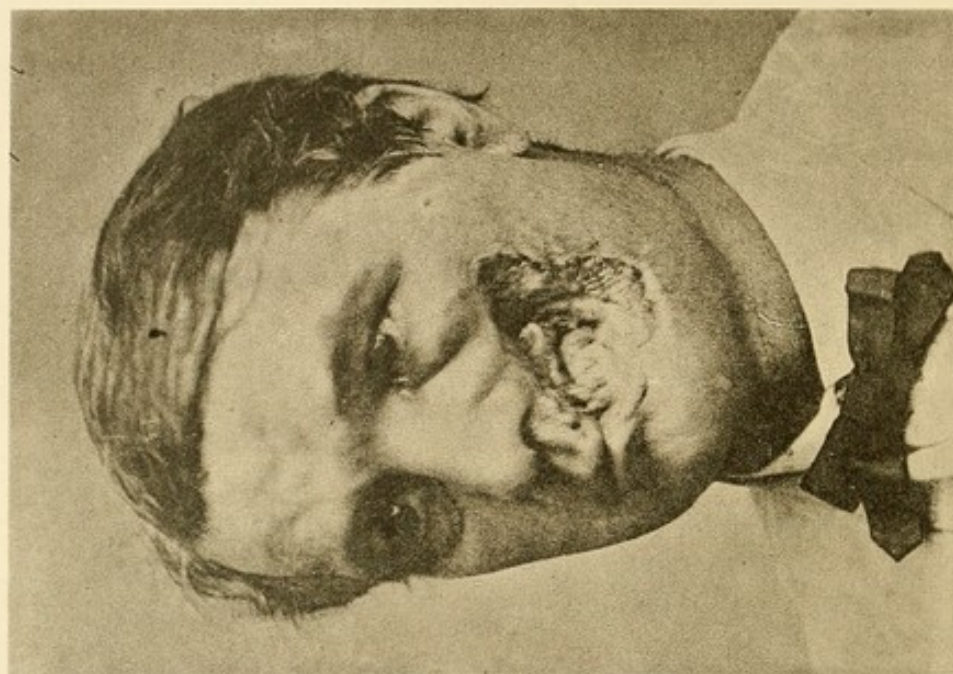


PLATE 2. RESTORATION OF CHEEK. II.

II.

EXTIRPATION OF A RODENT ULCER BY THE ÉCRASEUR.
PLASTIC OPERATION FOR THE RESTORATION OF AN
ENTIRE CHEEK.

ALEXIS R., æt. 50, married. The patient had a rodent ulcer of the right cheek and lip from November, 1871. The disease first showed itself on the inside of the lip, near a decayed tooth, and by the month of August it had destroyed the corner of the mouth and had invaded the tissue of one fourth of each lip and about an inch square of the tissue of the cheek; it had also extended to the periosteum of the upper jaw to a small extent where the cheek rested upon it; there was no enlargement of the submaxillary gland. The surrounding tissue appeared healthy. The ulcer had been treated by caustics, by the actual cautery, and, finally, it was removed by the *écraseur* at Dieppe on the 10th of August, 1872. I had the pleasure of assisting M. Chassaignac in performing this operation, and when it was finished he left the case in my care to fill up the gap made by the *écraseur*. One of the advantages gained by using the *écraseur* was, that in this vascular part of the face no hæmorrhage followed its use; another and an important one was, that the tissue outside of the chain of the *écraseur*, in being strangulated and contused to a certain extent, seemed to lose its power of continuing the malignant nature of the disease, should any germs be left. On the other hand, this very contusion of tissues, — for it is nothing else, — after the use of the *écraseur*, becomes a great obstacle to the immediate success of a

plastic operation; and should the attempt be made to unite immediately a flap of transplanted skin to these contused borders of the wound, the result would prove unsuccessful. The method of seizing the cheek so as to apply the chain, was as follows: Two curved trocars were introduced crosswise, so as to include the diseased tissue, and nearly an inch of the healthy tissue surrounding it. It was left to the patient whether he would take ether or not; he, being a man of extraordinary courage, decided in the negative. The chain was applied, and, after breaking one and reapplying another, the cheek was removed, the operation having occupied nearly an hour and a half. The hole made by the operation measured three and a half inches in length by three and a quarter in width. The facial artery was drawn out of its bed nearly an inch, the periosteum of the upper jaw was removed to the extent of an inch square, and the teeth of either jaw were exposed, as was also the anterior border of the parotid gland, just where Steno's duct emerges from the glandular tissue. The wound was dressed with charpie, soaked in carbolic acid wash. At the end of three weeks a mass of bright red healthy granulations filled the borders of the wound, and the layer of dead tissue, one eighth of an inch in width, had all come away.

On the 1st of September, 1872, it was decided to perform a plastic operation, taking a flap from the side of the ear and neck. MM. Ricord and Vollemier, of Paris, examined the case; the former thought the operation necessary and possible, but would rather some one other than himself would do it. The latter thought that he detected a thickening of the sheath of the sterno-cleido-mastoid and several little glands under the chin, and that it was better to do no operation, as the disease would return.

The reasons in favor of an operation were that a rodent ulcer, well extirpated, without glandular infection, gave a fair chance of non-recurrence; that the patient was a strong, hearty man, eagerly wishing for the operation; that the flap would be taken from a part of the face little vascular, in the way of no great vessels, touching neither the facial artery nor the jugular vein; that the paring of the surface of the wound would not give rise to much hæmorrhage, as the *écraseur* had closed the blood-vessels to a certain distance from the wound; that the operation was an affair of utility, to inclose the saliva which dripped constantly from the wound, and of necessity to prevent some lesion of the lung, which the air, imperfectly warmed before entering the chest, might create in the winter time; that the hole would never close of itself, but, on waiting, would be surrounded by a cicatricial tissue, which would have to be removed. The morale of the patient was to be considered; for, disgusted with his appearance, he meditated suicide, and would have drowned himself had he not been assured that some attempt at reparation of the cheek would be made. The operation being decided upon, the patient was etherized, and with the kind assistance of Dr. Wilkinson, of Dieppe, a somewhat rectangular flap, four inches in length by three and three fourths inches in width, was taken from the neck just over and below the angle of the lower jaw; the pedicle was cut from the skin in front of the ear; the hæmorrhage was very moderate; six arteries were tied and several smaller ones were twisted; thirty-three silver sutures united the flap to the adjacent borders of the wound; the pedicle measured one half an inch in width, and was so cut that it glided into its new resting place without being twisted; a little channel was dissected out for its reception

through the skin lining the border of the wound, and this strip of skin was united to the posterior edge of the flap, so that no tissue was lost. The wound of the neck was dressed with raw cotton. The operation occupied two hours; the patient rallied well, with a pulse of 75; from hour to hour in the afternoon, the flap changed its color, having a mottled appearance towards evening; the blood was sponged off from the line of sutures every five minutes during several hours. A slight bleeding from the mouth, which lasted all the following night, was arrested by injections of brandy through the lips.

September 2. Pulse 80; the sides of the flap seem united, but the extremity is of a dark color at a distance of nearly an inch. This part was then immediately painted with collodion, in order to give it a certain support; there is a redness and swelling under the right eye, but no pain.

September 3. Pulse 80; the saliva has become white again; the patient is fed on milk and beef tea, which he takes through a straw; the flap begins to show the beard growing upon it; a cold water compress was placed over the swelling under the eye.

September 4. The patient sat up for two hours, and is in excellent spirits; pulse 65; a little pus noticed under the pedicle was evacuated by means of a probe; no fluid came away through the cheek.

September 5. The cotton was removed from the wound of the neck, and a new dressing of it substituted; several sutures were removed from the upper border of the flap where union had taken place; the beard pushes freely on the flap, even through the collodion; the flap is still of a red color, but is becoming white in spots; the patient was up nearly all day.

September 6. Patient was out in the garden twice to-day; five sutures were removed; the swelling is gone from below the eye.

September 7. The dead part of the flap near the lips has separated from the living tissue; the rest of the flap is of normal color; the patient was out of doors six hours during the day.

September 8. Took away every suture and ligature, and had the flap shaved; the two extremities of the lips are united one to the other; the flap has lost one half an inch of its extremity; two pins then united the lip to the flap, the dead tissue being removed; a slight opening existed above, and a larger one below these pins; no effort was made to close them, but a dressing of charpie and carbolic acid wash was placed over them in hopes of exciting granulations; small strips of court plaster were placed all along the edges of the flap to support it; the cotton, too, was replaced by a bit of plaster.

September 9. The condition of the patient is excellent; there is but little moisture on the face.

September 10. A bit of dead tissue was withdrawn from the lower of the above-mentioned openings, which now measures one inch in length by a third of an inch in width; the upper one exists only as large as a pin head; a line of bridges, with solid base, connects the flap to the lips.

September 11. The plaster was removed from the wound of the neck, and it was allowed to scab over; the granulations have come up level with the surrounding skin; this wound of the neck is just one half of its original size.

September 12. The patient drove himself ten miles in a carriage; the pins were removed from the lips; there was perfect union.

September 15. An attempt was made to close the lower opening by means of four horse-hair sutures, a long strip of court-plaster being passed from below the chin to the forehead, so as to support it. The following day the patient felt what he called a working of the flesh around the sutures; the wound was perfectly dry; in the pedicle the patient feels occasional twitches, as if some one were tying an artery.

On the 23d, there being still an opening to the left of the angle of the mouth, a flap was taken from the lower corner of the chin, and four horse-hair sutures united it to the great flap; the operation, occupying over an hour, was performed without ether; four arteries were tied; on the next day the flap was of a deep red color, but sensible throughout.

On the 26th, there was no connection with the mouth.

On the 29th, all the sutures were removed, and the flap seemed solidly united. On this day the accompanying photograph was taken.

A letter received from the patient, dated December 24, 1872, gives the news of his excellent general health; he says that no granulating surface has existed on the face since the 5th of December; he complains of a tenderness on the inside of the flap; this I am led to believe is always the case, as the nervous force becomes more and more established in the transplanted tissue, its tenderness is greater. This will undoubtedly wholly pass away.

The successful result of so extensive a plastic operation is very gratifying, showing that, together with the pedicle, the union of the edges alone will be sufficient to support so large a flap, which rested upon no base, and which was constantly bathed with saliva.

III.

REMOVAL OF THE ENTIRE UPPER JAW FOR MALIGNANT DISEASE. — RECOVERY.

JOSEPH G., æt. 26, single. Four years ago the patient contracted syphilis ; after two months his throat became ulcerated and the soft palate paralyzed, so that when he drank water it came out by the nose. He was treated at the time with mercury, and he says : " During four months, without exaggeration, I had ten stools daily." In January, 1873, being exposed to the rain, he caught cold, and soon afterward a lump appeared on the right side of the nose near the eye ; it disappeared on the application of Vigot's plaster. A few weeks later he experienced slight darting pains along the nose, and a sensation as if ants were crawling up its side, and an itching, more or less continuous. The lump on the side of the nose began to swell again, and the breathing through the night was much impeded. During the next month the patient had severe pains in the teeth. I saw him for the first time in January, 1875. There was then a moderately-hard tumor, an inch in diameter, on the right side of the nose, to all appearances attached to the right nasal bone ; it had bulged out on the inside of the nose, so as to touch the septum. The patient also felt an obstruction over the soft palate. I advised him to have the tumor removed, together with the right nasal bone. This the patient declined, hoping to get rid of the growth without deformity. I did not see him again until the 10th of August, 1875. He had written me a

few days previous that he was dissatisfied with his present treatment, and was now willing to undergo any operation whatever that would give him a chance of life. No one would have recognized him. The upper part of the nose had been removed by an operation; the lower part had become glued to the upper lip, which protruded nearly an inch and a half from the incisors, and was tightly stretched over a tumor occupying the myrtiform and canine fossæ on the left side. On the right side, under the malar process, a similar tumor prevented the lip from being turned to one side; nearly all the teeth of the upper jaw were hanging loose in a tumor, which, occupying almost the entire arch of the mouth, protruded considerably beyond the lower jaw. The patient had never had any hæmorrhage from the growth; there was little if any pain, and the chief inconvenience was in the appearance of the tumor and the constant dribbling of saliva, caused by the impossibility of closing the mouth. He was very anxious to have the growth removed, and, having explained to him fully the nature of the operation, on the 12th of August, 1875, I etherized him in the recumbent position. An enema of brandy and water was then given; hot bottles had been placed at his sides and feet; tracheotomy was then performed with Robert and Collins' new tracheotome, by which the tissues were divided and the trachea opened by a single thrust; the canula was kept in place by means of tapes. The mouth was then opened as widely as possible, and the tongue seized by a forceps and drawn outward. The pharynx was then plugged by two fine sponges of moderate size, attached to a silk string. The etherization was then wholly carried on through the canula. The operation of removal of the jaw was now commenced in the presence of my colleague, Dr. Hoffstetter, and Drs.

Grace, Thorne, Vanvlack, Fiske, Chisholm, Blake, and Messrs. Davidson and Chaigneau. A slightly curved incision, two inches and a half in length, was made over the lower edge of the left orbit, extending to the zygoma; meeting this on the side of the nasal cavity, an incision was made extending through the lip, about an inch from the middle line. All the vessels of importance were tied as soon as cut; the flap was carefully dissected from the subjacent tumor. The lower border of the orbit and the malar bone were fully exposed; eight ligatures were applied; dry sponges were left between the flap and the bone; the head was then turned to one side and a similar dissection was performed over the right maxilla, the patient, meanwhile, sleeping calmly and quietly. By means of a chisel and mallet the lower orbital edge was cut through on either side, in such a way as to leave a support for the eyes. Each malar bone was then divided with Luer's large forceps; the remains of the nasal bones were removed, and finally the forceps were introduced behind the last molar tooth, on either side, and with one cut and a twist the jaw was separated from the pterygoid processes; both hands then served to depress the jaw, and free it from the few remaining attachments. The hæmorrhage was moderate; no large vessel was tied. The wound was carefully examined, and all suspicious or bleeding points were touched by the actual cautery. When the bleeding had quite ceased, the two sponges were removed from the pharynx; as the second one came out it was observed to be as free from blood as when it was put in; what remained of the lips was brought together and united by three silk sutures. The infra orbital incisions were also similarly united, and the cheeks were brought as closely as possible together, by means of adhesive plaster. The tracheal tube was left

in place. Another enema of brandy and water was given, and the patient put to bed. During the whole operation, which occupied about an hour and a half, there was no one time when anxiety was felt for the patient ; he slept all the time as quietly as one could wish, much to the satisfaction of all present. The jaw removed measured six inches in width by four and three fourths in length and four inches in height. The distance apart of the molar teeth was three inches. Into the right nostril was moulded a polyp-like growth of hardish tissue, which extended into the antrum in lobes, some of which were incased in a thin layer of bone. It was in the right antrum that the tumor probably originated. Several small, round lobes of the tumor were found slightly attached to the free edge of the soft palate. The growth had perforated the hard palate, and had spread itself evenly on either side of the middle line. It extended anteriorly between the incisors, separating them about half an inch ; all the teeth except the molars were loose in the substance of the tumor. The lobes of the tumor, which lay outside of the jaw, have been described already. On section, the tumor gave a slightly turbid juice. Its consistence was neither soft nor hard. There was none of the brain-like tissue so often seen in encephaloid cancer ; there were no blood-vessels in any part of it which were apparent to the naked eye ; all the lobes, inside and outside the jaw, were of the same tissue. Under the microscope were seen many small, roundish cells with nuclei ; there were few fibres ; there were no fusiform or irregularly-shaped cells. From this examination the tumor was decided to be a small-celled sarcoma, and knowing that the smallest celled sarcomatous tumors are more dangerous than those with large cells, a doubtful prognosis was given. It is a matter of interest

that no gland in the neck, or in any other part of the body, was enlarged.

The patient recovered rapidly from the effects of the ether; a moist flannel compress was placed lightly over the canula; the patient's room was large and sunny, one of the best in the Maison de Santé; water was kept constantly boiling in it to render the air moist. At noon the pulse was 108; the patient had no pain whatever; small enemata of beef-tea and cognac were given every two hours during the day and night. Evening, pulse 96, temp. $37\frac{3}{4}^{\circ}$ centigrade.

August 13. Patient slept a little during the night; he takes some beef-tea and water with a spoon over the tongue; he writes all messages on paper, sitting up in bed; there are no indications of hæmorrhage; pulse 84, temp. $37\frac{3}{4}^{\circ}$; the enemata are continued.

August 14. The tracheal tube was removed to-day, and isinglass plaster was placed over the wound; the patient is in excellent spirits; he uses a small syringe to inject liquids into his mouth; pulse 84, temp. $37\frac{1}{2}^{\circ}$; evening, pulse 96, temp. $37\frac{1}{2}^{\circ}$; both lower eyelids are somewhat swollen; four enemata were given during the day — none at night.

August 12. Patient passed a restless night; the whole face is somewhat swollen; pulse 96, temp. $37\frac{1}{4}^{\circ}$; appetite good.

August 16. All the sutures under the eyelids were taken out; there was union throughout. The upper lip is still insensible, but it moves in smiling; pulse 72, temp. 38° ; evening, pulse 80, temp. $37\frac{1}{4}^{\circ}$. Patient spoke several words distinctly to-day. The opening made by the tracheotomy tube is completely filled with granulations; the enemata were discontinued.

August 17. Patient quite comfortable. He wrote an

account of his disease in six full pages, without fatigue; pulse 76, temp. $37\frac{1}{4}^{\circ}$; the sutures in the lip were taken away; there is good union. The face was dressed, every other day, with strips of adhesive plaster; the patient made an uninterrupted recovery.

On the first of October a bit of bone came away from the incision under the right eyelid. For more than a month the patient has walked in the garden daily; he now eats hashed meat; he can speak so as to be easily understood, and is much encouraged at his speedy recovery.

November 11 — three months after the operation. Many suspicious granulations between the eyes and under the right eyelid have been destroyed by the actual cautery, and by small chlorate of zinc arrows. The patient continues in good bodily condition, without glandular enlargement; yet a thickening of the muscles at the angle of the right inferior maxilla still gives cause for a very doubtful prognosis.

February 26, 1876. The patient still continues in good general health. The right eye became invaded by the disease, and was removed; the other parts of the jaw and throat are now in good condition. The plate shows the roof of the mouth with the tumor breaking through the hard palate and separating the teeth.

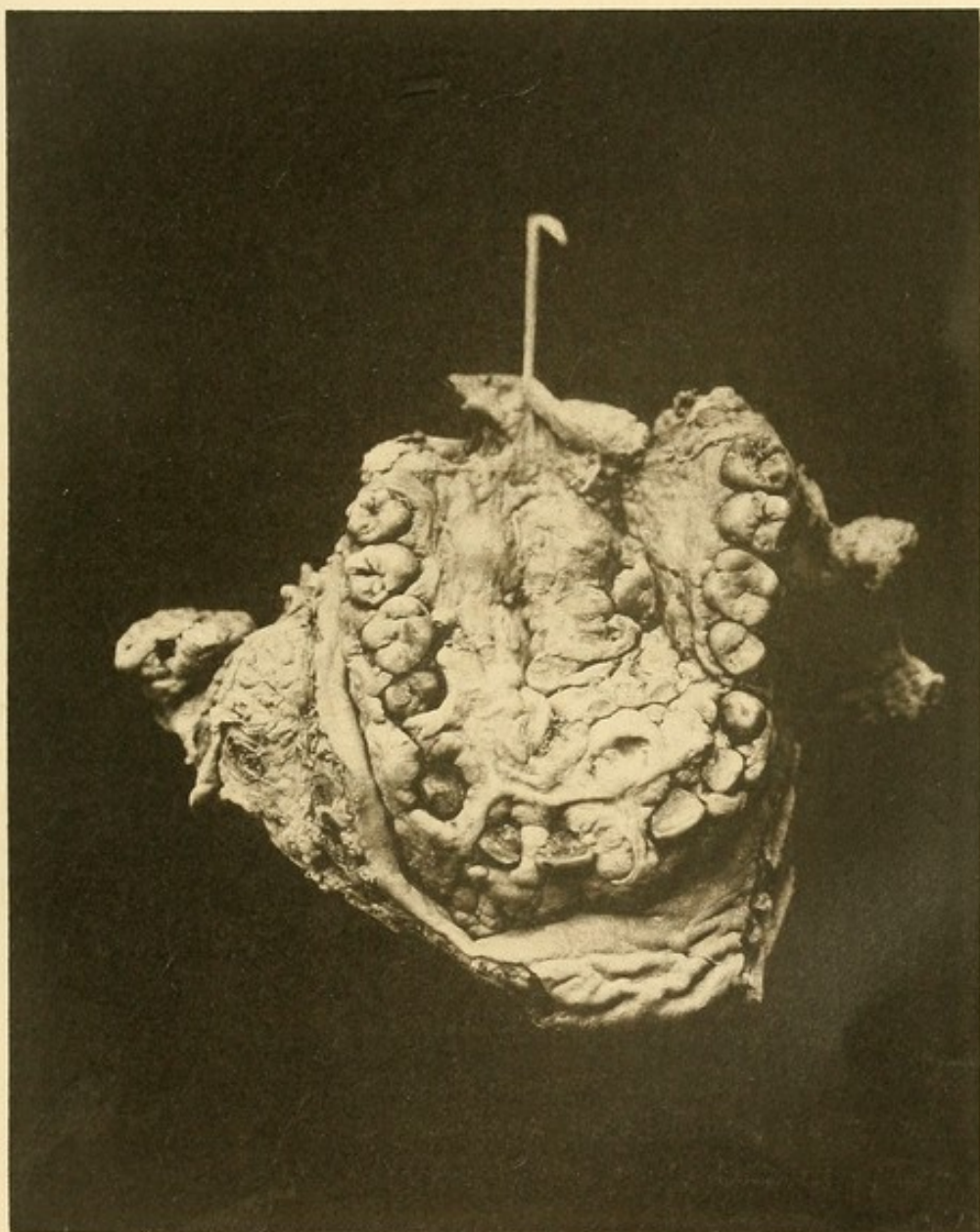


PLATE 3. REMOVAL OF UPPER JAW. III.

IV.

AN OPERATION FOR EXTENSIVE RUPTURE OF UTERUS AND
 SOLT FISTULA IN AN INFANT OF NINETEEN MONTHS.
 SUCCESS FAVORABLE, COMPLETE RESTORATION OF THE
 PART.

Isaacson A. G. at 19 months. The patient was born
 September 21, 1852, with a single hernia, the hernia
 extending up into the left scrotum and distending the same
 on that side. It was complicated with an extensive de-
 scend of both testis and epididymis, the sides of the uterus
 were nearly vertical, while the two halves of the uterus
 were so contracted by spasms that they seemed to pro-
 ject from the sides of the throat. The fissure of the
 hard palate extended anteriorly as far as the alveolar
 process of the jaw, and was very wide. The child was
 otherwise in a healthy condition, and was large for his
 age. On the 2nd of April 1854, he was examined, and
 one half of Smith's bag was inserted into the mouth to
 keep it open. The operation then performed was as fol-
 lows: An incision an inch in length was made on either
 side of the alveolar border, coming to the bone and pass-
 ing a narrow ribbon anteriorly; a narrow ribbon being
 sutured was then used to separate the flaps from the
 bone; an attempt was made to cut through the bone
 with a sharp instrument, but the instrument was not
 was not successful. The operation was carried on up
 to the edge of the flaps with the instrument; the
 edges of the flaps and sides were then pared, and
 the pillars of the flaps being divided with curved scis-

IV.

AN OPERATION FOR EXTENSIVE FISSURE OF HARD AND SOFT PALATE IN AN INFANT OF NINETEEN MONTHS; SINGLE HARE-LIP; COMPLETE RESTORATION OF THE PARTS.

HERBERT A. G., æt. 19 months. The patient was born September 23, 1872, with a single hare-lip, the fissure extending up into the left nostril and flattening the nose on that side. It was complicated with an extensive fissure of both hard and soft palates; the sides of the fissure were nearly vertical, while the two halves of the uvula were so contracted by spasms that they seemed to project from the sides of the throat. The fissure of the hard palate extended anteriorly as far as the alveolar process of the jaw, and was very wide. The child was otherwise in a healthy condition, and was large for his age. On the 22d of April, 1874, he was etherized, and one half of Smith's gag was inserted into the mouth to keep it open. The operation then performed was as follows: An incision an inch in length was made on either side of the alveolar border, cutting to the bone and leaving a narrow isthmus anteriorly; a curved periosteum scraper was then used to separate the tissues from the bone; an attempt was made to cut through the bone with strong scissors, after the Fergusson method, but it was not successful. The separation was carried on up to the edge of the fissure with but little hæmorrhage; the edges of the fissure and uvula were then pared, and the pillars of the fauces being divided with curved scis-

sors, so that the two sides of the uvula ceased to contract, the parts were brought together by six silk sutures, which were previously soaked in the compound tincture of benzoin to prevent their slipping. The fissure of the lip was closed after sufficient tissue had been cut away on either side so as to make the border on a straight line; silk sutures united the parts; a free dissection was made under the lip toward the nostril, in hopes of relieving its flatness.

The patient recovered speedily from the effects of the operation. A bandage was placed under the chin so as to keep the mouth shut; boiled milk and bouillon were given at regular intervals. Twelve days after the operation two of the sutures in the soft palate gave way and new ones were substituted. On the 8th of May the nasal mucus passed for the first time through the nostrils; the lip was united firmly and in a straight line. The hard palate in its anterior two thirds was solid, but all the sutures of the soft palate had given way. It was thought best to defer another operation on the soft palate until some months had elapsed, when the tissues would be less friable and would better tolerate the sutures.

On the 4th of November, 1874, at Santa Cruz, the second operation was performed. The hard palate had become quite solid as far as was united, but a fissure still remained in the posterior third, as well as throughout the soft palate. The patient being etherized, one half of the Smith gag was placed in the mouth. Drs. Knight and Anderson, and Messrs. Gordon and Gore, dentists, assisted in the operation. The edges of the fissure of the hard palate having been refreshed, either side was dissected down to the alveolar border; the anterior and posterior pillars were completely divided, and

after making the split uvula tense, the levator and tensor palati muscles on either side were freely cut with curved scissors; the two halves of the soft palate lay flaccid in the mouth; they were united by eight silk sutures. The instrument used for the purpose of holding the edges tense while the needle was being passed was a simple hook mounted on a slender ivory handle, — it proved to be a great improvement upon the ordinary forceps, which take up so much room, however light they may be made. There was little if any tension on the sutures when the operation was finished. The hæmorrhage was free but not at all alarming. A bandage was placed under the chin, and liquid diet ordered. Directions were left not to allow the mouth to be opened during five days, except so far as was necessary for nourishment. Dr. Gordon then kindly took charge of the case. From him I learned by letter of November 12, that the baby slept after the operation until the next morning, only awaking at intervals, and without worrying; while feeding him on the fifth day after the operation, he was able to see well into the mouth, and the palate appeared perfectly united; the mucus came freely away from the nostrils. No attempt at examination was made for a week afterwards. On November 19 Dr. Gordon writes: "I examined the mouth yesterday, and was unable to discover any part where union had not taken place, . . . and I think the operation a perfect success." On the 30th of November he removed all the remaining sutures, one having slowly sloughed out. He writes: "The palate is completely united, the uvula is contracted almost up to the soft palate, and seems to be turned a little to the right side." Firm, healthy granulations gave the palate a somewhat roughened appearance.

It was impressed upon the infant's mother not to

allow him to eat anything hard for some time to come, and also to talk slowly and distinctly whenever she spoke to him; the importance of the child's pronouncing each word distinctly was explained to her. She writes in a letter of December 2 as follows: "Every day I can perceive that nature is smoothing it (the palate) over and filling in the rough parts (granulations); he has begun to talk, and seems to take great interest in trying to say such words as we give him; we spend a great deal of time in talking with him, and shall continue to do so; many words he can speak quite distinctly."

We have every reason in this case to expect a good articulation as the child learns to talk.

Three other cases of cleft palate were operated on with the following result: —

GEORGE W. B., *æt.* 15. The patient had a double hare-lip complicated with a fissure into the nose on the left side; the alveolar process, instead of forming a perfect arch, was separated where the left border of the intermaxillary bone should join itself to the superior maxilla. This freely projecting bone contained the twisted incisor teeth. There was a complete fissure of the hard and soft palate.

On the 18th of July, 1873, Drs. Hewston, Sharpe, and Paugh assisting, the patient was etherized. The free edges of the lip were drawn aside, and a horizontal incision was made in the mucous membrane just beneath the septum of the nose; it was prolonged over an inch in length into the myrtiliform fossa. With the curved edge of Hey's saw the bone was completely divided in the line of incision, and a small section having been sawn from its extremity as well as from the free edge of the maxilla, it was displaced backwards by the aid of the thumb, not without considerable force; it fitted perfectly

in place, and by means of a fine drill, a silver wire was passed through three holes on either side; this held the bone in place; small bits of clean sponge were then placed on the line of suture so as to keep the wound as dry as possible. On the fourth day afterwards the line of incision was no longer visible; on the ninth day the lower suture was removed; the others came away on the twelfth. The dental arch was perfect. The operation on the palate was performed on the 28th; eleven silk sutures united the flaps. On the 1st of August all the stitches gave way, the patient having eaten a crust of bread without permission. The result of a second operation was the union of nearly an inch of the hard palate; the operation on the soft palate was postponed.

WALTER B., æt. 21. The patient had a cleft of the soft palate; both pillars were divided under ether; the edges of the fissure were pared, and then united by six silk sutures; these were removed on the twelfth day; there was good union except at a point near the hard palate, this was only large enough to admit a probe, — a suture was subsequently placed, which completely closed the opening.

OLIVIA DE H., æt. 30. The patient was born with a cleft of half of the hard and the entire soft palate; the pillars having been divided, the palate was dissected from the bone well down to the alveolar border on either side, and its edges were then united by ten silk sutures. At the end of the eighth day, the mouth was examined; the palate was entire with the exception of a small cleft in the uvula; this was united a few days afterwards by two silk sutures. Six weeks after the operation the palate was united throughout. There was but little improvement in the speech; the nasal mucus came away for the first time by the nose.

The late Dr. J. Mason Warren gave an excellent account of the steps of the operation for cleft palate, and his operation in 1843 was essentially the same as that performed at the present time. It is to him, as Mr. Pollock says, "that the profession is chiefly indebted for having advocated the closure of the hard palate by operation." In the operation, as performed by Professor Langenbeck, the periosteum is dissected up with the flaps. It is supposed that the bone-producing nature of the periosteum will, in the course of time, produce a hard, bony palate. In 1861, Professor Langenbeck treated five cases of subperiosteal uranoplasty in which ossification took place. On this subject Sédillot says: "We believe it is proved by our experience, by pathological physiology and by facts, that the reëstablishment of a really bony vault is not to be hoped for; but the results of the occlusion by a membranous and resisting velum are good and praiseworthy, and it is not the first time that an error has been the source of true progress. The buccal periosteum, separated from the intact sides of the palatine vault and carried toward the median line, to establish the naso buccal septum, remains bare on the side of the nasal fossæ, necessarily suppurates, and is changed into fibrous and cicatricial tissue without producing bone; indeed, no one has been able to show a single patient with a bony palate of new formation."

The advantages of operating a cleft palate early in life cannot be over-estimated. We thus remedy the deformity before the child begins to talk, and render the articulation more perfect. When the operation is done at such an early age its after treatment is comparatively easy; the patient's food is not interfered with, and he is never aware of what has been done, so that the tongue or fingers are less apt to irritate or injure the palate.

V.

TWO CASES OF SEVERE FACIAL NEURALGIA WHOLLY RELIEVED BY TREPHINING THE INFERIOR MAXILLA AT ITS ANGLE, AND REMOVING A PART OF THE INFERIOR DENTAL NERVE.

CHARLES P. C., æt. 55, married. Eight years ago, the patient received a lacerated wound of the right side of the nose, which healed slowly. Two years later, he felt a tingling in front of the right ear, and along the roots of the teeth of the upper jaw; there was a crawling pain and uneasiness felt at times as if needles were pricking the cheek; it seemed to go from tooth to tooth. In the course of the five subsequent years eleven sound teeth were extracted in the vain hope of relief. The pain then concentrated itself under the right ala of the nose, beneath the cicatricial tissue, and could be excited by the slightest pressure upon this part of the face; the same result followed pressure over the supra-orbital nerve or on the eyeball. Whenever the patient swallowed the pain was intense; if he passed his tongue over his lips it felt like a hot coal burning him. The act of speaking, or the mere pressing the lips together, caused excruciating pain. At night, if he rolled over on the right side the pain would arouse him. The low condition to which he was reduced by pain and want of food can well be imagined; he was in the habit of taking six grains of morphine daily. Various local and general methods of treatment had been resorted to without result; finally, the patient resolved to try the chances of a

surgical operation. It was decided to excise as much as possible of the infra-orbital nerve at its exit from the foramen, and then, as the pain extended along the lower jaw and lip, to complete the operation with the excision of the inferior-dental nerve, by trephining the lower jaw after the Warren method. On the 25th of July, 1874, — Dr. G. J. Vanvlack assisting, — the patient was etherized, and an incision, slightly concave, toward the angle of the mouth, and measuring two inches in length, was made through the skin, on a line extending from a little below the sigmoid notch, along the angle of the jaw. The expansion of the parotid gland was pushed up so as not to injure Steno's duct; the fibres of the masseter were exposed and separated by means of a director, and when the bone was reached, its periosteum was scraped away to a slight extent. Small retractors held the muscle and skin out of the way of the crown of the trephine as it sawed through the plate of bone. The disk being elevated and removed, the nerve was immediately exposed, and by means of a small blunt tenaculum, it was separated from the neighboring vessels; it was then divided at either end as far as possible, so that exactly half an inch was excised. The disk of bone removed bore the imprint of the dental canal running along at the side of the hollow made by the centre-pin of the trephine. One small cutaneous vessel was tied. Leaving a damp sponge in the wound, a triangular flap of skin was then dissected up from under the right eye, its base being over the infra-orbital ridge while its apex pointed to the ala of the nose. The nerve was soon exposed, and three good sized branches, three fourths of an inch in length, were excised; eight small vessels were tied; four silk sutures united the edges of the wound. Three sutures were then placed in the lower wound, and two

fresh damp sponges were placed over each line of incision; the whole right side of the face was dressed with carbolized glycerine, Lister's gauze, and cotton-wool. The pulse before the operation was at 120; in the following evening it was at 80; the temperature was at 38° centigrade. The patient in drinking, which he now does without pain, fancies that the tumbler has a bit broken out of it; he had two slight flashes of pain in the afternoon. It is questionable whether this comes from the old trouble, or whether it is not a sensation similar to that which a person feels after a painful limb has been amputated; or again from the irritation of the proximal part of the nerve caused by the operation of excision.

July 26. Patient slept well all night; for many years he has not been able to drink more than a swallow at a time; now he drinks when he pleases, without pain; he feels more soreness on the left side of the jaw than on the operated side. He has had a few slight twinges of pain in the upper lip. Pulse 82; temp. 38°.

July 27. Pulse 72; temp. 37.5°; the face is but little swollen; beef-tea and milk given alternately every hour; also milk punch twice during the day. Evening, pulse 64; temp. 37.5°.

July 28. Pulse 108; temp. 37.5°. Patient has had but one pain early in the morning; the wound under the eye is suppurating at its lower angle, but the other wound is dry and the flesh seems to double in toward the line of incision as if it were solidly united. Evening, pulse 96; temp. 38°.

July 29. Pulse 84; temp. 37.7°. Patient has no pain whatever; takes his food regularly; drinks hot lemonade to help dissolve the mucus which collects in his mouth. Evening, pulse 88; temp. 38°.

July 30. There is an erysipelatous blush around the

upper wound ; the sutures were all removed ; they had caused no apparent irritation ; the lower jaw wound is united by primary union, and the rounding of the sides of the incision is quite perceptible.

July 31. Pulse 76 ; temp. 37.5° . The erysipelas has extended to the forehead and right ear. The patient has not dared to put his tongue out until now, and is surprised to find that he can do so without pain.

August 1. Pulse 65 ; temp. 36.5° . Patient has had hot bottles to his sides and feet ; he feels very weak, waking up from his sleep confused and slightly delirious. The face is dressed with carbolized glycerine and wet bandages.

August 2. Pulse 76 ; temp. 37° . Patient feels better ; towards night he was taken with an uncontrollable twitching of his fingers. Evening, pulse 88 ; temp. 38.2° .

August 3. The redness is rapidly fading. Patient has passed a good night ; has no pain, and feels better to-day than he has for many years. Evening, pulse 65 ; temp. 37.5° .

August 4. Pulse 65 ; temp. 37.5° . All the ligatures were taken away to-day ; there is no discharge from the wound.

August 5. Patient sat up all day ; appetite excellent. He thinks that he has eaten more since the operation than during the past year. On the 10th of August, the morphine was diminished to three grains daily. On the 15th, the patient walked out of doors ; he continued to gain in flesh and strength, and had no pain whatever, nineteen months after the operation.

DANIEL C., æt. 46, single. Six years ago, a pain like a toothache began in the angle of the lower jaw on the left

side ; it continued day and night, and at last the patient had five teeth extracted in hopes of relief. He was disappointed, however ; the pain was as great as before the operation. He then tried poultices and all sorts of lotions, but still the pain did not pass away. In December, 1873, he went to New York, and soon afterwards an operation was performed in the Brooklyn Hospital, by which the inferior dental nerve was divided from within the mouth. According to the patient's story, the wound was healed in a week, and then the pain went away altogether ; but six months afterwards, it returned as troublesome as ever. A second operation was then performed with partial relief. Even this was temporary, for in August, 1874, the pain was excruciating. It came on in flashes, followed by regular beats. It was confined to the angle and ascending ramus of the jaw. The ear on the corresponding side has never ached. At intervals of two or three minutes the left cheek became rigid and contracted from pain ; the patient would bury his face in his hands and wait for the spasm to pass by, while the tears rolled down his cheeks. Or he would rub his cheek violently with his hand, hoping thus to find relief. The whiskers on the left side of the face were quite rubbed away. There was no pain in swallowing, but the spasm came on severely after talking a minute or two. The cheek was not painful to the touch, but pulling a hair from the affected side caused a spasm. The patient had become quite thin and was worn out by the pain. Such was his condition on the 11th of September, 1874, when he was etherized, and Drs. Chamberlain, Stout, and others assisting, the jaw was trephined and a part of the inferior dental nerve excised. During the first ten minutes of the etherization, the spasms of the cheek and jaw were well pronounced, coming on at short intervals. Steno's

duct was divided and the saliva oozed out from the wound during a few days; it gave no subsequent trouble and was only noticed during the operation. A damp sponge was laid over the line of the incision.

September 13. Pulse 82; temp. $37\frac{1}{2}^{\circ}$. The patient had one spasm of pain to-day, being greatly affected by the sudden death of his uncle, who was present at the operation but two days previously.

September 14. Pulse 76; temp. $37\frac{1}{2}^{\circ}$. The uneasy feeling in the cheek is diminishing, and the wound is dry. A bandage was kept on the face until the 24th, by way of precaution against cold; there was no pain in either jaw or cheek. The line of incision was hardly perceptible. Seventeen months after the operation the patient was heard from and he reported that he was free from pain and hard at work.

The operation of trephining the inferior maxilla for excision of the dental nerve, was first performed in July, 1847, by Dr. J. C. Warren, of Boston. He "removed a portion of the inferior dental nerve by trephining the body of the jaw in a lady fifty-nine years old, and thus afforded her relief from an excruciating neuralgia of three years' standing."¹

This manner of operating is known as the Warren method; its object is to excise the inferior dental nerve just after it has entered the foramen, and thus to avoid injuring the gustatory nerve. Its value as a good surgical operation can be inferred from the above cases.

It is important to excise as much of the nerve as possible, since we know that simple nerve section is usually followed by a reunion of the divided ends; this

¹ *Surgical Observations with Cases*, by J. M. Warren, M. D., p. 474.

reunion taking place, according to Paget, soon after division. It was observed by Waller that after the excision of a portion of a nerve, its distal part atrophies and degenerates, the process taking a much longer time in the human subject than in the lower animals.

VI.

EXTIRPATION OF THE PAROTID GLAND FOR MALIGNANT DISEASE. — SUCCESSFUL RESULT.

LIM JED, æt. 34, single. Three years ago the patient first noticed a small swelling under the right ear; it was not then painful, but as time went on he was troubled with ear-ache, and with severe pains about the right side of the face. Finally the swelling became quite prominent, and measured three inches in diameter, pushing up the lobe of the ear. It was round in shape, and was well fixed behind the ascending ramus of the jaw, between it and the mastoid process. It was without fluctuation, and quite hard to the touch; it did not move with the lower jaw; there was no enlargement of the submaxillary gland; the skin covering the tumor was of normal condition.

An operation for the removal of the tumor being decided upon, the patient was etherized on the 15th of November, 1874, Drs. Stout, Chamberlain, and others assisting. A curved vertical incision, two inches and a half in length, with the concavity toward the lobe of the ear, was made through the skin. Either border was then carefully dissected up until the edges of the tumor were

reached; the finger and handle of the scalpel were then used. The hæmorrhage was free; no large vessels were felt, as the finger worked its way round the tumor. Near its base a small abscess containing grayish pus was evacuated, and the finger being passed into its cavity, was enabled to tear away the remaining attachments. When this part of the tumor was removed, it was found that the growth was mushroom-shaped, and that the base still remained to be dissected away. Eight ligatures had been placed upon arteries. The operation was continued by the help of the finger and curved scissors; the finger acted as a guide to the pulsations of the great vessels. The entire tumor was thus cleanly removed from the surrounding tissue, and for a few moments not a ligature remained in the wound. The cavity was then sponged out as dry as possible, and its sides were cauterized with pure carbolic acid. A few small vessels were subsequently tied. At the bottom of the wound the pulsations of the carotid could be distinguished; the tendon of the digastric was fully exposed; the sterno-mastoid muscle was uninjured; the facial nerve was divided, as it passed into the tumor; the right side of the face was paralyzed as a consequence. It was also afterwards noticed that the upper eyelid of the same side could not be wholly closed. The wound measured two inches and a half in depth. It was filled with raw cotton, the Lister gauze being applied over it. The operation had been a long one, occupying nearly two hours, but the patient rallied well, and was taken home in a carriage. The tumor weighed two ounces; it was three inches in length by two and a half in width. Its base was of cartilaginous hardness. On section it gave out abundant juice, which was found by the microscope to consist of small oval cells.

The pulse after the operation was 120; in the evening it was 84, the temperature being 37.5° ; one half a grain of morphia was given, and the patient passed a comfortable night, — a fact all the more astonishing because he slept upon a hard board covered with a single thickness of straw matting, after the Chinese custom. At the head of this simple bed was an open window, which for want of space had been converted into a chimney place.

November 16. Pulse 72; temp. 37.5° . Complains of headache; the bandage is unchanged; it gives signs of a slight oozing of bloody serum. The patient takes rice and soup for nourishment. Evening, pulse 84; temp. 38° .

November 17. Pulse 88; temp. 37.7° . He has no headache to-day; the outer bandage was removed and a clean one substituted.

November 18. The dressing was entirely changed; the cotton was removed without hæmorrhage. Suppuration began on the 19th; the wound was dressed with carbolized glycerine. Pulse 80; temp. 32.5° .

On the 20th, the patient was up and about the room; he had no pain, and was able to swallow easier than before the operation. The suppuration was free and healthy.

All the ligatures came away on the 24th. The wound was gradually filling up with good granulations.

By the 1st of December, the wound was reduced to one half its original size; the patient walked out of doors daily, and worked at cooking in his room. Although the discharge from the wound was very slight, Lister's dressing was still kept on.

On the 8th of December, strips of plaster were used to bring the edges of the wound nearer together.

January 1. The lobe of the ear has come well into place. The line of incision, which was at first vertical, now inclines to be horizontal. The cheek is in normal condition, the paralysis becoming less marked; a small dry scab over the line of incision is the only proof of recent work. The upper eyelid on the right side is still partly paralyzed; there is little if any hearing in the right ear; there is no hardness whatever around the cicatrix. The patient is in good general condition.

VII.

A REMARKABLE CASE OF IMPACTION OF A COIN IN THE
ŒSOPHAGUS OF AN INFANT.—EXTRACTION WITH A
SPONGE PROBANG SIX MONTHS AFTERWARDS.

WILLIAM W. F., æt. 2 years 10 months. On the 20th of August, 1874, the patient while playing swallowed a silver quarter of a dollar; symptoms of strangling and violent efforts at vomiting immediately followed the accident and continued during twenty-four hours. Being out of reach of medical attendance, the parents gave the infant some laxative medicine in hopes that the coin would pass into the stomach. Vomitives were also given, but without the desired result. When the vomiting had ceased a stiffness of the neck was noticed, the patient turning his body at each movement of the head; hard pieces of bread were given to him from time to time in hopes of dislodging the coin, but he would not swallow them. A fortnight after the accident a severe cough came on, which was so troublesome at night that it

seemed as if the infant would choke to death. It was observed that the bowels had been quite constipated since the accident. The patient's voice seemed changed; his cough resembled that of croup. In the month of September, at Stockton, a sponge probang was passed down the œsophagus without being arrested, but it was remarked afterward that the sponge was blackened on one side. No further attempt was then made to explore the œsophagus, the physician probably thinking that the coin had been pushed into the stomach. The patient could swallow no better than before; the cough continued to be distressing; various cough mixtures and porous plasters had been used without effect; the breathing was constantly impeded at night; only liquids could be taken as food, and these with difficulty. The patient appeared sad and morose and disinclined to move; his complexion was quite sallow; when asked where he felt pain, he would refer to the stomach or anus, never to the throat. The examination of the chest gave nothing definite as to the seat of the trouble; many mucous râles were heard and the respiration was quite harsh and labored; nothing could be felt in the throat by external manipulation. It was resolved to etherize the patient, and, after exploring the pharynx thoroughly by means of the forefinger, to pass a sponge probang along the œsophagus in hopes of detecting the coin. This I did on the 22d of February, 1875, Drs. Stout, Chamberlain, Soulé, Fisk, Vanvlack, Regensberger, and others assisting. A small slender sponge probang was soaked in boiling water so as to make it very elastic, and after being oiled it was passed down to the stomach without the least difficulty or impediment. My attention was, however, called to the fact that as the sponge came out it was discolored on one side with

precisely the same coloring as was on the one passed in September. Another probang, somewhat larger than the first one, was then passed. It passed easily to the stomach, but as it was withdrawn it caught against something a little below the top of the sternum; it offered little resistance, and as the sponge appeared in the mouth, with it was seen the coin. It was quickly removed with the fingers, having remained in the œsophagus six months and two days. It was quite black, and bore on either side a mark half an inch in width, indicating the passage of the sponge across its surfaces. We have reason to suppose, then, that it was hung in the œsophagus, the side edges alone being impacted. Its position was apparently opposite the third or fourth dorsal vertebra, just below the middle of the manubrium sterni and just above the bifurcation of the trachea. In this position, which is the second narrow part of the œsophagus, it pressed upon the trachea and caused the bronchial irritation. The saliva was slightly tinged with blood after the passage of the first probang; this may have been caused by the digital examination of the pharynx. There was no blood on the sponge of the second probang nor on the coin.

The infant recovered rapidly from the effects of the ether, and passed a remarkably easy night. He was ordered a liquid diet during a fortnight. He was so well on the third day that he was allowed to leave for home, a distance of nearly two hundred miles. The case is remarkable on account of the long sojourn of the coin in the œsophagus and the manner of its extraction by the mouth. In Dr. D. W. Cheever's table of cases of œsophagotomy, a case is recorded (No. 14) where a coin remained in the œsophagus opposite the top of the sternum during two months, when it was finally ex-

tracted by Syme by means of œsophagotomy. In an article on "Foreign Bodies in the CEsophagus," by Durham,¹ the author refers to two cases reported by Munro, in one of which "a halfpenny was retained in the œsophagus of a boy during a period of three years. After death from consumption the halfpenny was found closely embraced by the gullet." In the other "a halfpenny was removed by means of a blunt hook, after having been impacted in the œsophagus for six months."

VIII.

GUNSHOT WOUND OF THE NECK.—RECOVERY.

CHARLES B., æt. 18, single. The patient was wounded in the neck on the 1st of May, by a shot-gun loaded with buck-shot. The extent of the injury was as follows: From the middle of the neck, on the left side, the skin was completely torn away from a region measuring three and three quarters inches in width, and six and one-half inches in length; the borders of the wound were ragged and undermined. At the base of the wound were exposed the left half of the trachea, to a distance of an inch and a half in length, and the carotid artery at its side. At the time of the accident, there was a great hæmorrhage which came for the most part from the inferior thyroid artery. The internal border of the sterno-mastoid was torn and exposed. Soon after the accident, the wound was dressed by Dr. Hewston with Monsel's salts applied on lint. This arrested the hæm-

¹ Holmes's *System of Surgery*, ii., page 522.

orrhage for the time, but on the next day the blood welled up from the bottom of the wound. A second time, the same dressing was applied, and it effectually arrested the bleeding. The patient did not seem much affected by the accident; his pulse was regular at 65. On the 3d, a slight oozing of blood led to some anxiety which proved to be without foundation; the Monsel's salts had completely stopped up all bleeding points, and had formed over the wound a dark, hard scab. If it destroyed some of the tissue of the ragged edges of the wound, it certainly compensated for the loss by occluding the extremities of all the severed vessels, thereby preventing any injurious absorption; the wound was dressed with an abundance of raw cotton, kept in place by a single thickness of bandage; this dressing was changed from time to time, as the suppuration became free. On the 10th, the dark scab began to come away in pieces, and by the 14th the wound presented a healthy granulating surface throughout; the lower jaw was now seen to be necrosed in a space half an inch square; the granulations closed in upon it, so that by the 16th it was no longer visible but was suppurating freely. On the 17th, the wound had much diminished in extent; the granulations were on a level with the surrounding skin; a furrow in the skin of the left shoulder, caused by a shot, occasioned so little trouble, that it is hardly worth mentioning; it was dressed with dry cotton, under which the granulations sprung up a quarter of an inch above the level of the skin. During the first week of the injury, the bowels were moved daily by enemata, and the limbs of the patient were sponged with tepid water, morning and night; he was fed on milk and beef-tea; the patient's pulse never ranged above 76 after the second day; with the exception of a few doses of morphia

taken soon after the accident, no medicine whatever was given. On the 3d of June, there was a simple dry scab on the wound ; it measured two inches by three quarters of an inch ; oxide of zinc powder was used as a dressing. On the 1st of July, the cicatrix was smooth and wholly free from scabs ; the motions of the neck were not interfered with, and although the skin is at present attached to the subjacent tissue, it has no inclination to retract or to bend the head over.

IX.

A SANGUINEOUS CYSTIC TUMOR OF THE CHEST SUCCESSFULLY REMOVED BY OPERATION.

FROM my friend Dr. Walter S. Thorne, of San José, under whose direction the following case was treated, I learn these particulars : —

The patient, MRS. M. C., æt. 19, has always enjoyed excellent health. In July, 1874, she observed a small swelling on the right side of the chest, situated over the second rib, midway between the coracoid process and the sternal end of the clavicle. In the month of November the tumor was the size of a small nutmeg ; it was movable, quite superficial, and elastic to the touch. The patient had never received an injury or blow upon the site of the tumor ; but she asserted that this spot had been highly sensitive for years, the pain being attributed to neuralgia. It was at this time that Dr. Thorne examined the tumor and pronounced it a cystic growth,

and advised an operation for its removal. This the patient declined.

In January, 1875, Dr. Thorne again examined the tumor. It had doubled its former size. The patient still opposed surgical interference, and was treated by various persons with the application of stimulating and irritating lotions and by rubbing.

On the 27th of March, Dr. Thorne was asked to remove the tumor. It then measured three inches transversely. The enveloping skin was reddened, and bore evidence of having been much irritated. The patient being placed under chloroform, Dr. H. Hovet assisting, Dr. Thorne made a curved incision through the skin, three and a half inches in length. As soon as the adipose tissue had been dissected away from the cyst, a soft dark-blue tumor bulged out from the wound. On pricking it with a needle a considerable quantity of dark blood came away. The tumor did not diminish in size, however, and it was then thought that its nature might possibly be varicose. After a careful deliberation it was decided to close the incision and to consult further on the matter.

On the following day a consultation was held with Drs. Brown, Turner, and Hovet, of San José, and Brigham of San Francisco. Some diversity of opinion was expressed as to the nature of the growth and the best mode for its removal. Dr. Brigham believed it to be a cystic growth with effused blood within the sac, an example of which had been published in the "*Western Lancet*" of September, 1874. The question of fatty tumor was laid aside, on account of its color; of malignant disease, on account of its contents; of aneurism, on account of the previous history of the case and the non-interference with the general circulation. Were it a varicose

tumor it would probably have some connection with the subclavian vein, a vessel large enough to cause pulsations in the tumor. How could we then account for the blood within the cyst? It certainly could be explained by a hæmorrhage into the sac from the rupture of a small vessel or vessels surrounding it; this rupture being caused by the efforts made in trying to reduce the tumor by rubbing. This idea was sustained on examining the tumor after the operation.

On the 29th of March, 1875, the patient was placed under the influence of chloroform; Dr. Thorne then reopened the incision; after which Dr. Brigham dissected away the tumor. The incision was slightly extended, and by means of a blunt director the tumor was slowly freed from the surrounding connective tissue. The knife was used sparingly; the hæmorrhage was very slight on account of the tearing of the tissues during the operation. No vessels were tied. On using the aspirator to try to empty the sac, it only brought away a small quantity of bloody serum. The tumor, as the dissection proceeded, bulged out more and more, not from the addition of more blood, but from the pressure from the surrounding muscles. When the tumor was removed, the smooth costo-coracoid membrane could easily be perceived at the base of the wound. The tumor lay in the interspace between the clavicular origins of the pectoralis major and deltoid muscles just below the clavicle. It had burrowed under the edge of the pectoralis major so as to lie firmly attached to the costo-coracoid membrane. It was about the size of a large hen's egg. Its contents were thick dark blood and many clots; those clots, on examination under the microscope, contained many large oval cells with nuclei and nucleoli; there was no evidence of parasitic origin. The interior of the tumor resembled

that of the ventricle of the heart. This partial coagulation of the blood in the cyst, and the presence of clots, went to show to a certainty that the tumor was originally a simple serous cyst. On this point Paget says:—

“But some cysts appear from their origin to contain blood; and this blood, I think, always remains fluid till it is let out, while that which collects by hæmorrhage into a serous cyst is generally, partially, or wholly coagulated, or dark and thick, having liquefied after coagulation.”¹

The patient recovered rapidly from the effects of the chloroform; the wound was filled with charpie, and its sides slightly approximated by strips of adhesive plaster. The convalescence was speedily accomplished without pain or interruption. At the end of a month after the operation a smooth cicatrix marked the line of incision.

¹ *Lectures on Surgical Pathology*, page 413.

X.

TWO CASES OF CONGESTIVE ABSCESS OF THE CHEST.—
RECOVERY.

H. H. M., æt. 36, single. Three and a half years ago the patient, while running on a plank sidewalk, suddenly came up with much force against a wooden post which was placed in the line of the walk. The top of the post struck the chest near the left nipple, and the patient was almost deprived of breath. Recovering from the accident, it was not until five months ago that he felt a severe pain in the region of the left nipple. He was also troubled at night with a difficulty in breathing; croton oil was applied to the breast without result. The pain was greater or less during a week, at the end of which time the patient first noticed a swelling, about the size of an English walnut, just beneath the nipple; the pain gradually ceased; iodine tincture was applied to the swelling, and various alteratives were taken without the desired effect. By the 1st of June, 1875, the swelling had grown to be the size of a large orange; it formed a roundish, regular, moderately hard tumor, situated above and beneath the left mamma; it was movable to a certain extent, and was incapable of reduction. Fluctuation was apparent, and the fact that the tumor was not lobular, helped to prove that the contents were liquid and not a mass of fat; such was given as the diagnosis; no attempt was made to explore the tumor with a trocar. There were no enlarged axillary glands; the patient was in good general health, but of very nervous temperament. An operation being resolved upon, the patient

was etherized on the 5th of June, Dr. Vanvlack and others assisting: a horizontal, slightly curved incision, five inches in length, was made on either side of the nipple; the skin was then dissected up and disclosed a mass of fat beneath. As the director slowly worked through this layer, it came upon the sac of a cyst, situated in the fibres of the pectoralis major, and extending beneath them. The muscle was much thickened and degenerated, and it was decided to remove that part of it which thus surrounded the cyst. As the sac was dissected away from the intercostal muscles, a small puncture in it gave vent to a considerable quantity of yellow, inoffensive pus; this was sponged up, and shortly afterward the sac was taken away. The exposed surface of the wound was then examined, and a small hole was detected in the intercostal muscles, between the fourth and fifth ribs; what then was at first supposed to be the puncture of a degenerate cyst was, in fact, the cutting across of the sinus, leading from necrosed bone to the larger sac. On passing a probe into this sinus, dead bone could be felt. Vain attempts were made to withdraw the necrosed bone by slender forceps; the mouth of the sinus was slightly enlarged by the director; the bone then could be taken away, not in one piece, but in six or seven bits, three of which were as large as a good sized pea; all together they measured three fourths by one fourth of an inch; they were not honey-combed, but of solid texture; the little sac which contained them bulged out into the pleural cavity just over the heart, so that each beat made a noticeable impression on its walls. After all the bone had been removed with great care, a bit of sponge soaked in carbolized glycerine was left in the sac. Several silk sutures united the sides of the incision, and the wound was dressed with adhesive plas-

ter and raw cotton, and left during four days untouched. There was but little elevation in the pulse or temperature beyond the normal condition. The patient experienced no pain whatever. On the eighth day the sutures were removed; the sides of the incision subsequently separated a little; the interspace was soon filled in with healthy granulations. On the 15th the sponge was taken out of the sinus, and the wound was left to granulate from the bottom. On the 21st of June there were but few granulations in the middle of the line of the incision; by the middle of July the wound had almost entirely closed — the patient's health was excellent.

CHARLES F. N., æt. 35, was struck in the side at the age of thirteen by an apple thrown with great force. The blow was received just in front of the angle of the eighth rib on the left side. He was knocked down at the time, and has always felt more or less pain in that spot since. Another accident which befell the patient about ten years ago was a fall of about twenty feet; he complained but little of the results of this injury. Having had no specific disease, and being otherwise of strong constitution, these are the only causes to which he attributes the present trouble. In the month of September, 1874, a swelling was noticed on the left side over the seventh and eighth ribs. After a variety of treatment a small incision was made, and according to the patient's account a few teaspoonfuls of a thin whitish liquid came away; no attempt was then made to examine the wound by the finger. Soon afterwards the discharge changed to pus. The surrounding tissue became inflamed, and the patient began to lose strength. Being convinced that there was a disease of the rib, he decided on having the dead part removed.

On the 24th of July, 1875, the patient was etherized, Drs. Chamberlain and Vanvlack assisting. A horizontal incision two inches in length was made just over the eighth rib, the centre of the incision passing through the fistular opening. With a director, the tissues were carefully separated; the finger, passed into the wound, detected dead bone, and after a while a necrosed portion of the rib came to view; this piece when extracted measured an inch in length, by a third of an inch in width, and comprised the entire thickness of the rib. There were no vessels tied; the free edges of bone were somewhat roughened and pointed, but not necrosed. After they were smoothed off, a piece of fine sponge was left in the wound and a cotton wool dressing applied over it. Three days afterwards the sponge was removed and glycerine and charpie was used as a dressing. The patient made an uninterrupted recovery, and is now in an excellent condition of health.

Generally, abscesses by congestion appear at some distance from the necrosis which caused them. In this case the abscess was in the direct neighborhood and just over the dead bone. Instead of passing along the sheath of the pectoralis major and pointing in the axilla, it took a vertical direction and burrowed into and through the muscle. Its surrounding membranes formed a distinct pocket containing a soup-like pus, without odor, but quickly becoming decomposed.

M. S. Laugier says: "The composition of pus contained in an abscess by congestion proves that it comes from diseased bone and from the cyst itself, at one and the same time. We have already mentioned, in speaking of abscesses in general, the rôle which the latter (the cyst) plays; it is the diseased bone, however, the source of the abscess, which so often keeps open the

fistula following it. In this respect, nevertheless, abscesses by congestion act in two ways: sometimes, and unfortunately the oftener, the bone continues to furnish pus, the collection increases, finally opens, and sooner or later the patient succumbs. Sometimes the pus ceases to be secreted by the bone; the narrow sinus which conducted the liquid into the principal sac becomes obliterated, and the latter having no longer a communication with the bone ceases to be an abscess from necrosis. It is in cases of this sort, doubtlessly very rare, that the activity of an abscess by congestion has been observed to change its nature so as to contain only the debris of tuberculous matter; the old track being marked at short distances by little pockets containing the matter, between which the track is interrupted and at times completely obliterated, a fibro-cellular band alone showing its course."¹ Again, in speaking of the extirpation of the sac of the abscess, the same author remarks: "What shall we say of Seutin's proposition, which advocates the excision of the walls of the abscess? In the great majority of cases it would be utterly impossible to perform such an operation, and how can we forget, in the most favorable circumstances, that the chief trouble is the bone lesion?"² In the above case the position of the abscess, rare as it was, was particularly favorable for a thorough incision of its walls, and as the dead part of the rib was wholly removed, there seems to be no reason why we should expect a return of the trouble.

¹ M. S. Laugier, *Nouveau Dictionnaire de Médecine et de Chirurgie Pratiques*, vol. i., p. 27.

² Page 35.

XI.

SUBPERIOSTEAL RESECTION OF THE SHOULDER JOINT.—
RECOVERY, WITH GOOD MOTION AND WITHOUT SINUS.

M. L., æt. 43, single. In 1861 a wagon-pole fell with great force on the patient's left shoulder. An examination proved that there were no bones broken; the swelling soon passed away, but the pain remained, and was treated as rheumatic for several years. At last in June, 1875, an abscess formed under the axilla, and broke; it continued to discharge freely, until the patient entered the Maison de Santé in August. The shoulder was there examined, and the joint was found diseased: two fistulous openings had formed in front of the head of the bone, communicating with the one in the axilla.

On the 20th of September, 1875, the patient being etherized, an incision four inches in length was made from the acromion downwards through the deltoid to the bone. The finger passed into the wound felt extensive disease in the joint, and by rotating the arm, the periosteum scraper gradually separated the tissue from the bone, preserving the long head of the biceps. The glenoid cavity was not affected: there were no vessels tied; a rubber drainage tube was inserted, passing through the fistula in the axilla; seven sutures were placed, and the wound dressed with a linen compress soaked in carbolized glycerine, and freely covered with cotton wool; the arm was placed in a sling. This dressing was left in place during five days. The patient felt greatly relieved from pain, and his general condition

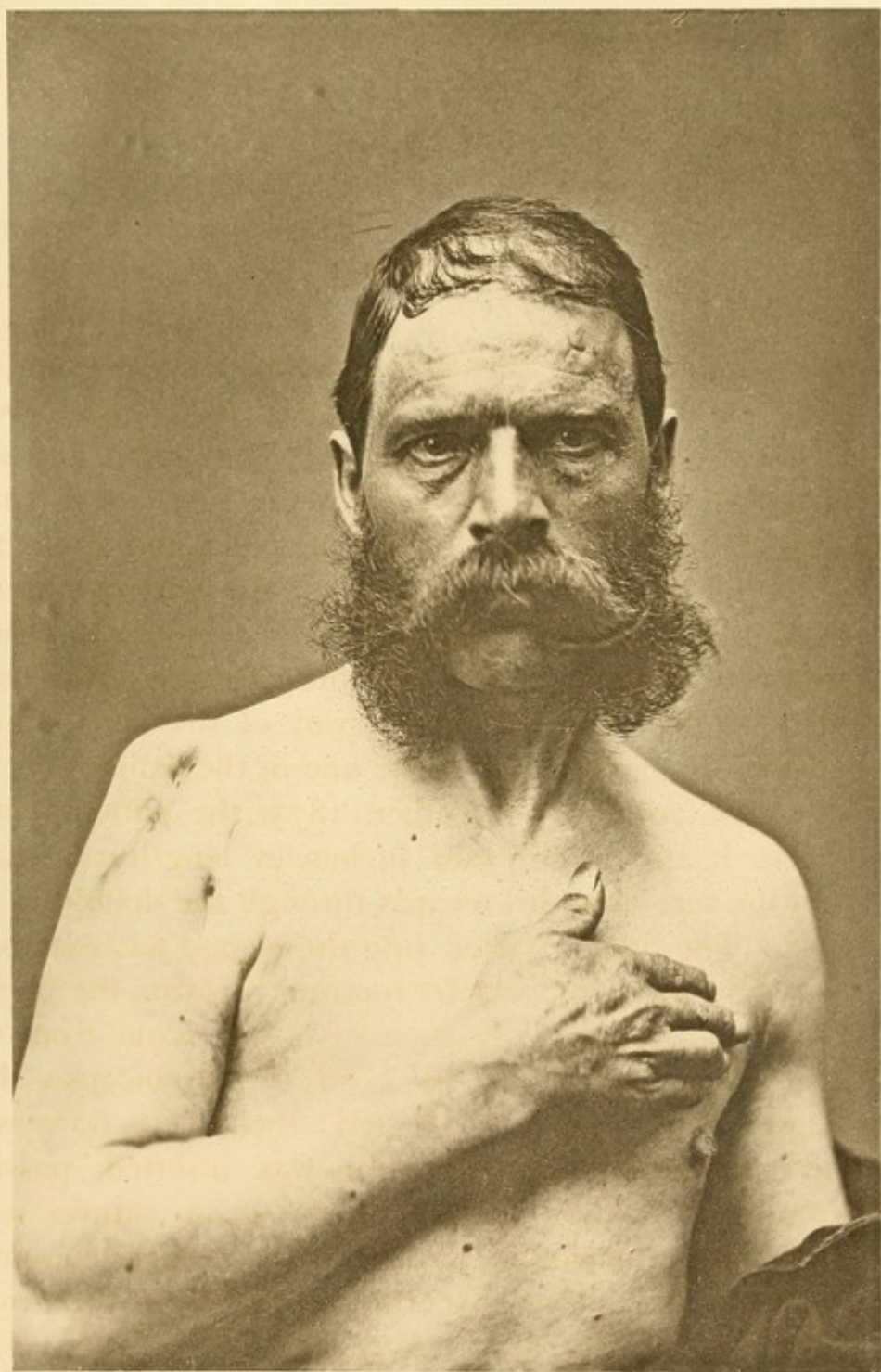


PLATE 4. RESECTION OF SHOULDER JOINT. XI.

improved daily. The sutures were removed on the ninth day: there was good union except where the rubber tube passed; the suppuration was moderate; there was no swelling of the fore-arm or hand. The drainage tube remained in place during four weeks; the patient began to exercise the arm after the sixth week.

In the month of January three small bits of bone came away through the fistulous opening made by the tube. This fistula gradually became depressed and smaller until by the 1st of March, 1876, it was closed. The patient could then easily put his left hand to his forehead; the arm could be raised from the side to the extent of five inches, measuring between the elbow and the body. The shortening of the arm was hardly perceptible, measuring a quarter of an inch; this gave reason to suppose that new bone had been reproduced from the periosteum.

The plates show the condition of the shoulder five months after the operation; also the resected head of the humerus as it was when removed.

1 See Plate 6 where the bone removed is this and in the accompanying operation are represented together.

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¹ See Plate 6, where the bone removed in this and in the succeeding operation are represented together.

XII.

SUBPERIOSTEAL RESECTION OF THE ELBOW JOINT FOR NECROSIS AND ANCHYLOSIS.—RECOVERY, WITH GOOD MOTION AND WITHOUT SINUS.

W. W. M., æt. 38, single. In the month of May, 1868, the patient had what was supposed to be an attack of rheumatism in the right elbow joint; it was swollen and extremely painful. The skin, which was of a bright red color, was uninjured. It was treated in South America with baths of hot rum and Chili peppers. This dressing removed the pain and swelling, but the motion of the joint was completely gone. In the following year the patient attempted to get into a buggy, when his foot slipped and he fell on the stiff elbow; it swelled up and was painful, but a few days' rest caused the inflammation to subside. In March, 1872, the patient was very ill with sciatica, and rheumatism in the joints, particularly in the knees; the stiff elbow became excessively tender, and the general condition of the system was quite low. Advised to seek a warmer climate, he came to California, and was apparently improving, when one day in September, 1873, as he stepped from a hack, his right coat-sleeve caught in the door handle, and, as the weight of the body came with a jerk upon the ankylosed elbow, something gave way. The arm soon afterwards became inflamed and an abscess formed just over the olecranon; this was opened by a small incision; the wound soon healed and the trouble seemed relieved. Another abscess formed in the month of January, and a silk thread

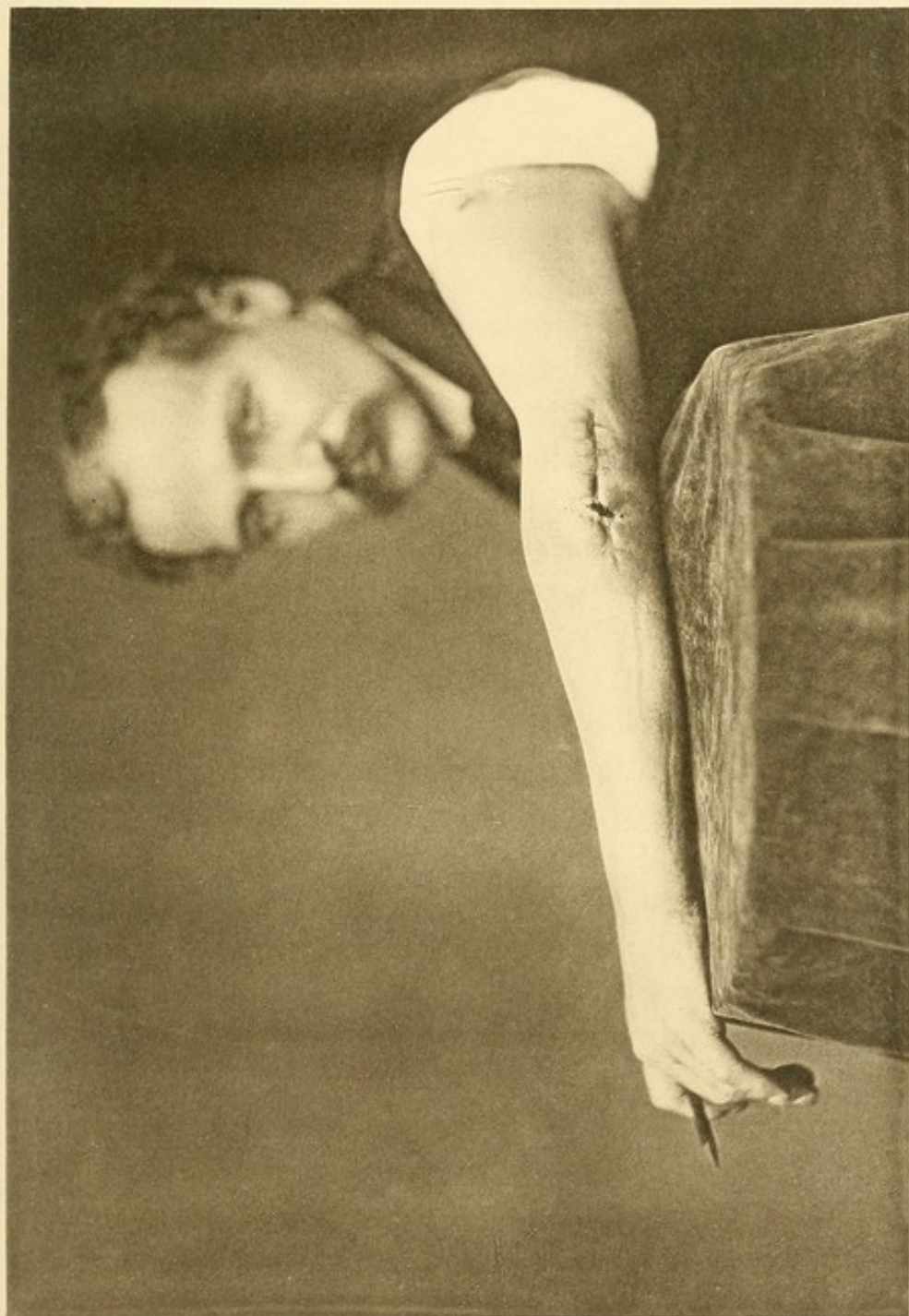


PLATE 5. RESECTION OF ELBOW JOINT. XII.

was then put in the wound. All this time the patient was suffering so much that he was obliged to take large subcutaneous injections of morphia. Other abscesses formed subsequently and were opened, but no dead bone could be felt by the probe or finger. The fistulous opening gave indications of necrosis.

The strength of the patient gradually failed until, in March, he consented to operative interference. The arm was then firmly anchylosed at an acute angle; a patch of granulations an inch and a quarter in diameter was formed just over the olecranon: from this surface came a profuse and fetid suppuration. In consultation with Dr. Bowie, it was decided to try the chances of excising the elbow. Accordingly, on the 3d of March, 1874, the patient being etherized, the operation was performed, Dr. W. T. Wythe and several medical students assisting. During the etherization the patient, while unconscious, was seized with tetanic spasms, so violent in their nature as to give cause for alarm. The least touch of the hand to any part of the body, especially to the diseased elbow, would produce them; the opisthotonos was so great that the patient rested only on his head and heels. The ether was suspended, but the condition of the patient was not ameliorated; there was no flushing of the face nor uncommon hindrance of breathing, but the pulse was quick and feeble. We had none of us seen such uncommon disturbance in etherization. The ether (Squibb's) had been carefully given in a large sponge wrapped around with a towel. The patient had plenty of air, as the room was large and well ventilated, so that the fault lay neither in the ether nor in its manner of administration. By chance it was remembered that the patient always took chloroform easily and with quick effect. So, for want of other means, a little chlo-

roform was given on a handkerchief. The effect was almost immediate. The spasms, which were then violent, quickly ceased, and the patient sank into a calm, sound sleep.

The operation was now commenced; a straight incision three inches in length was made over the olecranon, half way between the condyles. After a little dissection the periosteum was cleanly scraped up from the roughened bone beneath; a chain saw then divided the humerus just above the condyles, and afterwards the radius and ulna; the ankylosed joint was thus taken away whole, and left behind it a cavity lined with periosteum, giving the mould of the joint. The specimen looked precisely like the one pictured in the French edition of Billroth's "Pathology," page 108, figure 72. No arteries were tied; four sutures were placed in the edges of the incision; an india rubber drainage tube was left in the wound. The operation occupied twenty minutes. The arm was placed in a gutta percha splint, slightly curved, and lined with cotton wool; it was dressed with a Lister dressing.

March 4. The patient passed a restless night, having had constant twitches in the arm, so violent as to keep him awake. The next day there was a little tenderness over the deltoid region, but none at the incision; there was no swelling of the arm or hand.

March 6. The patient passed an excellent night and is in good spirits, being free from pain.

On the 7th the dressing was changed under the carbolic spray; the suppuration had become free, but was of a grayish color; the patient's general condition was good.

On the 8th there were frequent spasms in the arm during the day.

March 10. A slight redness over the deltoid, but no pain or swelling.

March 11. The sutures were removed; the edges of the wound were united without a trace of inflammation; there was no swelling in the arm or forearm. The patient has a subcutaneous injection of one fourth of a grain of morphia daily, not to prevent pain, for he has none, but he was so accustomed to opium before the operation that it was difficult to leave it off altogether. The dressing was changed again on the 12th; the granulations are fast pushing the rubber tube outside. On the 13th the tube came away with the dressing; the patient sat up in bed for a few hours. On the 15th he sat up all day. On the 17th all that was left of the wound was a narrow patch of granulations in the line of the incision, measuring one inch by one fourth. On the 27th distinct fluctuation was felt over the deltoid, and a fine hollow needle of Dieulafoy's Aspirator being inserted gave exit to a small quantity of pus. On the 29th, the pus again collecting, a small incision was made through the skin and a poultice was applied; the abscess was quite superficial. On March 30th only a dry scab remained on the elbow; the sides of the incision are rolling in upon each other; the arm was taken out of the splint and laid on a pillow; motion was made in flexion and extension; sometimes in moving it there would come an involuntary muscular spasm which would resist the motion for a minute or two. A skeleton splint, with a ratchet and pinion joint, was then made by Mr. Folkers; it fitted the arm admirably, and for workmanship could not be excelled; this the patient wore out of doors, so as to support the arm. The importance of frequent movement in the arm was impressed upon him. The arm lost but little of its symmetry. On the 1st of December, 1874, the patient's condition was

as follows : The arm is smooth and full over the elbow ; the outer condyle is quite restored and can be felt distinctly ; there is free motion in the joint, considerable strength in the arm, especially in lifting, and no sinus.

The following table shows the condition of the pulse and temperature after the operation : —

| DAYS. | PULSE. | | TEMPERATURE. | | DAYS. | PULSE. | | TEMPERATURE. | |
|-------|--------|-------|--------------|-------|-------|--------|-------|--------------|-------|
| | A. M. | P. M. | A. M. | P. M. | | A. M. | P. M. | A. M. | P. M. |
| | | | F. | | | | | F. | |
| 3 | — | 130 | — | 100 | 18 | 80 | — | 97 | — |
| 4 | 100 | 116 | 97 | 102 | 19 | 88 | — | 97 | — |
| 5 | 112 | 108 | 100 | 100 | 20 | 88 | — | 97 | — |
| 6 | 104 | 108 | 98 | 101 | 21 | 80 | — | 97 | — |
| 7 | 96 | 98 | 99 | 97 | 22 | 80 | 104 | 97 | — |
| 8 | 96 | 88 | 97 | 97 | 23 | 80 | 100 | 97 | 99 |
| 9 | 88 | 96 | 98 | 100 | 24 | 80 | 104 | 97 | 97 |
| 10 | 100 | 92 | 100 | 97 | 25 | 88 | — | 97 | — |
| 11 | 88 | 92 | 97 | 97 | 26 | 80 | — | 97 | — |
| 12 | 84 | 88 | 97 | 97 | 27 | 120 | 88 | 104 | 97 |
| 13 | 88 | 88 | 97 | 99 | 28 | 76 | 104 | 97 | 100 |
| 14 | 76 | 100 | 97 | 97 | 29 | 96 | 80 | 98 | 97 |
| 15 | 84 | 88 | 97 | — | 30 | 76 | 80 | 97 | — |
| 16 | 72 | — | 97 | — | 31 | 80 | — | — | — |
| 17 | 84 | — | 97 | — | | | | | |

Plate 5 shows the condition of the elbow, and Plate 6 that of the anchylosed joint.

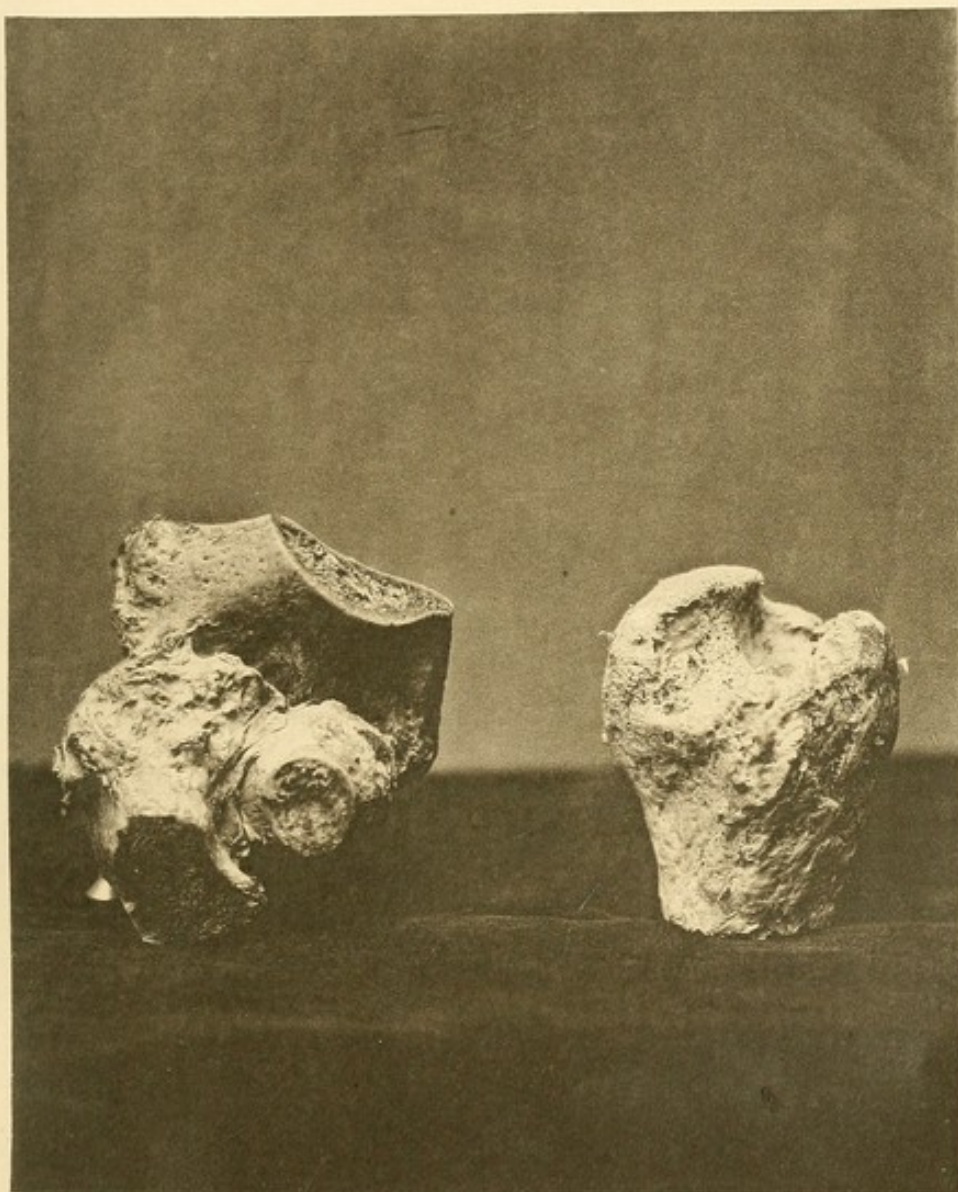


PLATE 6. SUBPEREOSTEAL RESECTIONS. XI. AND XII.

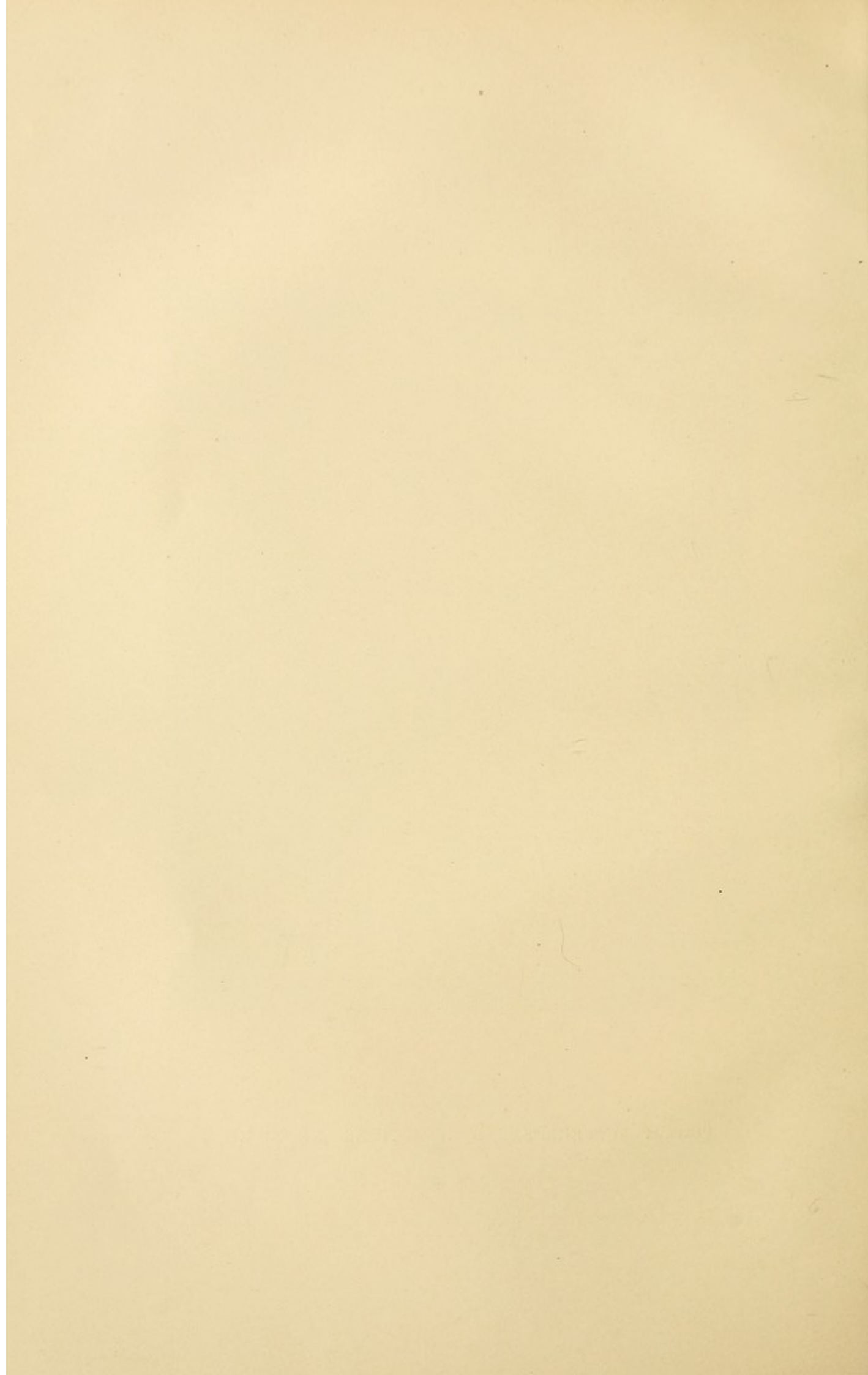




PLATE 7. CONGENITAL FIBROMA MOLLUSCUM. XIII.

XIII.

A RARE FORM OF A CONGENITAL CYSTIC FIBROMA MOL-
LUSCUM OF THE ELBOW.—SUCCESSFUL REMOVAL BY
OPERATION.

J. W., æt. 5 years. The patient was born with a tumor on the left arm, situated over and just below the elbow joint, on the inner and posterior part of the limb. At birth, this tumor was about the size of a hen's egg, soft, and marked at the most prominent parts of its surface with a delicate, nævus-like congestion of the superficial vessels, slightly raised, and giving the skin in that part a dark violet appearance; there were also hairs of perceptible length, growing amid the congested vessels. The tumor remained about the same size during the first two years, but in the third year it began to increase, and now it has reached a size of four inches in length, by seven in circumference; it presents to the eye the same general appearance as at birth, only it is larger and more lobulated; its limits are tolerably well defined; the skin over it is somewhat lax and natural in appearance, except at the discolored portion, which now measures two inches by three, and has many hairs upon it, half an inch in length. To the touch, the tumor is lobulated and very soft, with no pulsation whatever, but with a distinct fluctuation in certain parts. The lobe nearest the wrist appears almost detached from the main tumor, and it is in the direction of this lobe that the tumor increases, burrowing, as it were, under the skin. The tumor is adherent, to a certain degree, and when

pressed laterally between the fingers, it gives a sensation as if there were a hard substance in its centre; this hardness was afterwards shown to be due to the dense fibrous stroma of the tumor. The patient has no other tumors or spots on his body; he had repeated falls upon the arm, making the tumor "black and blue," and it was a severe bruise that at last influenced the father of the child in favor of an operation. It was explained to him that the tumor was situated between the skin and the muscles, that it probably had no connection with any large vessels; that its contents were serum, and not blood, as he had supposed; that the elbow-joint was as yet unaffected, and that, if the tumor were removed, the motion in the joint would be in nowise impaired. Thus assured, he consented to its removal, and stated that he had desired, ever since the birth of the child, to have the operation performed.

On the 6th of August, 1874, Dr. G. J. Vanvlack assisting, the patient was anæsthetized. Ethyl was used at first, and in less than two minutes the patient was completely insensible. Ether was substituted, and continued throughout the operation. An elliptical incision, three inches in length, was made on either side of the discolored portion of skin; both flaps were then carefully dissected up, so as not to open the cysts in the operation. On the outer side the tumor was covered by a thin layer of skin, with little if any fat; a fact which led to the supposition that the tumor began its existence from that side, and also very early in uterine life, when there was but mucous tissue beneath the skin. On the inner and lower sides the tumor was enveloped in fat; three or four small vessels were temporarily compressed; no artery of any size was seen; the hæmorrhage, which was slight, was mainly venous; the tumor lay on the

muscular aponeurosis attached at two points ; the subjacent muscles were much flattened by the pressure from the tumor ; the sides of the incision were brought together by fourteen sutures, and the wound was then dressed with Lister's dressing.

The tumor measured four inches in length by seven in circumference. It was made up of cysts and fibrous stroma, the cysts being the hypertrophied areolar spaces of the connective tissue, while the stroma represented the dividing septa. There were three large cysts, side by side, much the size and shape of a testicle, and many smaller ones from the size of a pea upwards. The contents of two opened cysts were as follows : the one of clear amber-colored serum ; the other, and larger one, of bloody, thickish serum (doubtless not the original color of the cyst contents, but resulting from an effusion of blood, caused by the severe fall upon the tumor). The inner walls of the opened cysts, strikingly resembled those of a ventricle of the heart, there being a surrounding net-work of trabeculæ. There was no point of connection between the cysts ; there were no arteries of appreciable size connected with the tumor ; microscopic examination showed a tissue made up of curled white fibres. The tumor weighed four ounces.

The sutures were removed from the wound on the 9th, and strips of court-plaster substituted. There was no swelling of the arm or hand. The wound was again dressed on the 12th ; its lips had slightly separated, but were firmly adherent to the subjacent tissue. The patient suffered no pain. The wound was just cicatrizing, when on the 19th a slight redness was observed near the wrist ; there was no swelling, but considerable pain ; the whole arm was then enveloped in a flaxseed poultice ; the redness subsided in a few days ; the arm was

bathed daily in warm soapsuds. On the 4th of September the wound was wholly cicatrized. The arm had perfect movement.

The study of the pathology of the congenital fibroma molluscum is not without interest; closely allied to certain forms of elephantiasis, it differs from them not histologically, but in the manner of formation, inflammation invariably preceding elephantastic growths.¹ Again, the fibroma molluscum originates essentially in the connective tissue, while elephantiasis may invade all the tissues. The former tumor is bulging and oval, its shape is sooner or later well defined, while the latter is diffuse and undefined. The substance of the fibroma molluscum is made up of hypertrophied connective tissue, often well mixed with fat, and sometimes containing what Prof. Verneuil calls "associate elements," viz.: bony, nervous, and glandular substance. It is a slowly growing tissue, but little vascular, and, if cystic, ordinarily contains a yellow, albuminous fluid. Generally mobile, surrounded by lax tissue, the tumors seldom attain to any great size, and are oftener multiple than unique; they adapt themselves, as to their form, to the region in which they grow, and some beginning as sessile tumors may afterwards, by bulging out, become pedunculated, and hang from the body by a slight rope-like pedicle.

Sex has no influence on the production of these tumors; the congenital cystic variety is very rarely found in the limbs. In an article on congenital tumors by Mr. Holmes, in "The Surgical Treatment of Children's Diseases," the author refers to a paper published by Mr. T. Smith, in the 2d volume of St. Bartholomew's Hospital Reports, where he "points out the fact, that there is, as

¹ Alfred Heurtaux, "Fibrome," *Nouveau Dictionnaire de Médecine et de Chirurgie Pratiques*, vol. xiv., p. 677.



PLATE 8. FIBROMA MOLLUSCUM—AFTER OPERATION. XIII.

yet, no known instance of a congenital cystic tumor on any of the limbs." The tumor which is the subject of this paper, is, then, a very rare specimen, on account of its situation. Plates 7 and 8 represent the arm before and after the operation.

XIV.

TRAUMATIC ANEURISM OF THE WRIST.—FREE INCISION INTO THE SAC.—SPONGE DRESSING.—RECOVERY.

ISAAC N., æt. 53, married. While the patient was mending a pair of scissors, one of the blades slipped and penetrated the right ulnar artery, an inch and a quarter above the head of the ulna. The blood spirted by jets into the patient's face, and it was with difficulty that he was able to put his finger into the wound and arrest the hæmorrhage; a compress and bandage were soon applied. This was on October 27, 1875. The arm looked dark and swollen for nearly a week, when an incision was made through the skin by the attending physician, which relieved the superficial congestion. The wrist remained swollen. Nearly two months after the accident, Dr. E. Trenor, of Oakland, brought the patient to my office. The arm was then in the following condition: The inner surface of the wrist was much swollen, tense, and pulsating over a surface two and a half inches in width by three in length. The fingers were drawn down to the palm of the hand, and could not be straightened; there was but little pain or discoloration of the skin. It seemed advisable to try continued pressure on the ulnar artery for a time, in hopes of producing a coag-

ulation of the contents of the sac ; a neat tourniquet was adjusted for the purpose ; after a fortnight's trial it was abandoned, and on the 28th of December, at Oakland, the patient was etherized, and Esmarch's bandage applied to the arm. An incision five inches in length was then made through the skin into the sac and its contents evacuated ; as there was no oozing from the vessels, it was not easy to see where the artery had been wounded. The bandage was loosened, and a flow of blood showed that the artery had given way in several places, one of which, a quarter of an inch in diameter, with smooth edges, was probably the seat of the original injury. The vessel was tied in four places ; three smaller branches were ligated. The neighboring muscles were glued together by inflammatory products. The wound was dried, and the edges being brought together without sutures, a row of damp sponges was placed over them ; these were kept in place by a snug bandage which was smeared with carbolized glycerine, and well covered with cotton. The patient then, under Dr. Trenor's care, had no fever after the operation ; his sleep and appetite were natural. On the fifth day the dressing was changed for the first time, and the wound was found nearly healed ; a similar dressing was reapplied, and remained on five days ; all that was left of the wound was the opening for the ligatures ; these held firmly until the twelfth day ; the sinus soon closed. The arm had returned to its natural size, and the fingers had become more elastic. The patient was advised to exercise his hand freely, and to sleep with a roller inserted between the palm of the hand and the fingers, so that a gentle pressure might be brought to bear upon them.

XV.

WOUND OF THE SUPERFICIAL PALMAR ARCH.—EFFECTUAL TREATMENT BY FORCI-PRESSURE.

HERMANN C. W., æt. 18. The patient falling on a bottle cut the palm of his right hand at the base of the fourth metacarpal bone, and his wrist just over the radius; there was a severe hæmorrhage from the palmar wound. A physician being called in, sewed up the cut and bandaged the hand and wrist snugly; this dressing remained four days in place; the wound was then dressed by a barber with camphor plaster. Under this treatment he remained one week, until one night while in bed the patient waked up to find himself wet with blood. He was then taken to the City Hospital, where a nurse plugged the wound with cotton soaked in perchloride of iron; he remained three days without hæmorrhage and then went home. The same evening, while sitting on a chair, there was a free gush of blood from the wound. I saw the case soon after, and on taking off the bandage, found that the blood flowed in great abundance. Strong compression on the ulnar and radial only modified the hæmorrhage. It seemed useless to hunt for the artery in the wound, it was so small and deep; however, an attempt was made to seize it with the artery forceps, taking up as much tissue as possible from the bottom of the wound. The bleeding was thus controlled, but as a ligature was passed, the tissue yielded, and the blood spirted freely again. A second time the forceps seized the artery; there was no more hæmorrhage; it was resolved to leave

the forceps in place until the coagulum should form in the vessel. The patient lay on a lounge with the hand raised and attached to a pillow. The forceps stood out straight from the palm of the hand, supported by the coagulated blood around the wound. In this position the patient lay during one week without moving; gallic acid was given daily in small doses. The forceps gradually bent over until it rested between the fingers; there was a slight discharge and an intolerable odor from the wound. At the end of the seventh day the forceps became detached, no dressing was put on the wound; it cicatrized so as to leave hardly a trace of the cut. In this case a ligature on the artery was impracticable without enlarging the wound, and this method of forci-pressure so much advocated by M. Verneuil proved of great service.

XVI.

VESICAL CALCULUS.—LATERAL LITHOTOMY.—RECOVERY.

BUDD S., æt. 30. The patient's first symptoms of stone date from 1855, when, after teaming lumber over a rough road, he found himself obliged to pass his water almost every half an hour. Since that time he has had more or less trouble until six months ago, when he had serious difficulty in micturition; he had also great pain at the end of the penis and in the front part of the perinæum. Dr. Benjamin Knight, of Santa Cruz, on examination, found a large stone in the bladder, and sent the patient to me for operation. He arrived in San Francisco in a feeble condition, with chills, and with a pulse of 120. He had suffered intensely from the voyage by sea. After a day's rest he was etherized on the 19th of July, 1875, Dr. Soulé and Messrs. Davidson and Chaigneau, assisting. A right lateral incision an inch in length was made in the perinæum, and continued down to the grooved sound which acted as a guide in the urethra; the knife passed along the groove into the bladder, one finger being held in the rectum.

The stone was soon seized and extracted by a spoon-bladed forceps, working them slowly from side to side; it measured two inches in length by one in thickness; it weighed an ounce and a quarter, and was composed of an external crust of phosphate of lime surrounding a hard nucleus, chiefly made up of urate of ammonia. Having satisfied myself that the bladder was empty, it was syringed out, and a silver drainage tube was placed

in the wound; no arteries were tied; the pulse after the operation was at 120; temp. 37.5°.

July 20. Patient had several efforts at straining this morning, which resulted in the discharge of several clots from the wound: gallic acid in five grain doses was given at intervals through the day.

July 21. Patient passed a painless night; takes ice and beef-tea for nourishment; pulse 96; temp, 36.5°; the urine is clear but strongly ammoniacal; evening, pulse 96; temp. 37°; some indefinite pains in the abdomen were relieved by turpentine stripes.

July 22. Pulse 84; temp. 37°; the canula was withdrawn to-day; a little urine passes by the penis.

July 23. Incision nearly closed; it reopened on the 25th, with a slight bleeding, followed by a gush of urine and a few clots; afterwards, until the 1st of August, half of the urine came by the cut.

On the 27th of July, a catheter was easily passed and left in the urethra; pulse 80; temp. 37°. After three days the catheter was withdrawn.

August 5. The patient walked a little by the help of crutches; on the 17th, he went home; at that time the water passed wholly through the urethra, and the incision had become healed.

EDWARD T., æt. 35, single. The patient had symptoms of stone in the bladder during four years. He suffered continually and had become much reduced in flesh. With the impression that he had malignant disease of the bladder, he came from Virginia City to the Maison de Santé in hopes of temporary relief. On examination the prepuce was found so elongated and inflamed that it was very difficult to find the meatus; the symptoms of stone were unmistakable.

On the 17th of January, 1876, the patient being etherized, circumcision was performed. A Thompson's sound was then passed into the bladder and at once detected a stone. The operation having been previously agreed upon, right lateral lithotomy was performed; the stone was withdrawn by the aid of one finger in the bladder and the other in the rectum: it measured three quarters of inch in length by half an inch in width, and weighed forty-six grains; it had a rough tuberculated surface, and was composed of oxalate of lime. No vessels were tied; a silver tube was left in the wound. Evening, pulse 76; temp. 102.5. The patient lay on a rubber bed-pan so that the urine trickled away without wetting the bed.

On the 18th, the tube was lightly surrounded by the sides of the incision. Pulse 80; temp. 101°.

On the 19th, the patient slept all night. The tube was removed on the 21st and an elastic catheter passed by the penis; this remained in place four days. The urine afterward passed equally by the penis and by the wound.

On the 27th, a poultice was applied over the perinæum; this was but slightly moistened when the urine was passed by the penis.

On the 1st of February the perineal wound was closed, and the patient began to walk by the aid of crutches.

XVII.

A PLASTIC OPERATION FOR EXTROVERSION OF THE BLADDER IN A MALE INFANT.—RADICAL CURE OF A CONGENITAL INGUINAL, HERNIA BY MEANS OF A TRANSPLANTED FLAP OF SKIN.

LOSSIE C., æt. 2. The patient was born with the following deformity: the anterior wall of the bladder and adjoining parietes of the abdomen were wanting. The posterior wall of the bladder protruded through the opening in the abdomen, and was of a bright red color; the protrusion was especially marked when the patient cried, or strained at stool; the penis was cleft along the dorsum throughout its length, the prepuce hanging down below the gland in an ample fold; the gland fitted snugly to the lower part of the hiatus. By drawing it downwards and outwards, a better view of the bladder could be obtained. The umbilicus was of normal size and position; the scrotum seemed rudimentary when compared with the large folds of the skin which filled up either groin. The skin of the thighs and abdomen, especially in the neighborhood of the fissure, was much excoriated from the constant dribbling of urine; there was an inguinal hernia of the right side; the thighs were very wide apart, and on passing the finger into the bladder a ligamentous union of the pubic bones could be felt. The testicles were both present. The patient was in excellent health and well nourished. It was decided to perform Holmes's operation of making an anterior wall for the bladder from the skin of the abdomen; and on the 3d of December,

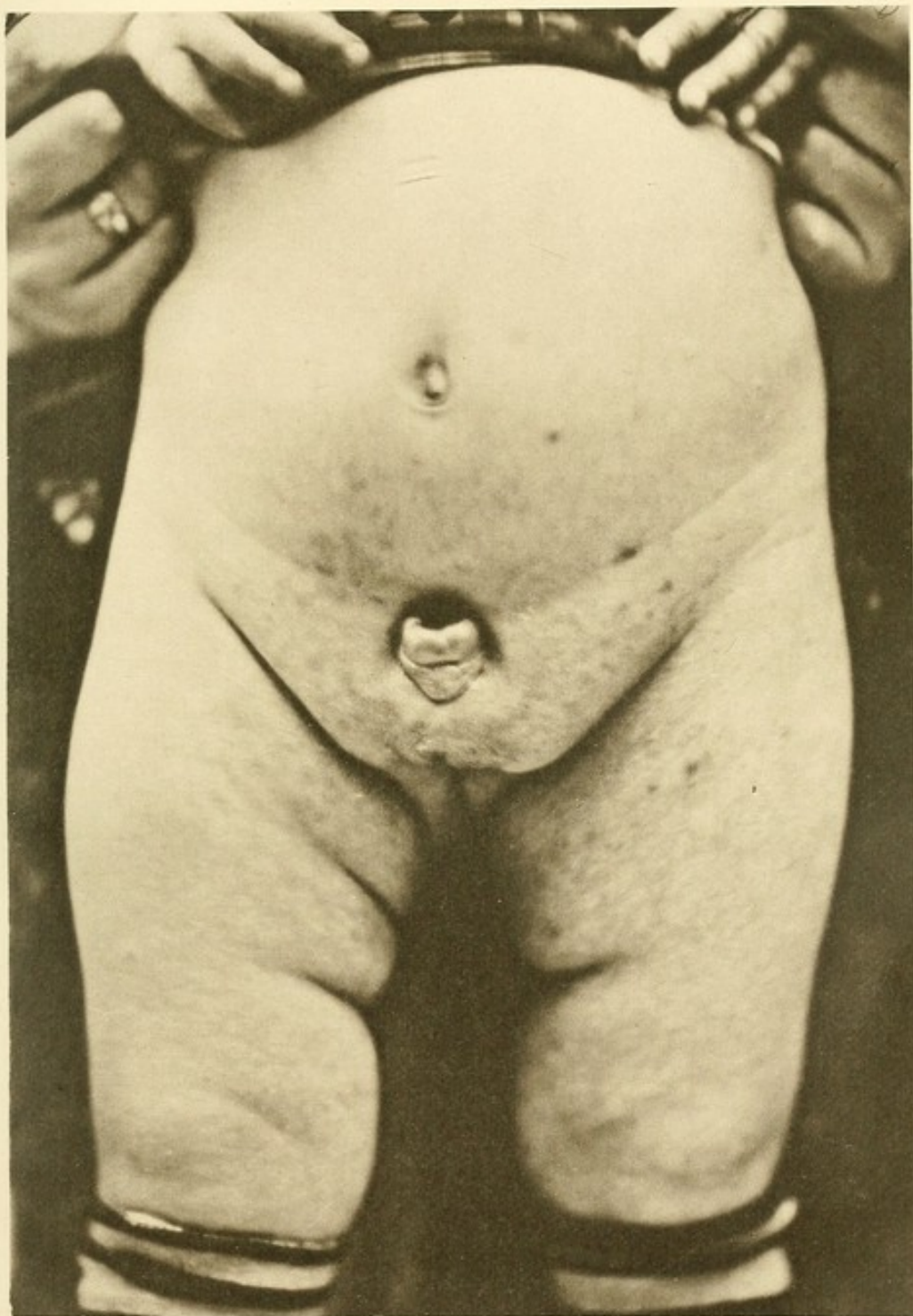


PLATE 9. EXTRAVERSION OF BLADDER. XVII.

THE HISTORY OF THE
CITY OF BOSTON
FROM THE FIRST SETTLEMENT
TO THE PRESENT TIME
BY
JOSEPH NEALE
OF THE BOSTON BAR
IN TWO VOLUMES
VOL. II.
BOSTON: PUBLISHED BY
J. NEALE, AT THE
PRINTING OFFICE OF
J. NEALE, NO. 10, NASSAU ST.
1846.

1874, the patient being thoroughly etherized, a rectangular flap of skin, three inches in length by one and three fourths inches in width, was dissected from the left side, its base being close to the fissure; the lower edge of the flap was on a line with the under surface of the penis, so that when the penis was brought down its upper surface should fit snugly to the flap. A second flap, four inches in length by one and three fourths inches in width, was then taken from the right side; it included one half the skin of the scrotum, and its pedicle was in the axis of the groin. Great care was necessary in the dissection in order to avoid the subjacent hernial protrusion; the finger easily pushed back the hernial sac into the ring, but it could not keep it there, and the flap, as it was brought into place, lay directly over its neck, the body protruding below. The flap on the left side was turned over the hiatus like the leaf of a book, its bleeding surface being outermost. The second flap was then well adjusted over it, so that the raw surfaces should be in contact; a few silk sutures kept them in place. A third flap, an inch in width, was then dissected by a somewhat curved incision from above the hiatus in such a manner that its edges should come into close apposition with the conjoined edges of the two lateral flaps. This was thought to be an improvement on the usual method of "implanting the upper edge of the bridge into the skin of the abdomen," as it gave less chance for the water to escape, and made less tension on the bridge. The edges were united by many silk sutures; a few small vessels were tied. In the child's efforts at coughing, the bare hernial sac could be seen protruding on the right side. It was thought best to take a small flap (one and one half by two inches) from the upper part of the thigh and bring it over the sac, so as to protect it.

This was then done, one of its edges being united to the raw edge of the left half of the scrotum. A few sutures were placed in the corners whence the flaps were taken, so as to diminish as much as possible the granulating surface. When the flaps were thus adjusted, it was noticed that the penis had a strong tendency to slip under the lower edge of the bridge, and so disappear from view. To prevent this a strip of plaster was carried across the abdomen close to the dorsum of the penis, but it proved insufficient, as the next day it was found that the penis had disappeared from sight; it seemed, however, to keep the bridge out of the way of the urine, and so was let alone. A strip of Lister's gauze was then placed over the abdomen and covered with a wide sheet of cotton wool. The operation occupied three hours, and two pounds of ether were consumed. The patient rallied well, and passed a comfortable, quiet night. The pulse on the next day was 120; it was impossible to get the temperature, as the patient was afraid of the thermometer. The extremity of the right lateral flap was of a darkish color; it comprised the thin ill-nourished skin of the scrotum. On the 5th the patient was quite restless; he took milk and beef-tea for nourishment; he did not feel much pain unless disturbed; the urine passed away freely. Syrup of poppies was given at intervals during the day, not so much to relieve the pain as to assist in the union of the flaps by first intention.

December 6. The dark part of the upper flap seemed more limited, and had a gangrenous odor. The patient was bright and talkative.

December 8. There was no suppuration as yet, although some of the sutures began to be loose.

On the 10th the gangrened part of the flap came

away; the bridge was firmly formed, and is doing well; it was dressed with court plaster, the dressing remaining in place during three days.

On the 13th a gap of one inch in length appeared along the upper edge of the bridge on the right side; all the ligatures were removed. A calcareous deposit from the urine choked up the fissure, and caused some irritation to the patient; several small pieces of this deposit, the size of a split pea, were removed by the forceps. The various granulating surfaces about the flaps had now become level with the skin, and much contracted; they were all dressed daily with oxide of zinc powder.

On the 12th of January, 1875, there were no more granulating surfaces on the thighs or scrotum. Various small operations were made from time to time in order to close the fistulous opening on the right side of the bridge.

At the end of March the fistulous opening had elosed; the bridge was thick and solid and broad. The opening to the bladder would not admit the end of the little finger; the urine dribbled away at times through a small india rubber tube. There were no excoriations of the thighs or abdomen, and no urinous odor whatsoever. There remained to perform the operation for epispadias. This was done on the 8th of May, as follows: The penis was well drawn out from under the new-formed bridge, and was then transfixed as near the base as practicable by a strong steel shawl-pin. A thin slice was then cut from either side of the canal, so as to make a raw surface for the scrotal flap to rest upon; this flap, taken from just beneath the penis, was a little over an inch in width and three inches in length: it was adherent at each end and was easily slipped over the penis; its position was such as to adapt itself exactly to the raw

surfaces. The edge of the bridge was then refreshed, and the adjacent edge of the scrotal flap was united to it by seven silver sutures : the prepuce was then operated after Tiersch's method as described by Szymanouski. A small oval section was made transversely in its middle part, and through the opening thus made the gland was passed ; the raw edge on the upper side was then united to the adjacent scrotal flap by silk sutures. An India rubber tube, half an inch in diameter and two inches in length, was then passed into the new-made canal. It was perforated in many places along the sides so as to take up all the urine. This tube was left in place twenty-one days without causing the least inconvenience: the water passed but little when the patient was on his back, but as he stood up, it came away in gushes, showing that the new-formed wall of the bladder had begun to do its duty. The silver sutures all remained in place during two weeks ; they were then withdrawn and the union was found to be perfect. The prepuce gave way on the right side, making an irregular appearance ; it was thought best to let time remedy this. Occasionally the patient would have severe attacks of straining accompanied by considerable fever, a desire to vomit, and a partial prolapse of the rectum. It was difficult to say what caused these spasms ; the urine flowed naturally ; there was a free opening in the abdomen so that the bladder could not be strangulated ; the inversion of that organ had occurred many times without pain : was it due to some abnormal condition of the intestines, or from some malposition of the ureters ? for with extroversion of the bladder, we might well expect other complications. It was interesting to see how the scrotum regained its natural shape after the operation was finished. The flap taken from the right side in the first

operation had left a firm cicatrix over the inguinal ring, and so effectually prevented any protrusion of the intestine. The urine trickled away drop by drop through the rubber tube; when this was removed the patient would hold his urine for nearly an hour, and it is expected that as time goes on he will not be obliged to pass his water oftener than three times a day. The photograph (Pl. 10) was taken exactly six months after the operation was begun. The three depressions in the upper flap are merely superficial; no urine passes through them; the two nodules of flesh at the side of the tube are the remains of the prepuce. It will be noticed that the skin of the legs and belly is white and free from excoriations of any sort.

In extroversion of the bladder its anterior wall and the corresponding part of the abdomen are deficient. The linea alba divides below the umbilicus, and leaves a hiatus out of which protrudes the reddened posterior wall of the bladder. Thus the ureters open directly to the external air, and as a consequence the urine dribbles away continually. The bladder is not only wanting in part, but is incompletely developed, retaining to a degree its primitive bilobed condition. The umbilicus is often so near to the pubes that it appears at first sight to be wanting. The union of the pubic bones is wholly ligamentous, and can be plainly felt by the finger thrust into the hiatus. As a result of this union the legs are widely separated. The penis is cleft throughout its upper surface from meatus to the bladder; it is short and broad, and seems drawn downward into the bladder, helping in an imperfect way to cover it over; the prepuce being cleft hangs down under the gland in an ample fold. There is much superfluous tissue in either groin, and often there is a hernia on one or both sides. The scro-

tum is small and flat, and may or may not contain the testicles. There may be other deformities of the body in connection with extroversion: the infant may be born acephalous; there may be a displacement of the abdominal organs, an umbilical hernia, or an imperforate anus; or if the child is a female, there may be a hernia of the ovaries into the labia majora, showing, as M. Saint-Hilaire remarks, the analogy between the sexes; this gives all the appearance of a cleft scrotum and the corresponding doubts as to the infant's sex. A median division of a part of the spinal column or of the sacrum may also complicate extroversion.

The constant dribbling of urine not only excoriates the skin of the lower part of the abdomen and upper part of the thighs, but it gives rise to a disagreeable urinous odor, which makes the patient as offensive as a public urinal. The trouble with the urine is not, however, the more important one; as the penis is in a state of complete epispadias, the ejaculatory ducts open in such a position that the semen can never be thrown from the urethra, and hence there is absolute impotence. The patient may feel sexual desire, excitement, and complete enjoyment, and yet be unable to have fruitful intercourse. It will be readily seen that extroversion of the bladder in the female is not so serious a deformity as in the male, because the genital organs are not interfered with. Still the uterus is quite liable to displacement on account of the ligamentous union of the pubic bones. Tardieu, in a recent work on the medico-legal question of "Identity in Malformations of the Sexual Organs," p. 43, speaks as follows: "As to the faculties and moral disposition, they usually suffer the contre coup of the malformations of the sexual organs, and one should not expect to meet with a manly character

and intelligence in such imperfect beings." Here then we have a deformity which affects the patient physically and morally, and one which perhaps, unhappily, is not incompatible with life or health. Let us look now at the various means taken to palliate or remedy extroversion. We shall find that surgical interference is of comparatively recent date, and that but little is said of it in the general works of surgery. Dupuytren never attempted to operate on extroversion, but sought to protect the tumor by a concave plate fitted to the pubes by bandages. The imperfection of this treatment can be easily conceived. The proposition of Gerdy to refresh the edges and unite them and then inflate the natural bladder by an artificial one was an utter impossibility. In 1851, a case was reported by Lloyd in which an attempt to unite the bladder with the rectum by means of a seton passed through the bowel; the patient died from peritonitis, owing to the uncommon nearness of the peritonæum to the anus. In 1852, the first attempt to remedy the deformity by plastic surgery was made by M. Jules Roux. This skillful operator made use of two flaps, one taken from the abdomen above the tumor and one from the scrotum just beneath the penis. "The flaps became transformed into a sort of cord imperfectly covering the vesical surface." Although the operation was incomplete in its results, it was, however, the starting point towards a better means of treatment. Other surgeons of France attempted the operation with varied success. In 1859, Daniel Ayres, of New York, published an interesting and successful case of an operation for extroversion of the bladder in a female patient, in which the flaps were taken from the abdomen. Nine years later, Holmes, in his "Surgical Treatment of Children's Diseases," gives the results of five opera-

tions, three of which were successful. It is after his method of operating that the above case was treated. It is interesting on account of the age of the patient, and because a hernial protrusion on the right side was radically cured by a transplanted flap of skin.

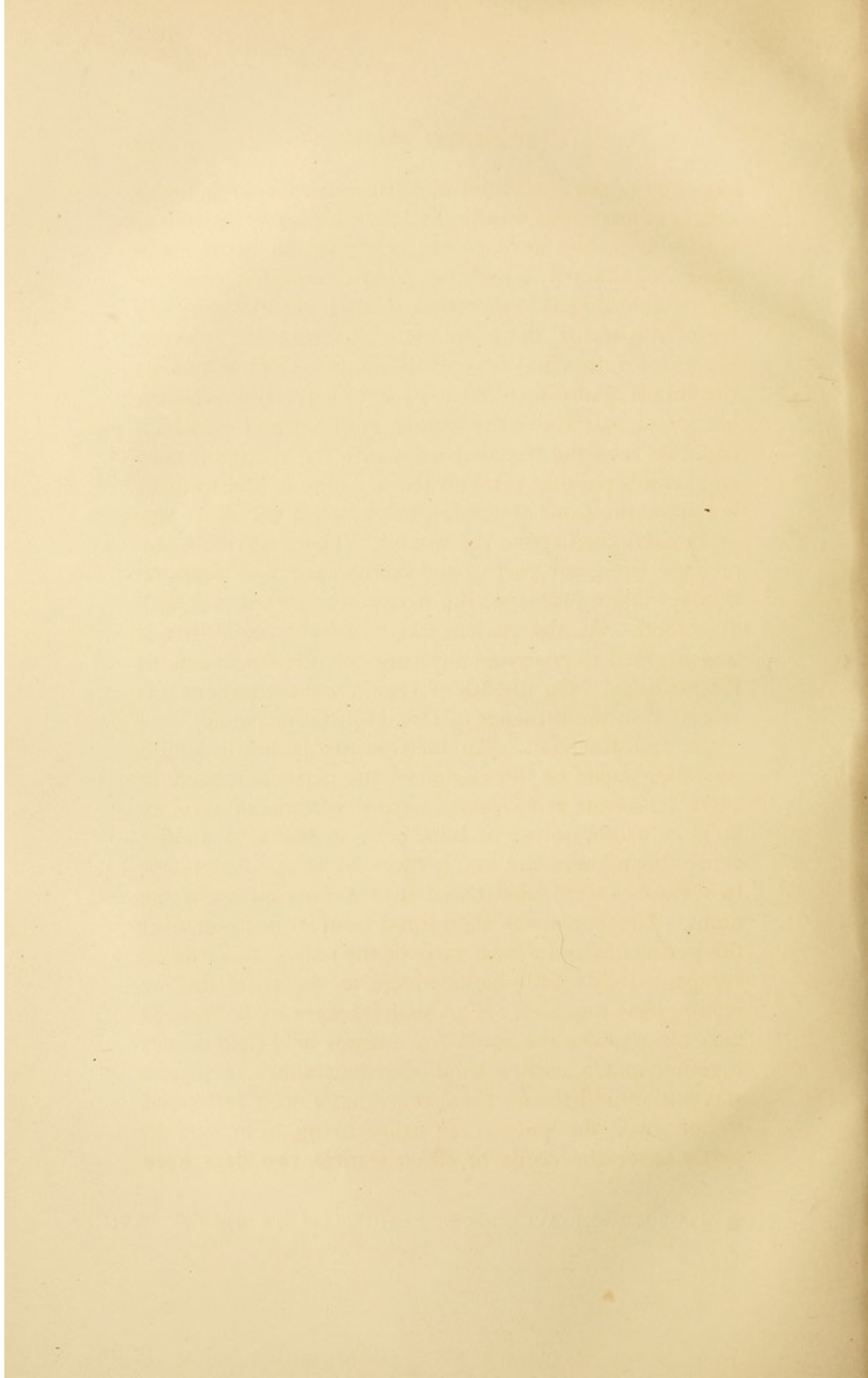
XVIII.

A REMARKABLE INJURY OF THE PERINÆUM, SCROTUM, AND PENIS. — RECOVERY.

EMILE B., æt. 17, single. The patient was assisting in working a threshing machine when the following accident, told in his own words, happened to him: "When the machine started up, I went to get my gloves; my shirt was out of my pants so that the straw could not bother me; as I reached for the gloves, my shirt fell over the knuckle of the tumbling rod; the bolt which went through the knuckle was too long, and my shirt catching on the bolt, drew me on to it. When I felt it had hold of me, I braced myself against the derrick wagon. Every stitch of clothing was torn off from my body, the machine also tore off the skin from my penis and testicles and left them naked; my testicles were torn apart and my penis was hanging between my legs. I was in a horrible condition, but felt no pain at the time. I left the ranche on Sunday, the 6th of June, the next day after the accident, and traveling on a wagon and by railway, arrived at the French Hospital on the 7th, at noon." When first seen at the Maison de Santé the patient was in this condition; there was a complete



PLATE 10. EXTRAVERSION OF BLADDER—AFTER OPERATION. XVII.



skinning of the perinæum from the anus forwards, to the extent of two inches and a half in width. Both sphincters of the anus were torn apart, and the fæces came away involuntarily; nothing remained of the scrotum, the neighboring skin on either side was torn away nearly an inch in width; the penis, completely deprived of skin, hung down over and beyond the anus. Over the pubes the skin was also torn away, so as to leave but a narrow border of hair above the wound, at either end of which could be seen the inguinal rings with the spermatic cord and vessels passing through them. One of the testicles lay upon the front of the left thigh, while the other was on the abdomen above the wound. There was no hæmorrhage from any part of the surface nor had suppuration yet taken place, but the wound was glazed over with dry blood. As the patient was in a feeble condition, it was decided to postpone any surgical interference until the next day. On the 8th of June, 1875, the patient was etherized in the presence of Drs. Hoffstetter, Soulé, Vanvlack, and Bucknall. An incision two inches in length was then made on either side of the perineal wound, in such a manner as to leave a narrow isthmus of skin, an inch in width, united at both ends to the surrounding skin: this allowed the free borders to be approximated; two stitches were also taken in the torn issues of the anus. The penis was then lifted from its position over the perinæum and drawn up over the pubes; this was accompanied by a little hæmorrhage, as the parts had already glued together. The testicles were each brought into place under the penis, five sutures held their tunics together, and a narrow band of strong adhesive plaster was put around them; there remained a deep and broad wound over the pubes. In order to fill it in, and to partly cover the cords of either testicle, two flaps were

taken from the sides of the wound having a pedicle towards either thigh; these were held in place by silk sutures strengthened by adhesive plaster; over the raw surface of the penis were placed many small pieces of plaster, so arranged as to allow the exit of pus from between their borders. A tent of linen, soaked in a strong solution of carbolic acid wash, was suspended from a cradle over the entire region of the wound; there was but little constitutional disturbance, except that arising from obstinate sleeplessness; this was partly caused by excessive pains coming on at night, which were so violent at times as to make the patient scream aloud. After the first week the pain was much less, the testicles had apparently united together, the lower part of the perineal flaps was united, but towards the testicles it had sloughed away. During one month the suppuration was profuse, on the seventh week, it being much diminished, eight bits of skin were transplanted into the granulations of the penis and scrotum; of these three lived and formed islands which helped considerably the cicatrization. It was from the glans penis that the new skin formed most rapidly; it would grow irregularly, so as to make the penis look upside down one week and turned sideways another. Meantime the patient had erections at night, which undoubtedly helped to free the penis from the surrounding granulations at its base. The patient lay in bed during forty-three days; the cicatrization was accomplished slowly and painlessly; bran baths were given every other day; oxide of zinc powder was dusted over the wound. As he began to walk, it was noticed that the scrotum became smaller, and two lumps appeared at the base of the penis at either side; these were the testicles. So imperceptibly did this change take place, that its exact time could not be stated.

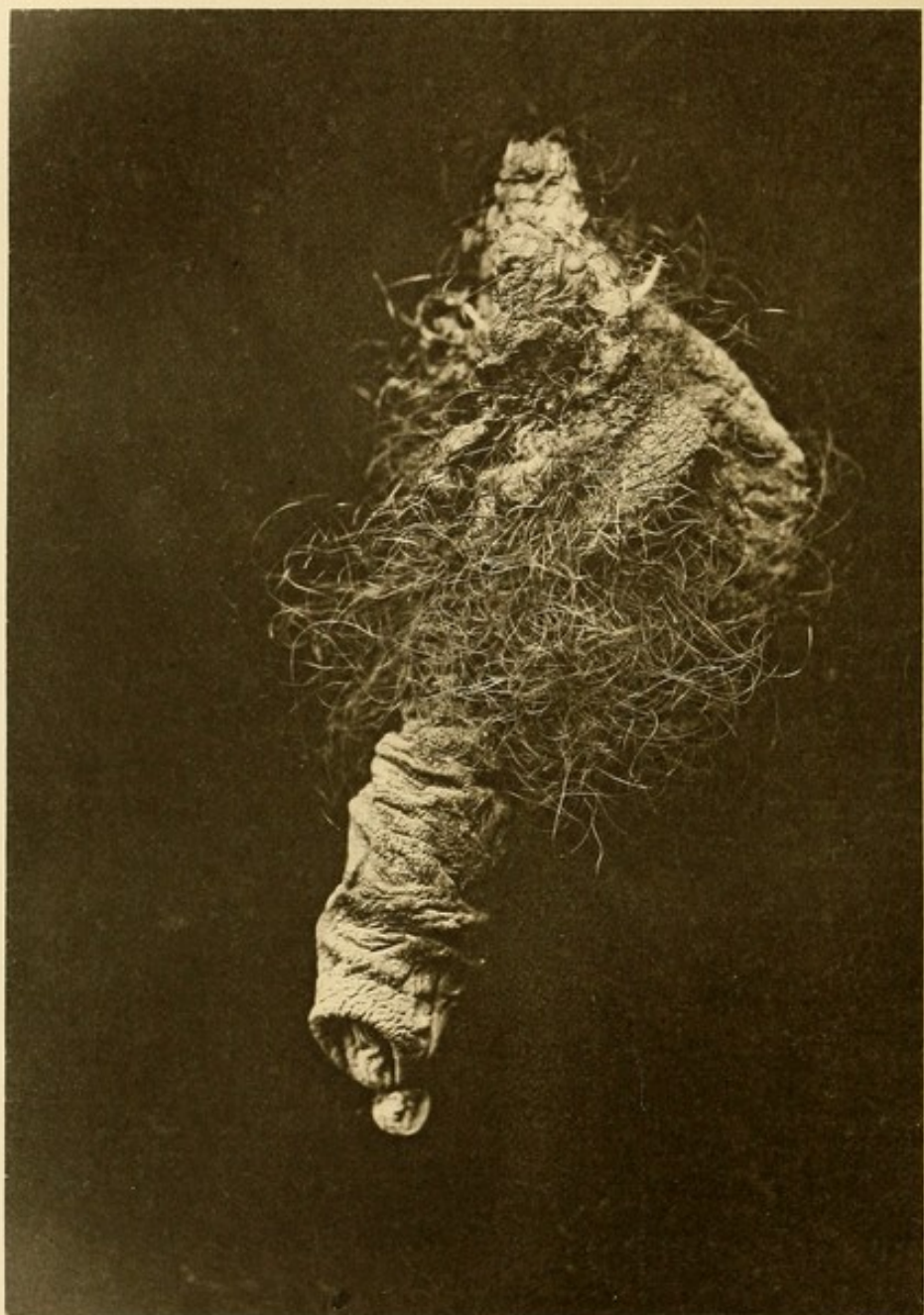


PLATE II. INJURY OF PENIS. XVIII.

There was no separation of the skin in the middle line, but it seemed as if the new scrotum had stretched, and the testicles had sought shelter under a firmer skin; a double truss suggested itself to prevent their further ascent, but as time went on they seemed to shift their positions slightly, being lower down some days than others. It is not unlikely, as the contractile power of the cicatrix weakens, that the testicles may come into their normal position. The patient was discharged from the hospital on the 30th of August, well and in good condition. His penis was then three inches long by one and a half wide; the new skin extended without interruption from the gland (inclusive) to a distance of two inches. The largest island of transplanted skin, half an inch square, was on the right side. The few remaining granulations were covered with a dry scab.

Through the kindness of Dr. F. W. Heitman, of College City, the torn scrotum and penis was preserved and sent to me; it is in a single piece; it has an opening above the scrotum some two inches in diameter, with comparatively smooth edges. There was no scratch or laceration of the outside of the skin of the penis or scrotum; the hair remained upon the latter, as in the natural state. It seems that the length of the prepuce was the means of saving the body of the penis from being torn away. Plate 11 shows the side view of the specimen.

XIX.

ON INTERNAL URETHROTOMY, WITH CASES.

ALTHOUGH the operation of dividing strictures of the urethra by an incision practiced within the canal dates from over a century, few surgeons, comparatively speaking, operate by this method at the present day. Unquestionably the operation has certain great advantages, and these we propose to name, after giving a brief account of the manner of performing it, and of the instrument as improved by M. Maisonneuve. This instrument consists, —

1st. Of a flexible filiform bougie, with a screw at its extremity.

2d. Of a grooved, steel, curved conductor, which fits itself to the screw of the bougie.

3d. Of a steel wire, armed at its extremity with a triangular blade, the base of which is fixed to the wire, while its apex is blunt, and its two sharp sides slightly concave. This wire glides within the groove of the conductor.

The operation is an easy and simple one, and so painless as not to require the use of anæsthetics. The filiform bougie is passed into the urethra, more by strategy than by force, and once in the bladder, the conductor is screwed to its extremity; thus guided, the conductor is gently passed into the urethra, pushing the bougie before it into the bladder. The blade is then passed along the conductor in its groove, and the stricture is cut both as

the blade enters and returns. A catheter of medium size, with its extremity cut off and smoothed, and with two large eyes on either side, is then introduced and held in place in the urethra by a silk thread, this thread is fastened to the penis by a strip of court-plaster, coated with a little collodion, so as to stay in place, in spite of the moisture of the parts.

As preparatory treatment, it is the custom to give two or three grains of the sulphate of quinine for several days previous to the operation; why this is done and for what good no one knows. Some surgeons give teas and purges for the same reason. As the bowels are to be kept quiet during several days following the operation, an injection *per rectum* should be given immediately before it.

The bougie, which is left in the urethra, plays an important part; it is not intended to act as a foreign body and press apart the sides of the wound, but simply to prevent the urine from coming in contact with the wound until the bleeding vessels become closed. It should be left in the urethra from thirty-six to forty-eight hours; its extremity should be left open so as to allow the urine to pass drop by drop, and it should be watched so as to be freed from obstructions of mucus, etc. As there are some patients who cannot support even a medium sized bougie when left in the urethra, a smaller one may be substituted, leaving it twenty-four hours longer in place. If the bougie is withdrawn before thirty-six hours have expired since the operation, we run the risk of having a slight secondary hæmorrhage; but we are forced to withdraw the bougie on the exhibition of great pain. The patient is kept in bed and fed with thin soups and diuretic drinks only; poultices may be applied to the abdomen and perinæum to anticipate any inflammation.

Some patients have but a slight febrile access, with scarcely an elevation of temperature ; but more frequently, soon after the operation, the pulse is quickened, the temperature is raised, and we have the usual symptoms of traumatic fever. Should the patient have a chill, the temperature rises and falls very suddenly ; it seldom happens that these chills are repeated, and they occur on the first or third day after the operation. M. Maisonneuve regards the chill as a symptom of what he calls "urinary intoxication," and perhaps it is to anticipate this that quinine is given before the operation.

The urethritis which almost invariably occurs is of a light nature, and the natural consequence upon the healing of the wound by the second intention ; it is seldom severe, lasting in the majority of cases about a week, and accompanied by a slight pricking sensation at the seat of the incisions.

On the withdrawal of the stationary bougie, the patient is left until the urethritis has wholly ceased. We may then suppose that the cicatrization of the wound is accomplished, and if no pain can be felt along the seat of the incision, a bougie, a size or two smaller than the stationary one, may be passed and kept in the urethra for a few minutes. In thus passing this bougie for several days, its size may then be increased, and the patient left to pass the bougie daily for several weeks, then once a week for several months, and then always once a month. Certainly half of the success of the operation depends upon whether the patient performs his part of the work or not ; he is generally so pleased with the sudden change in the flow of his urine, that he takes the subsequent treatment for granted, and this is one great reason why a relapse sometimes occurs.

M. Reverdin, of Geneva, in his excellent thesis on in-

ternal urethrotomy, gives a table of sixty-three operations performed by M. Guyon, of Paris, in but one of which death occurred.

The operation of internal urethrotomy is not to be classed among dangerous operations; it has this advantage over the operation of forcible distension of the stricture by Mr. Holt's instrument; it makes a clean cut, which is less apt to form bad retractile cicatricial tissue than a contusion, which must always be more or less violent, and which is followed by a certain degree of inflammation. It has been claimed that in the operation by distension, the vessels being torn, hæmorrhage is avoided. The cases are rare where hæmorrhage occurs in internal urethrotomy; and if the bougie is left in the urethra during thirty-six hours after the operation, there will be no danger of hæmorrhage.

The contra-indications of the operation are yet to be learned by experience: there are surgeons who prefer dilatation, where the urethra is indurated in many parts, or throughout its course; others decry internal urethrotomy in cases of disease of the bladder or kidneys, or in the severe access of fever; while others, myself among the number, regard it in these cases as the sole means of safety to the patient.

ROBERT DE M., æt. 41, married. In 1855, the patient had a severe gonorrhœa, lasting for months; he received little or no treatment, and since 1867 has been able to urinate only with great difficulty, the urine passing drop by drop; the patient was, however, in good general health. A No. 7 bougie (French scale) passed with great difficulty into the bladder; a slight irritation of the canal followed the introduction of the bougie; no attempt was made at dilatation. At Paris, on the 28th of December,

1871, internal urethrotomy was practiced. As the knife passed down the urethra, three separate constrictions in the canal were distinctly felt by the patient and by myself; they were in the lower part of the spongy portion of the urethra. The bougie was withdrawn on the 30th, forty-six hours after the operation; the patient had a chill on the following evening. There was a moderate urethritis.

January 2. On going to stool for the first time since the operation, a little blood came from the urethra; enemata were given daily after this; the pulse did not exceed seventy-five, nor the temperature 39° centigrade after the operation.

On the tenth, a number 16 bougie was passed without difficulty.

On the eleventh, the patient was allowed to go to work, being advised to pass the bougie once a week for several months, and then regularly once a month.

It is interesting to know that, after nearly four years which have elapsed since the operation, the patient still passes a number 18 bougie without the least difficulty.

MEDOR C., æt. 30. The patient has had a stricture of the urethra during three years; five years ago he had a prolonged gonorrhœa; he has been treated by dilatation for several months, but of late the passage has grown so small that he passes his water with great difficulty. On examination a filiform bougie alone could be passed. The stricture is at the anterior part of the membranous portion; the whole canal is irritable and sensitive; there is constantly a slight discharge from it. The patient's general condition is excellent.

On the 20th of May, 1874, internal urethrotomy was performed without anæsthetics; no preparatory treatment

was carried out, except the emptying of the bowels. A number 19 bougie was left in the canal forty-two hours; there was no irritation of any account, the pulse remained at 80, and the temperature at 37° throughout; there was a very slight urethritis during four days. On the fifth, the patient left his room to walk about as usual.

On the 29th May, a number 16 bougie was introduced without difficulty, and kept in the canal twenty minutes. A number 17 was then passed daily. The patient was delighted with the size of the stream he passed.

SOLOMON U., æt. 42. Thirteen years ago the patient began to be troubled with stricture of the urethra. It followed a prolonged and neglected gonorrhœa. After an unsuccessful treatment by forced catheterism and dilatation, an abscess formed in the perinæum, a little over a year ago. This was opened at the time, and afterwards the urine trickled away through three fistulæ, the largest of which was an inch from the median line on the right side, half way between the scrotum and anus. Very little water passed by the meatus, but on pressing the canal, which felt, externally, like a hard cord, a quantity of offensive pus could be evacuated. The urine deposited a thick muco-purulent sediment on standing. The patient's general condition was exceedingly precarious. His pulse was at 120; his temperature at 39° ; he had night sweats constantly, and he felt at ease only when lying down, with hot poultices on the perinæum. It was decided on the 17th of January, 1874, to perform internal urethrotomy, notwithstanding the patient's feeble condition; it was regarded as his only means of safety. For two days vain attempts were made to introduce a filiform bougie. After an hour's patient trial, on the

third day it was introduced as far as the bladder, and then, the patient being etherized, the operation was performed, Dr. Hoffstetter assisting. The knife, as it passed along, seemed to the touch to cut one continuous stricture from the meatus to the end of the membranous portion of the urethra. A No. 19 bougie was introduced and left in the urethra; the fistulous openings were dissected up and cauterized with carbolic acid; the patient had been taking ten grains of quinine daily for a few days previous to the operation; this medicine he continued using.

On the 22d, the bougie was withdrawn. There was incontinence of urine during two days. This ceased as the neck of the bladder regained its strength.

After February 1st, a flexible bougie was passed daily. The fistulæ were kept compressed by dry lint, and were occasionally touched with nitrate of silver.

On the 1st of March there was no trace of any opening in the perinæum. The patient was then advised to take a sea voyage of a few weeks, to insure a complete cure of the fistulæ. At the time of his departure he was able to pass a free stream of water, and his general health was greatly improved. The fistulæ opened anew on his return four months later, either from imprudence or from neglect on the voyage; the canal remained of good size.

PERRY G., æt. 46, single. The difficulty in passing water dates back some two years; it was attributed to a neglected gonorrhœa; a filiform bougie was held tight in the membranous region—a larger one would not pass; internal urethrotomy was performed without ether on the 12th of November, 1875. A No. 20 catheter passed easily down the conductor; the pa-

tient had no fever nor urethritis; his pulse was never over 65, his temperature 37.5° , he was in bed four days, and now passes a No. 19 bougie once a week.

I have performed internal urethrotomy eighteen times at the *Maison de Santé* since May 1, 1875. In two of these cases no sonde à demeure was left after the operation; there was but a slight fever and no chill; both passed a No. 19 bougie easily the seventh day after the operation; no difference was noticed in the result. In one case the porter of the hospital, an old man of 67 years, had not been able to pass his water for years, except drop by drop; no catheter had ever been passed; he had frequent retentions of urine, and it was at one of these times that the filiform bougie was passed, and the operation performed. He now passes a No. 19 bougie himself. In all these cases, only a filiform bougie could be introduced before the operation. All were strictures of long standing; in every case the result was most satisfactory to the patient. Of twelve cases in private practice, one, a stricture of the female urethra of long date, was divided, under ether, by a triangular blade passed along the groove of a fine director. A No. 19 bougie was left in place thirty-six hours. A slight feverishness followed, but no chill. A No. 16 bougie was passed easily on the seventh day. Of two cases of stricture of the male urethra, one was operated, under ether, on account of the pain at the introduction of the filiform bougie, so small was the canal. The gleet, which the patient had long before the operation, persisted two months afterwards.

I believe that internal urethrotomy, as performed with *Maisonneuve's* instrument, is one of the happiest operations in surgery.

XX.

EXTERNAL URETHROTOMY FOR TRAUMATIC STRICTURE.
RECOVERY WITHOUT FISTULA.

ROBERT F., æt. 45, married. Seven years ago the patient falling from a height straddled a beam and ruptured his urethra; he bled considerably from the canal, and after a few days the perinæum and scrotum were so swollen that the patient could only pass his water by drops. This difficulty in micturition existed until a year ago when the urine ceased to flow by drops, but would continually trickle away so as to oblige the patient to wear a urinal night and day. On examining the urethra between the fingers a hard lump could be felt directly below the scrotum, and a bougie passed down the canal was arrested at this place. During a week vain attempts were made to pass a filiform bougie. Internal urethrotomy was out of the question.

On the 5th of November, 1875, at the Maison de Santé, the patient being etherized, a subcutaneous section of the stricture was made by a fine knife. On the next morning the scrotum was much swollen, and painful from the extravasation of urine: a free incision was then made over the stricture — the finger being passed into the wound felt the hard lump at the seat of the stricture; it served as a guide for the knife, which made a longitudinal section of the mass. The finger then acted as a dilator, and on passing a large bougie down the penis the tip was felt by the finger in the wound. By a happy chance the bougie passed through the stricture

at the first trial. The hæmorrhage was slight; most of the urine passed out by the bougie; the cut afforded a free drainage for the scrotum, which after a few days regained its natural size. The bougie was left in the urethra during eight days; after it was withdrawn about a third of the water passed through the cut; this continued to close up, and at the end of the third week after the operation but a few drops passed by this way. After the fourteenth day a No. 16 bougie was passed daily without difficulty. The patient was discharged on the 6th of December in excellent health and without fistula.

XXI.

PAINFUL ANCHYLOSIS OF THE KNEE JOINT WITH ULCERATION OF LEG.—AMPUTATION BY CARDEN'S METHOD.—SPONGE DRESSING.—RECOVERY.

S. B., æt. 36, married. The patient was injured in 1857 by his horse's falling and rolling on his left leg. The accident was thought at the time to be a trifling one until six months afterwards, when some distortion of the knee joint and an inclination to favor the limb was noticed. During the next two years there was great pain and inflammation in the knee and hip joints; both were contracted.

In 1864 the patient went to New York, where he was treated by Dr. Bauer, then attached to the Bellevue Hospital. The tendo Achillis and some of the hamstrings were divided; afterwards the leg became nearly straight.

In 1867 an ulceration appeared at the middle of the front of the leg; there were no varicose veins visible; the leg was extremely painful, the patient being obliged to use crutches in walking. This state of affairs continued until February, 1876, when the patient, worn out with pain, decided to have the leg removed. There was then a very slight movement in the knee joint; a few weeks previously an attack of erysipelas had laid him up for more than a week; he could hardly allow the leg to be touched on account of the pain. It was decided to perform Carden's amputation through the condyles of the femur, and on the 2d of February, at Santa Clara, Drs. Saxe, Thome, and Kelly assisting, the patient was etherized, Esmarch's bandage was applied, and the leg was removed; seven vessels were tied; the wound was closed with silk sutures, and three large sponges were placed around the stump; they were held in place by bandages smeared with carbolized glycerine. The entire thigh was then covered with a thick layer of cotton wool. The patient passed a good night and was then left in the kind care of Dr. A. W. Saxe, of Santa Clara. Morphine was given to relieve his pain.

On the 10th of February the dressing was changed for the first time since the operation, and the sutures were removed: there was union throughout the incision; the ligatures still held firm; there was a slight venous effusion under the flaps. When this was freed by moving the ligatures, it came away drop by drop; the flaps looked as fresh as on the day of the operation; there was no pus whatever. Another dressing similar to the first was applied, one of the sponges being used again as it was not soiled; it was left until the 19th of February; the ligatures were then taken away, not without firm pulling. The stump looked finely, the line of

incision not being visible anteriorly. The patient sat up out of bed on the next day.

On February 24th, he began to move about the room. From the day after the operation the pulse never exceeded 82, and that only on February 3d and 5th. On the other days it varied from 72 to 78. There were but two dressings since the operation; the patient moves his thigh freely. Dr. Saxe writes: "I cannot now remember any case in which the results have been more satisfactory."

XXII.

GANGRENE OF THE FOOT. — AMPUTATION. — SPONGE DRESSING. — RECOVERY.

L. H., æt. 62, married. The patient had been much affected with rheumatism during five years. After a violent attack in the left foot he had used every means to relieve the pain; among them was the application of ice in a bladder. This was kept on, according to the patient's story, during two weeks and a half, at the end of which time it was noticed that the second and third toes were dark and without sensation. The great toe soon became affected, and the gangrene gained on the dorsum of the foot.

On the 9th of November, some three weeks after the gangrene first appeared, the condition of the foot was as follows: all the toes except the little one were gangrened. On the dorsum of the foot the gangrene extended to the tarso metatarsal articulation; it covered

a surface nearly triangular in shape. The sole of the foot was apparently unaffected, but as there were severe pains in this region it was believed that the gangrene had already attacked the interior; this was verified subsequently, for when the foot was taken off, the skin of half the sole of the foot changed to a dark color, showing that the circulation had become impeded and would have eventually been destroyed. On the dorsum of the foot there was a distinct line of demarcation which was quite superficial.

The patient's general condition was very poor. An old man, worn out by repeated attacks of rheumatism, with a pulse of 120, and a temperature of 39°. It was decided to perform amputation by the circular method just above the ankle joint where the muscular tissue was least abundant; in this way favoring a speedy union of the flaps and getting rid of the effects of a long continued suppuration, not to mention the danger of gangrene of the tissues, should Syme's or Pirogoff's operation be performed.

On the 10th of November, 1875, Drs. Herz, Stallard, and Stout assisting, the patient was etherized with Underwood's Inhaler, and the operation performed. Galante's model of Esmarch's bandage was used to prevent hæmorrhage; but a few drops of blood were lost; a single vessel was tied; the flaps were dried as much as possible and united by six silk sutures. A thick layer of cotton wool was snugly bandaged around the leg, leaving the stump uncovered. A common sponge, four inches in diameter by two in thickness, was then laid over the line of the incision; a bandage smeared in carbolized glycerine held the sponge in place. A second layer of cotton wool completed the dressing. An enema of brandy was then given. In the evening after the op-

eration, the pulse was at 96; temp. 38° . A quarter of a grain of morphia was given every six hours.

November 11. Pulse 108; temp. 38° ; much perspiration; patient takes milk punch and beef-tea.

November 12. Pulse 100; temp. 37° ; slept tolerably well all night with but one dose of morphine.

November 13. Has indefinite pains all over his body; takes eight grains of quinine daily.

November 14. Pulse 124; temp. 38° ; is quite hungry.

On the 15th, the quinine was increased to sixteen grains; pulse 108; temp. 37.5° . The patient remained about the same until the 18th, when the dressing was changed for the first time since the operation. There was union throughout all the line of the incision; the sutures, which still held fast, were all taken away, as well as the ligature. The condition of the sponge was as follows: where its surface touched the wound there was a spot made by the discharge, which measured two and a half inches in length by one and three fourths in width; it extended into the substance of the sponge one half an inch; the rest of the sponge was as dry as when it was applied eight days previously. The leg was washed in soapsuds, and a fresh sponge three inches and a half in length by two in width, was then applied.

On the 21st, the pulse was at 96; temp. 37.5° . The dressing was changed for the second time on the 26th; the sponge which was removed was spotted in two places with the discharge; one spot measured an inch in diameter, the other a quarter of an inch; the larger spot was an eighth of an inch in depth; the wound itself was quite dry. A third sponge was then applied, measuring two and a half inches in length by one and three quarters in width.

When this was removed on the 1st of December, its discharge spot measured one half an inch in diameter, and one eighth of an inch in thickness.

On December 4th, only a loose bandage, in the form of a cap, protected the dry stump. Undoubtedly the union by first intention in the above case was greatly promoted by the sponge dressing, as the wound was kept dry and the flaps uniformly and continuously compressed, surface to surface. The external appearance of the stump was uncommonly smooth and even, a result to be attributed to the use of the sponge.

XXIII.

MULTIPLE SPONGY EXOSTOSES OF THE LOWER EXTREMITY.—AMPUTATION BY CARDEN'S METHOD.—SPONGE DRESSING.—RECOVERY.

WALTER O., æt. 24, single. When the patient was born, he was apparently a healthy infant, but at the age of two years enlargements were noticed in the bones of the left leg, near the joints. These were not painful at first, but as they increased in size, they caused a dull aching, from which the patient never remembers to have been free. Of late years the pain has been constant and severe, so as to prevent him from working. On examining the limb, two large growths of bone were felt, one in the calf and the other just above the ankle joint. Below the internal condyle of the tibia, on the inner side, was a group of short slender exostoses, corresponding to a similar growth on the right leg; the left leg is bent from before backwards, and is over an inch shorter than its



PLATE 12. MULTIPLE SPONGY EXOSTOSIS. XXIII.



fellows. The patient's forearms are both symmetrically shortened and bent; the spinal column is normal; the breast bone is very prominent, and the upper half of the chest is narrowed and rigid. There is no glandular enlargement; the patient's general health is unusually good. On account of the pain and the rapid increase of the growth, it was decided to remove the limb, and on the 14th of December, 1875, Drs. Scott, Chamberlain, and others assisting, the patient was etherized. After an attempt was made to remove the tibia alone (which proved unsuccessful, owing to the attachments of the growth to both bones), an amputation was made through the knee joint, by Carden's method. A large anterior flap of skin was taken, the femur was sawed through the condyles, and the edges rounded off. Five vessels were tied. As Esmarch's bandage was used in the amputation, but little blood was lost; the flaps were united with silk sutures, and the whole stump was surrounded by two moist sponges. These were kept in place by linen bandages, over which were placed many layers of cotton wool, each being smeared with carbolyzed glycerine. This dressing was left in place until the ninth day. Up to that time the pulse never exceeded 84; the temperature varied from 98.5° to 99.2° .

During the first few days the patient's water was drawn off with a catheter. When the dressing was changed on the 22d, the outer part of the sponges was dry; both came away without adhering to the wound; there was no suppuration; the flaps were united, except at a point where the ligatures came away; there was no redness whatever around the incision; there was no swelling of the thigh. The incision was so far under the limb, that as it lay on the bed no sign of a wound could be seen. Two sutures and two ligatures were removed;

two clean sponges were applied, and the cotton dressing repeated.

This was changed on the 26th, when all the sutures and two ligatures were removed; a single sponge was then used.

The last ligature came away on January 1; the patient is in excellent condition; the occasional twitches of pain which he had at first have passed by.

The dressing was changed on January 4th, 10th, 13th, 16th, and 23d. At the last date, only oxide of zinc powder and cotton wool were used; the wound is healed, and the patient is walking out of doors daily.

The examination of the amputated limb proved extremely interesting; the appearance of the bone is shown in Plate 12; both tibia and fibula were considerably bowed from before backwards. A little below the internal condyle on the inner side were seven nodules, or projections of bone, looking not unlike icicles; two of them measured an inch in length by a third of an inch in width; these were over the intermediary cartilages. Just below the head of the fibula, a small projection of bone was seen, and at its base, between the tibia and fibula, arising from the former bone and projecting backwards, was a growth of spongy tissue, measuring three inches in length by two and a half in width; its surface was nodulated and covered by a thin layer of cartilage. Just above the ankle joint, from behind, arose the base of a large fungus-like growth, nearly four inches in length by four and three quarters inches in width; it soldered both bones strongly together; the upper surface of the growth was nodulated and branched like a cauliflower, having on its inner side four deep furrows for the tendons and vessels. Like its neighbor, it was completely covered with a thin inverting layer of carti-

lage, having pearl-like reflections. The bases of the two larger growths were solid and compact, while the bodies were spongy and cancellated. All of these growths evidently arose from the intermediary cartilages of either end of the tibia and fibula, at a point where the cartilage of the epiphysis blends with that of the diaphysis. It is difficult to say what was the exciting cause; it is generally supposed in these cases that there was some superficial irritation of the intermediary cartilage at an early period of life. The influence of rickets upon the formation of exostoses is not yet determined, for such growths are extremely rare with persons who have had this disease.

XXIV.

TALIPES EQUINUS FOLLOWING A NEGLECTED SPRAIN OF THE ANKLE.—SECTION OF THE TENDO ACHILLIS.—RECOVERY FROM THE DEFORMITY.

T. M., æt. 41, single. In the fall of 1870, the patient in walking up stairs, slipped and wrenched his left foot. He experienced considerable pain on each side of the ankle, but there was no swelling of the part. Instead of remaining at rest for a short time, he continued his work, and as winter came on he walked long distances in the snow; a swelling then appeared around the ankle. Some eight months after the injury the patient noticed that he walked on the toes of the injured foot rather than upon the entire sole. As the heel could not touch the ground without difficulty a thickness of leather was added to the boot heel. At the end of a year he was obliged to add over an inch to this thickness. Becom-

ing alarmed at the serious impediment to his walking, he rubbed the foot with oil, and gave it prolonged cold baths. This treatment relieved the pain, but the deformity was steadily increasing. He consulted a physician, who put a seton in front of the ankle, and this treatment was continued several months without material benefit. He was obliged to add to the boot-heel to such an extent that, at the expiration of three years, the left heel was raised from the ground a distance of three and a half inches. Upon examination it was found impossible to bring the foot to its natural position, even while the patient was under chloroform. On stretching the foot and pressing on the tendo achillis, there was an acute pain felt along the dorsum of the foot and at the point of pressure. The movement of the ankle joint was such as to warrant the supposition that the joint was healthy. In the tarsus, however, there was a general thickening of the bones, such as might occur after a dry arthritis of that region.

The operation of dividing the tendo achillis was decided upon and performed on the 19th of March, 1874, Dr. W. T. Wythe assisting. The knife was inserted from within outwards, and from below upwards; a bit of adhesive plaster was placed over the puncture; the foot came readily into place, once the tendon was divided. It was then restored to its former position and a Sayre's splint applied. This splint is made as follows: "Cut a thin board (the top of a cigar box answers very well) in the shape of the sole of the foot which is to be dressed, only a little longer and square at the toe. Then take a piece of strong moleskin adhesive plaster, as wide as the board and long enough to cover both sides of the same, and to reach some inches above the knee. Apply the adhesive side of the plaster to the board,

commencing at the anterior extremity of the upper surface passing backward over the posterior extremity of the board and under the same to its anterior extremity; the remainder of the strip is subsequently to be applied to the anterior surface of the leg. The foot is then placed on the board and secured at the heel by a strip of the same adhesive plaster, passed over the ankle and around the heel part of the board, and additionally secured by a well-adjusted roller which also extends above the ankle. The foot is now brought to its natural position, and the adhesive plaster is firmly drawn up and secured to the leg by a continuation of the roller. The superfluous extremity is to be reversed, bringing its adhesive surface outward, and the roller carried back over it will be more firmly retained in position." The patient experienced little, if any, pain with this splint.

It was decided to perform the extension gradually, and day by day the strap, extending from the toes to the front of the leg, was tightened a little, until at the end of three weeks the foot was in a good position and touched the ground at every part. One month after the operation, the splint was removed and the patient was directed to walk with crutches. A steady improvement in the strength and motion of the foot was the result of this exercise. The leg which, before the operation, was somewhat smaller than the right, now regained its size, and at the end of the second month after the operation, the patient could walk easily and well without any assistance. Malgaigne¹ records a similar case treated by M. Guyon by an apparatus constantly applied, without tenotomy; but he agrees that by this means the cure is never enduring, and that as soon as the bandage is removed, the heel will gradually slip back into its old mal-

¹ *Leçons d'Orthopédie.*

position. Repose makes no difference in the deformity; walking only increases it. Baths are of no ultimate service. We may, indeed, have a relapse even after the division of the tendon, but this operation offers the best chances of successful treatment.

XXV.

PERFORATING ULCER OF THE FOOT. — RESECTION OF THE FIRST PHALANGEAL BONES OF ALL THE TOES, TOGETHER WITH THE HEADS OF THE METATARSAL BONES. — TEMPORARY RELIEF.

H. J., 45, married. The patient, a large, strong man, much addicted to drink, has suffered for the last five years with sore feet. From his own account, the skin of the anterior part of the soles of the feet has for many years been much thickened. Under the metatarso-phalangeal joints of either foot would appear from time to time, and shifting from one place to another, an inflammation and painful swelling. After a week or two this swelling would open of itself by a minute aperture, and then discharge a thin, yellowish, fetid serum. The opening would then enlarge, and beneath it could be seen the red, bare tissue of the skin; the borders of the opening, at first hard and thick, gradually became detached from the subjacent tissue, and elevated, and the discharge collecting under them, would make a most offensive odor. The sore would then extend its circumference and grow deeper, having for its base a grayish tissue. Locomotion being at last impracticable, the patient would lay up for a month or two; the severer symptoms would be

ameliorated, the ulcer would nearly heal, or would shift its position, always leaving a tender spot at the base of the toes. As the patient's business required him to stand on his feet most of the time, their condition made his life far from agreeable. He had tried all sorts of dressings, and found most relief from flax-seed poultices. Each physician who attended him ordered him a different pair of boots, so that at last he counted them by the bushel. It was finally proposed to operate on the foot in hopes of permanent relief; there were at the time two ulcers, one at the base of each great toe. The one on the right foot was by far the larger, being three quarters of an inch in diameter at its base, while the surrounding skin was destroyed and undermined to the extent of an inch and a half; the depth of the ulcer was nearly half an inch, owing somewhat to the thickened cutis. The great toe was much hypertrophied, and turned under the second and third toes. No dead bone could be felt with a probe, but the finger detected a hardened base, which proved afterward to be due to the enlarged sesamoid bones, which were closely adherent to the granulations, and much softened and necrosed. On the 7th of September, 1874, Drs. Wythe, Martinache, and others assisting, the patient was etherized, and a straight incision three inches in length was made along the inner side of the great toe and metatarsal bone. The joint was then opened, and as much of the periosteum as possible was scraped away from the end of the metatarsal bone and first phalanx. The former bone was then disarticulated at its distal end, and with a chain-saw was divided in its upper third. It was then noticed that the cancellated tissue was soft and discolored, and it was decided to remove half an inch more of the bone. Even then the bone tissue did not have a healthy appearance, but it was

thought best to let it remain as it was, rather than open the tarso-metatarsal articulation. The first phalanx of the great toe was dissected away, together with two large sesamoid bones, each three quarters of an inch in length. Eight ligatures were placed upon small arteries; the ulcer itself and some of the surrounding tissue were cut away. To the eye this tissue looked like pork fat. Clean sponges were left in either wound, and afterwards Lister's dressing was applied. Evening, pulse 88, temp. 30°. The next day there was no swelling in the foot; and no pain. On the 9th the sponges were removed without hæmorrhage. Pulse 82, temp. 30°. On the 10th the patient sat up on a lounge. The dressing was not changed until the 15th; charpie was then inserted between the flaps, so that the wound by healing from the bottom would give greater thickness to the foot. On the 20th the granulations were on a level with the surrounding skin; the wound was then strapped with adhesive plaster: the antiseptic dressing was still continued. On the 7th of October the wound was wholly healed: there was no trace of the ulcer; the big toe was in good position at the side of its fellows, but somewhat shortened; the patient suffered no pain whatever, and had no fever from the first. While he was recovering from the operation the ulcer on the left foot had been treated with carbolized glycerine, and had disappeared. At the patient's request a pair of shoes were ordered which measured one inch longer than the foot, and which had low, wide heels and broad soles. By this kind of heels the pressure was somewhat taken away from the metatarso-phalangeal articulation. It was explained to the patient that the ulcer on the left foot would probably return after walking upon it. The right foot seemed in excellent condition, and the resection did not make any inconvenience in walking.

Five months afterwards the right foot became ulcerated in the middle of the anterior third; the ulcer was as large as the one originally at the base of the great toe. Aware of the liability of the recurrence of the ulcer as long as the anterior two thirds of the foot existed, the question of amputation of this part was proposed and rejected. The patient wished to have a resection of the metatarso-phalangeal articulation of all the other toes in the same manner as the joint of the great toe had been operated upon. For under the great toe the skin was sound and apparently healthy. The operation was done under ether. The first phalanges, and nearly an inch of the metatarsal bones were removed through a straight incision made under each joint; the wounds were left open and stuffed with fresh sponges; the whole foot was then smeared with carbolized glycerine and enveloped in cotton wool. The sponges were removed on the fourth day; they were still closely adherent to the surrounding tissue, which seemed pressed and moulded by the elasticity of the sponge into a smooth hollow surface. Fresh sponges were then applied over each incision to absorb the drainage, and the cotton wool again covered the foot. It was six weeks before the patient put his foot to the ground, yet in that time he had absolutely no pain and very slight swelling in the foot. His flesh was certainly very tolerant of the knife. The toes by degrees turned up toward the back of the foot; so much so that the tips seemed to be fused into the skin of the sole. The patient's movements in walking were not apparently interfered with. The foot remained in good condition during eight months, when another ulcer formed just over the middle metatarsal bone. The patient then determined to delay any other operation until the condition of the foot should warrant amputation.

My attention was called to another similar case by my friend Dr. Vanvlack; the ulcer, nearly two inches in diameter, was in the middle of the left foot. The patient had been confined to his room for months; he did not wish an operation. These are the only two cases that we have seen in San Francisco.

First described in France by Cloquet, in 1837, the perforating ulcer of the foot is now recognized as a formidable malady; constitutional, and in certain cases hereditary, it originates as a flattened corn, with thickened elevated edges. A fistulous opening soon forms at its centre, and gives rise to a very offensive discharge. A probe passed into the fistula detects a separation of the epidermis from its subjacent tissue to some distance on either side. After the fistula has remained open for a little while, the dermis begins to ulcerate, and then the bones beneath the gray, unhealthy granulations of the base may be found uncovered. It remains in this condition for months, until the patient takes to bed, when it heals up, to appear in the same or a neighboring spot, as the patient begins walking. As the disease rarely if ever attacks the heel, it was Nelaton's idea to make the patient walk on that part of the foot so as to take away the pressure from the toes. Mr. Hancock, in his excellent work on the "Operative Surgery of the Foot and Ankle," page 74, says: "Once perforating ulcer of the sole of the foot is established and recognized, it is better at once to remove the whole of the metatarsal bones, either by Chopart's, Sym's, or Pirogoff's amputations, than by palliative operations and remedies condemn our patient to a succession of painful disappointments."

XXVI.

ON THE VALUE OF SPONGES IN SURGICAL DRESSING.

It will be seen from the above cases where clean sponges were used in the after dressing, that the result was very satisfactory. There are several reasons why this new dressing is of value. In the first place, sponges having a remarkable resistance to decomposition, allow the dressing to remain untouched for a certain length of time. The advantages of this for both patient and surgeon are evident. Secondly, absorbing liquids with great facility and in considerable quantity, they keep the wound dry, and thus favor union by first intention. Thirdly, they are so elastic, that they make an equal and continuous pressure about a wound, and not only prevent pus collections from forming, but by pressing gently, surface to surface, they favor immediate union.

There is apparently nothing antiseptic in the chemical composition of sponges, and yet I have often remarked the peculiar freshness of a wound when a sponge dressing has been removed, after being in place a week or more.

When the discharge from a wound is considerable, a great part of it is transmitted by the sponge through its tissue, and deposited in the outside bandage; this leads one to believe that the sponges around the wound must be saturated, but on removing the bandage no discharge whatever is noticed on the outer part of the sponge. The wound, too, is seen to be free from all the excoriations

which are so frequent with charpie or cotton-wool dressings. In most cases, even up to the very edge of the flap, there are no signs whatever of inflammation.

An open wound is very tolerant of sponges; the granulations cling close to their interstices, and when, after several days the sponge is removed, it is difficult to avoid a slight bleeding; it is then that the fresh appearance of a wound is well marked. It may be objected to the use of sponges in dressings that the odor is quite offensive after the sponge has been left some time upon a wound; it depends a great deal upon the amount of the discharge whether there is any odor or not. In cases of immediate union of the sides of the wound, a sponge will be inoffensive, no matter how long it may remain in place. I have not yet found that the odor has any influence on the appearance of the wound, or on the condition of the patient; and it can easily be prevented by disinfecting the sponges by carbolic acid vapor before using them. If carbolized glycerine is used, it takes away too much from the elasticity of the sponge.

I have the notes of four cases in minor surgery where a sponge dressing was used, two of which were followed by primary union. In the first case, the left middle finger was amputated for necrosis, and the head of the metacarpal bone was removed. The operation was done on a Thursday; on the following Monday the dressing was removed, and the wound was found united by first intention; the line of union was hardly noticeable; the hand was shown to several of the medical profession. In the second case, the metacarpal joints of the fore and middle fingers were laid open by a circular saw; the extensor tendons were torn and divided; the fingers dropped towards the palm of the hand; they were supported by a wooden splint, and dressed with moist

sponges; these latter took up the secretions as soon as they were formed; there was no swelling of the hand, nor pain, except at the seat of the injury. The wound was two inches and a half in length; an inch of this healed by primary union. There was but little suppuration; the sponges were changed every two days. After a month there was no wound whatever; the patient began to make passive motion of the fingers. A third case was that of a large knife-wound of the back, measuring nineteen inches in length, passing between the spine and scapula. The wound was three quarters of an inch in depth in two thirds of its length; many silk sutures united the incision; a sponge dressing was applied. On the sixth day the dressing was changed, and the sutures removed; the sides of the incision were solidly united. A fourth case was that of a child two years and a half old, whose middle finger of the right hand had been gradually swelling during nine months. As the enlargement was over the first phalanx, the finger was pyramid-shaped; on one side were enlarged veins; three exploratory incisions were made over the bone, Dr. Hoff being called in consultation; three small openings in the phalanx were found, through each of which protruded a soft, jelly-like, wine-colored tissue; there was a protrusion as large as a pea into the sheath of the flexor tendons; the bone was much enlarged, the articular surfaces were healthy, amputation was performed, and the head of the metacarpal bone was removed. The wound was united by three stitches, and the sponge dressing applied. In four days it was removed; there was union throughout, and no swelling of the hand or pain whatever. The result might have been the same with other kinds of dressings, or in fact with no dressing at all. However, the simple sponge dressing gave perfect satisfaction, not only

in these smaller wounds, but in cases of amputations. It is generally believed in California that there is something in its climate that favors the quick recovery from injuries. My own experience coincides with this belief. Its uniformly mild temperature in summer and in winter must be favorable to the surgical patient. Indeed, all our seasons, unless we except October (the month preceding the rains), are alike favorable for operations. It is possible that this influence has something to do with the success of the sponge dressing. At all events, in advocating its use I feel confident that its value will be appreciated by the profession.

