

The emergency operation / H. A. Duemling.

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The
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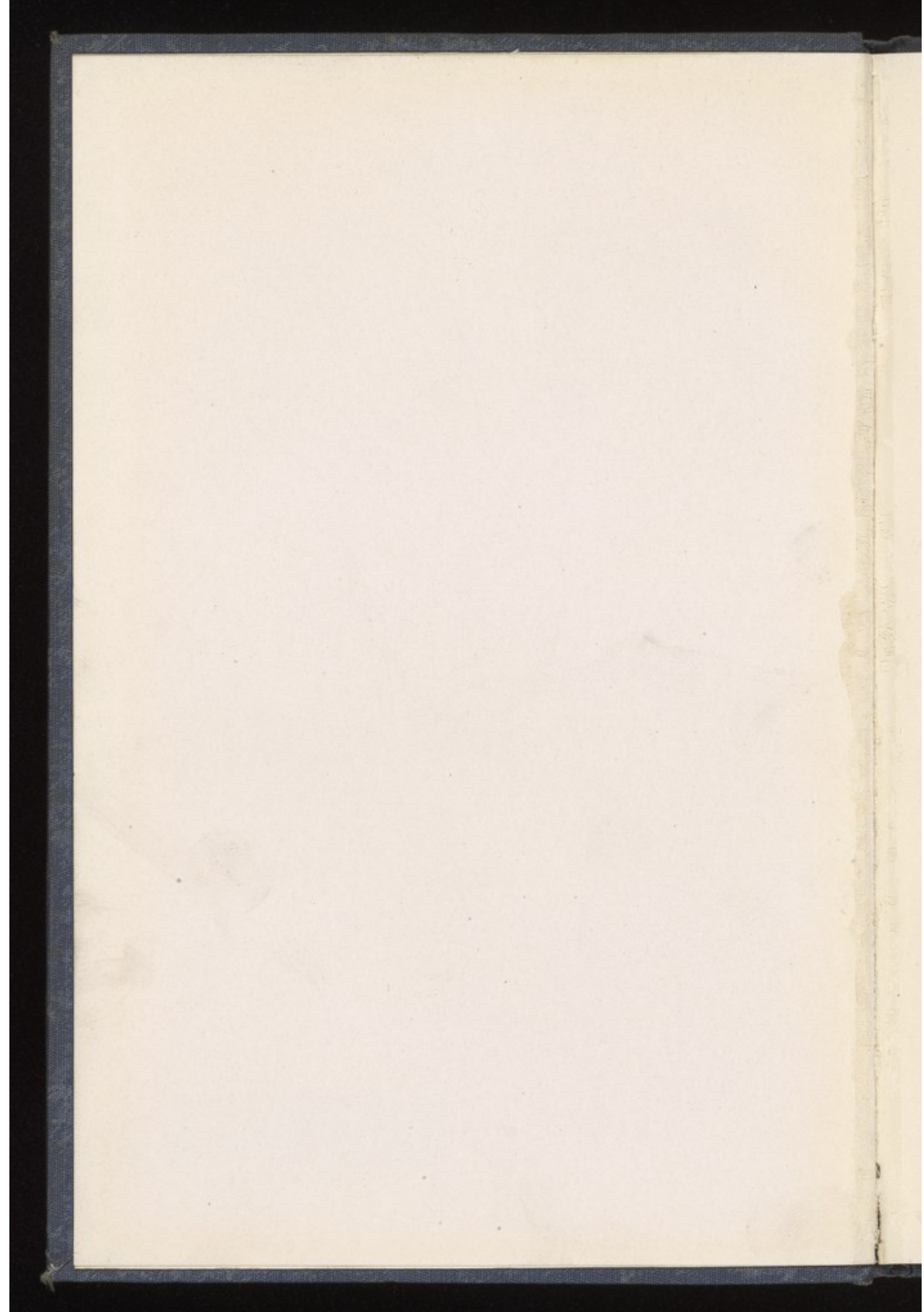
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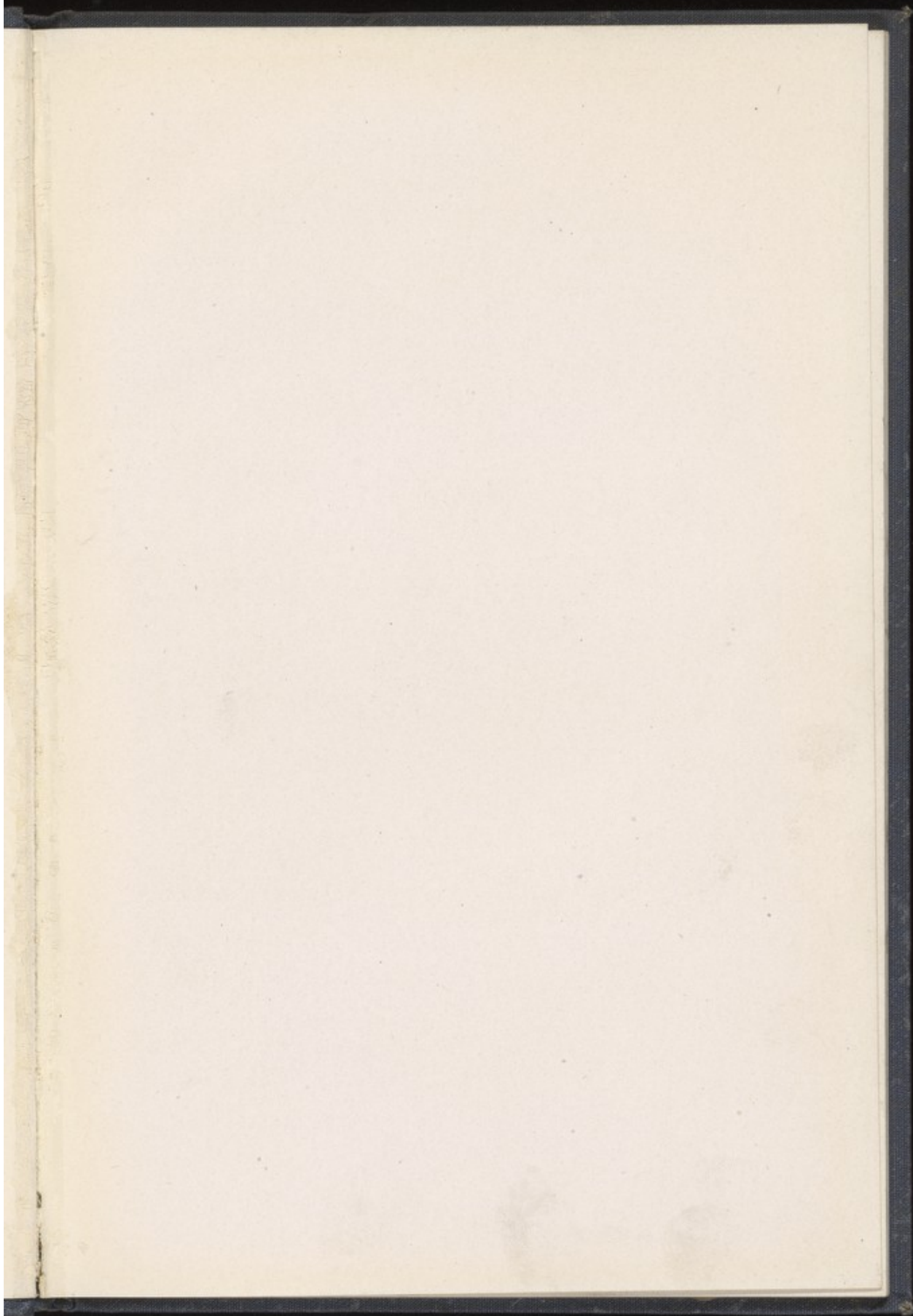
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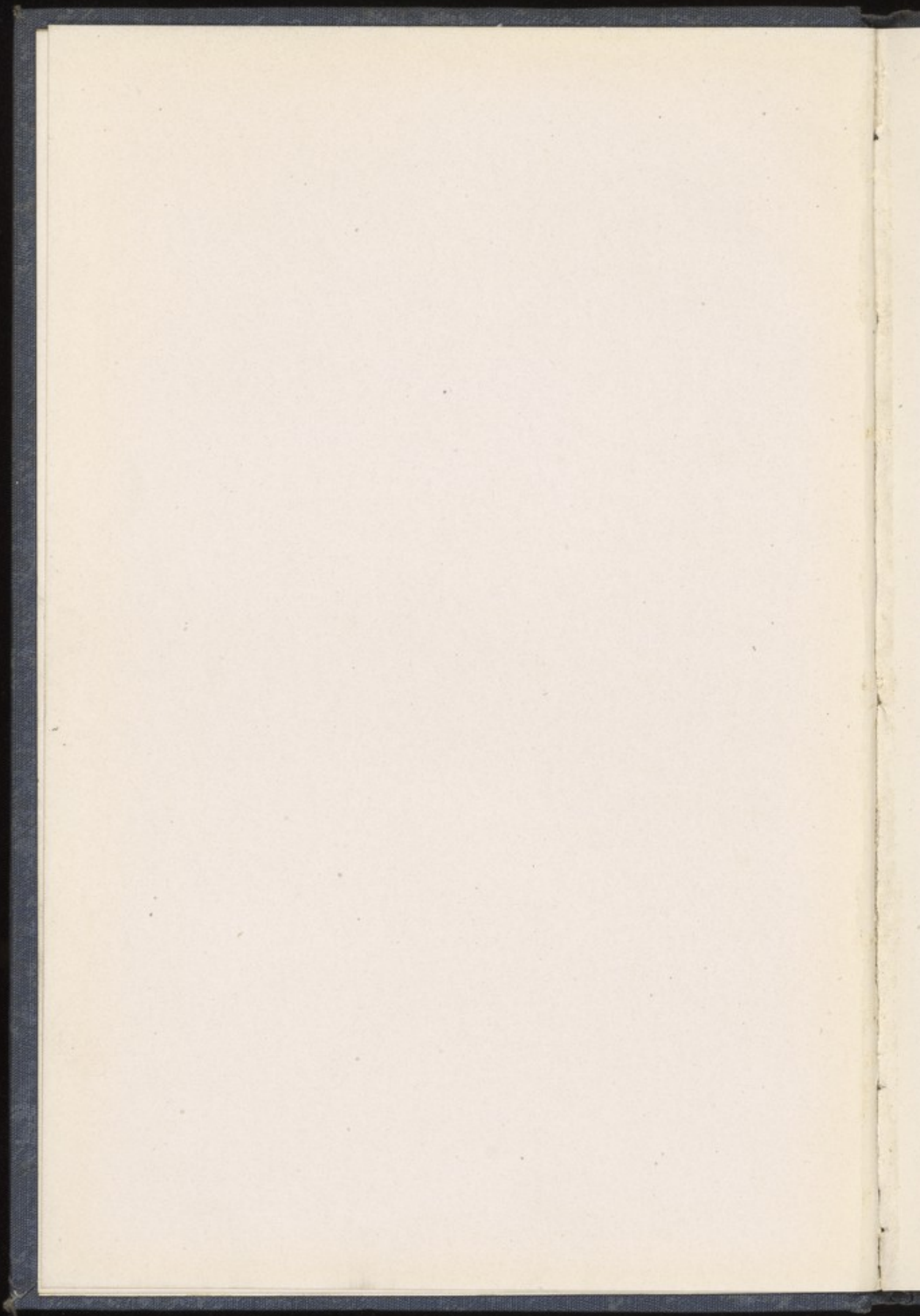
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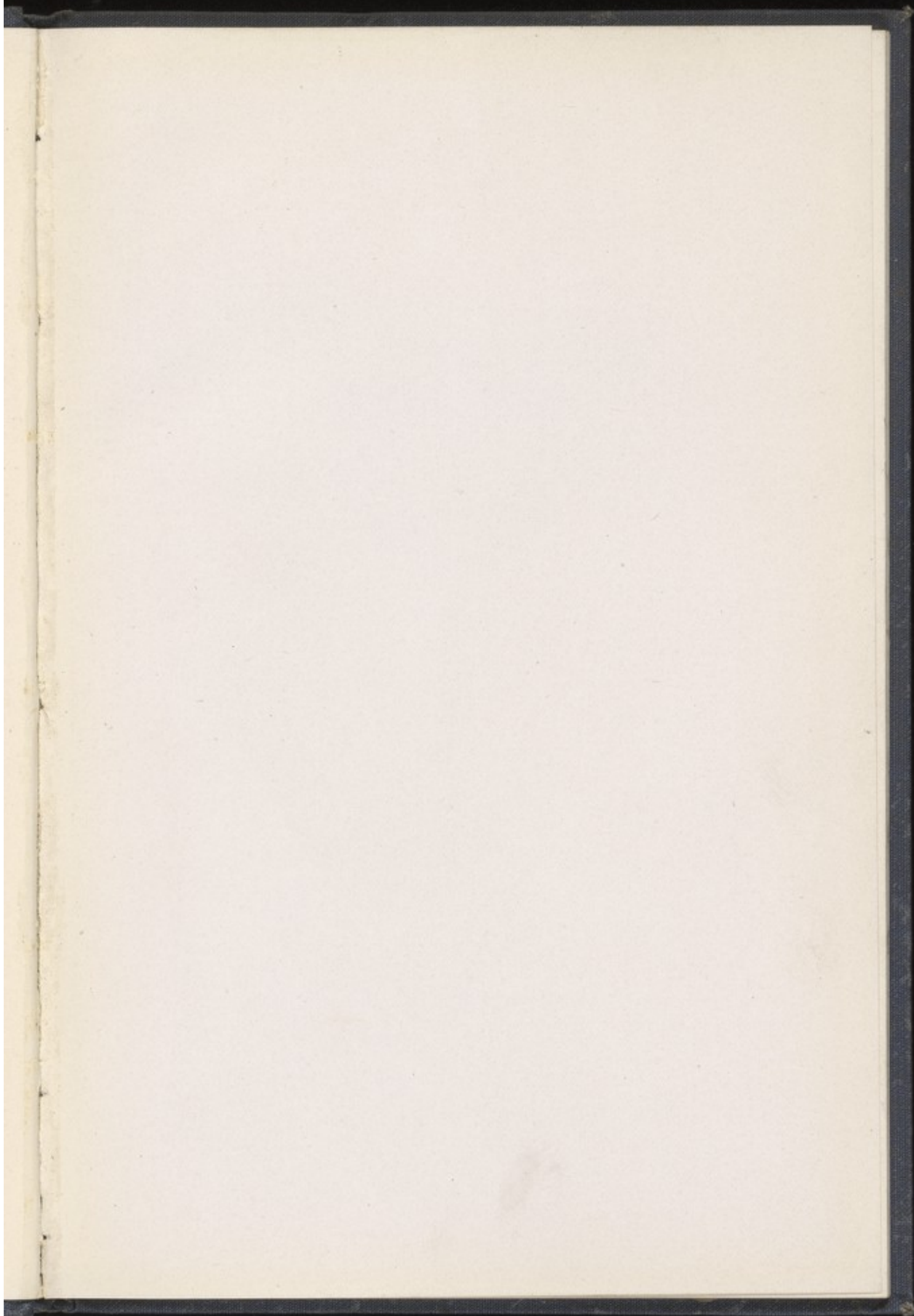
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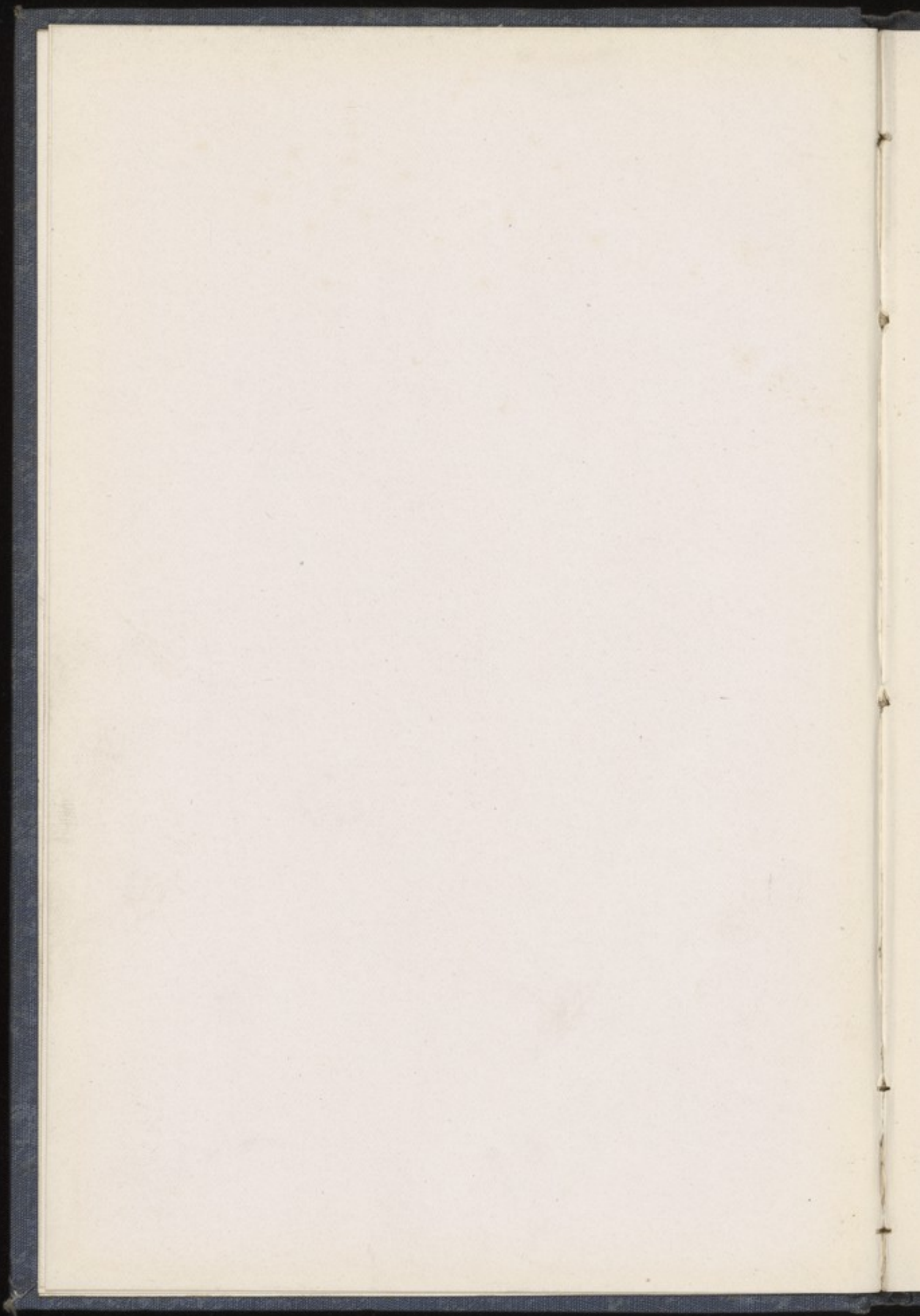
DR. H. A. DUEMLING



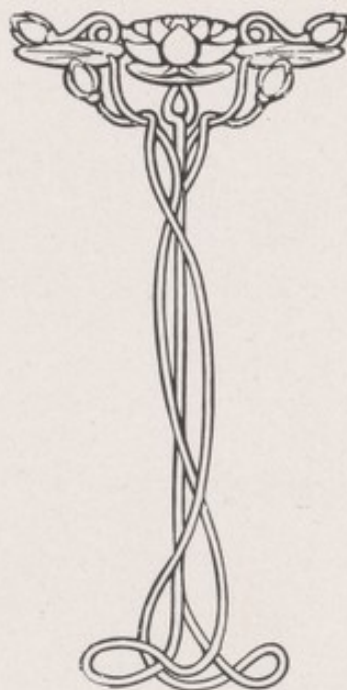








THE EMERGENCY OPERATION



DR. H. A. DUEMLING

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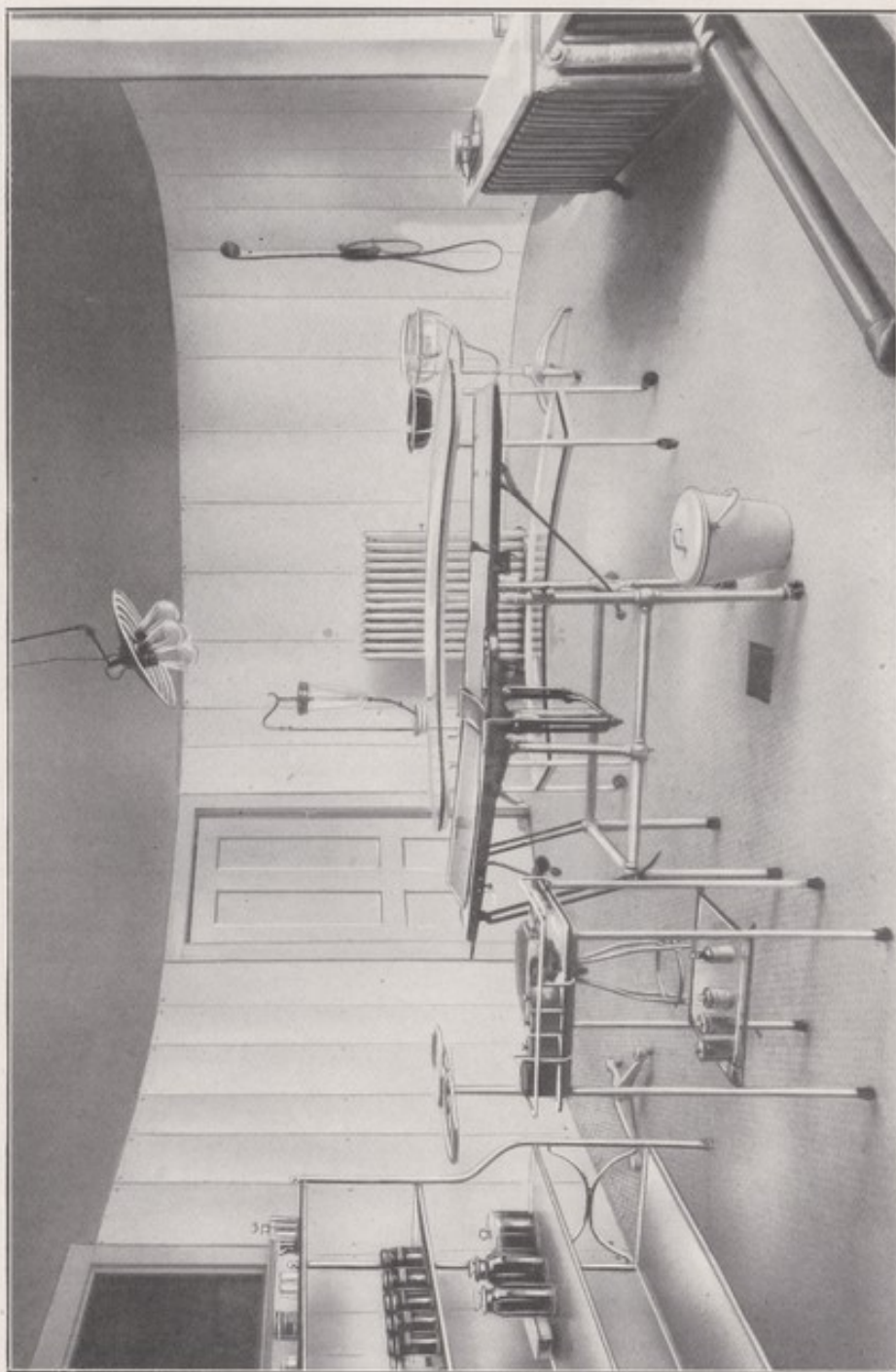
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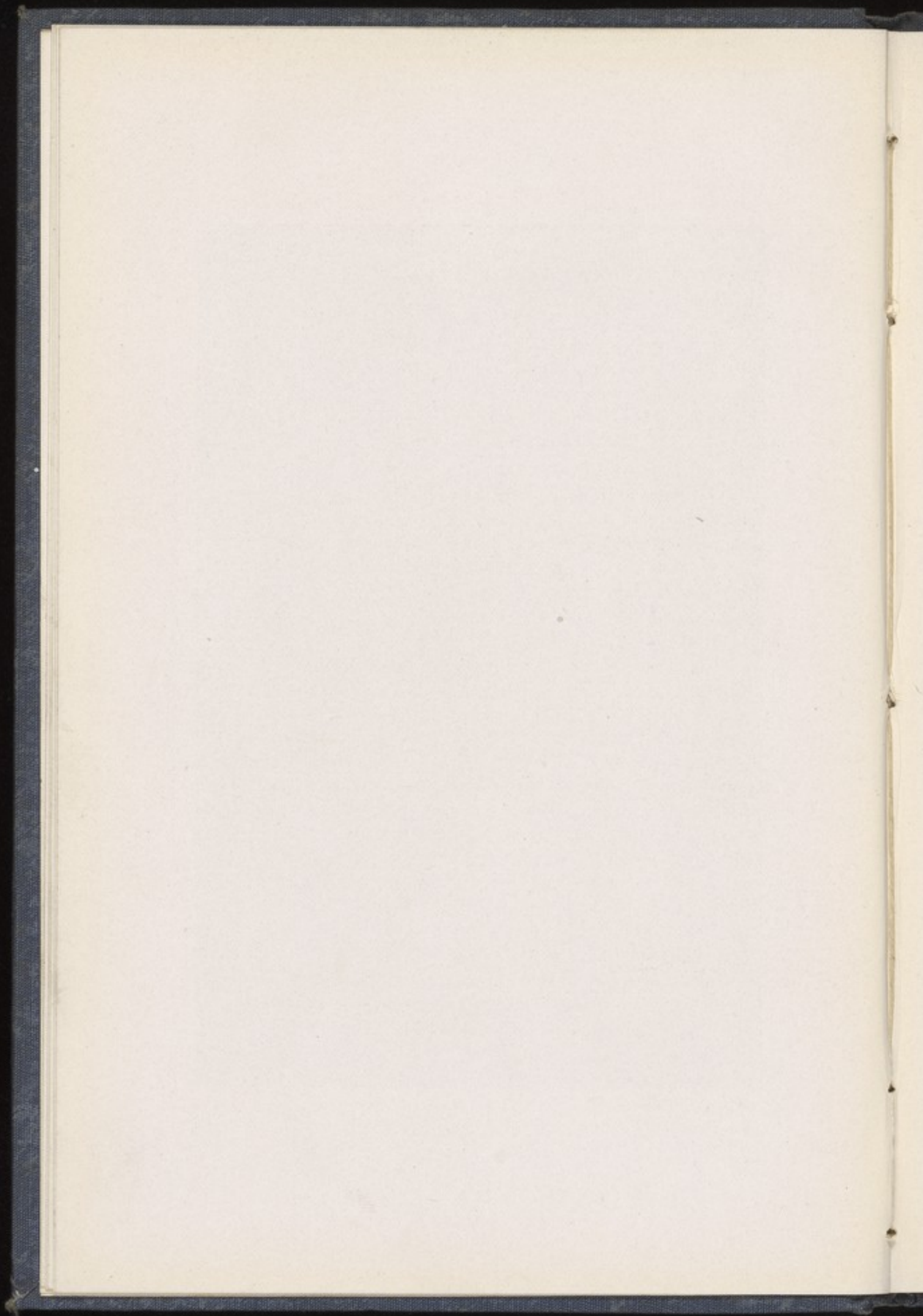
THE true emergency operation is one where there is neither time to remove the patient to a well conducted hospital with a complete armamentarium, nor does the patient's condition permit his removal. An emergency operation is further characterized by the lack of facilities, the absence of all, or nearly all, apparatus indispensable for the safe and successful performance of the operation absolutely necessary. In the city an emergency operation means a strangulated hernia, a ruptured tubal pregnancy, perhaps a fractured skull, and with this thought comes the clang of the ambulance gong, the operating room well lighted, the nurses busy and at attention. The surgeon is at his case, everything is at hand and ready. Not so fortunate is the practitioner in the "Country." He has no operating room, nor sterile dressings, nor nurses, nor light—he has nothing, except what can be found on the premises. It is the purpose in the following to give some hints how to bring an operation to a successful issue under such circumstances and under such conditions as were indicated above. The writer has an experience in the line of true "emergency surgery," which covers a period of very nearly 20 years. All kinds of conditions have arisen—operations done by candle light with the polished bowl of a tin spoon for a reflector, to operations done in the homes of the wealthy with all the conveniences of the country gentleman's home. The substance of this paper has been gathered from this experience and it is with some assurance that this paper is offered to just those men, who are the most loyal and indefatigable workers in an arduous profession.

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Private Operating Room at Lutheran Hospital, Fort Wayne, Indiana



PREPARATION OF OPERATING ROOM.

The selection of the operating room is not a matter of small importance. Four points must be observed, which named in their order of importance are: Light, heat, size, ease of access to convalescing room.

If there is sufficient time, carpets, rugs, and curtains should be removed, and furniture not needed taken from the room.

The woodwork is washed down with a 2 per cent. carbolic acid solution, the floor scrubbed and the room given a thorough airing and locked.

Under no circumstances, however, should these things be done just before an operation, as the air will be filled with dust, which will settle on dressings, wound and surgeon's hands and jeopardize the result of the operation. When immediate operation is imperative it is far better to move as few things as possible, and to sprinkle the floor with water to prevent the churning up of the dust.

In selecting the position for the operating table due consideration must be given to the **light**. A north light will usually be found the best, as it is more diffuse and throws less deep shadows. If a north light cannot be had, the light coming from two windows of either southeast or southwest exposure will be found very good. Always place the table as close as possible to the window, so that as much light as possible can be had into the **depth** of the wound. Remember also the source of illumination for the Trendelenburg position. It is never wise to have direct sun light on the field of operation—the shadows are very deep and the very end desired is defeated. The lower half of the window is protected from curious eyes by a newspaper or pillowslip pinned across it.

If the operation is at night, it is of importance to so distribute the light that the greatest possible amount is utilized and yet the persons holding the lamps are out of the way.

If there is a clock-shelf, put one lamp there for general illumination. When the patient is on the table have one lamp bearer stand at the foot end and one to the side of the anaesthetist. In this arrangement the light will be unobstructed

and will not be interfered with by the surgeon's or the assistant's movements, nor will a person interfere between the surgeon and the stand bearing instruments and dressings. When it becomes necessary to move the light, this can be just as readily done from one point as another, and in addition the persons holding the lamps are as far removed as possible from a chance to contaminate dressings or instruments. Select persons, who will not sicken or become faint. See that the lamps are filled, the wicks properly trimmed, and the globes polished.

The temperature of the room should not be below 75° F., better a little too warm than not warm enough. The patient is usually more or less exposed and moist and easily chilled. There is nothing which intensifies shock so much as cold. In placing the operating table, arrange if possible so, that neither operator, assistant or anaesthetist is too close to the stove. The writer well remembers an instance where the "posterior surface" of his anatomy was roasted to a turn, basted by streams of perspiration. This is neither necessary nor has it a good effect on one's mind.

The **size** of the room should be ample. The operating table, the table for dressings and instruments, a chair upon which the anaesthetist has his spare anaesthetic, hypodermic, etc., the stand or chairs on which the wash basins are standing—all these require room. The surgeon and the assistant should not be crowded nor hampered in their work in order that they may complete the operation with dispatch.

Finally the operating room **should be close** to the room intended for the reception of the patient after the operation. Long transports are an evil, especially so when the way leads through cold and chilly halls. I have no doubt many an "ether pneumonia" is directly traceable to the chilling of the patient at a time when the vital forces are at their lowest ebb. It is, therefore, an important point to consider the accessibility of the convalescing room.

The **operating table** is best constructed from an ordinary kitchen table to the one end of which a stand of equal height is put to give the required length. A very good table can be made from the dining room table in the following manner: Draw out the table to the required length, remove the center

boards and place two lengthwise, the boards will then rest on either end of the table. The great advantage gained is a **narrow** table, ample to properly support the patient and yet narrow enough to permit the surgeon and assistant to work without breaking their backs. Whoever operated over a wide table will appreciate this simple arrangement.



How the Extension Table is "Narrowed"

The table should be covered by a comforter or a blanket—not too thick. Over the blanket put the wax cloth from the kitchen table, or in lieu of that, a thick layer of newspapers for protection, over this a clean, fresh-laundered sheet to cover the entire table. With the addition of a pillow for the patient's head the table is ready.

The Trendelenburg position may be had in two ways. An ordinary flat backed kitchen chair, properly placed will give a satisfactory Trendelenburg position, but this must be arranged before the patient is put on the table. If such a position be-

comes necessary during the progress of the operation it can very well be improvised in a few minutes. Have an assistant stand between the thighs of the patient with his back to the patient. The patient's limbs are then thrown over the assistant's shoulder and he grasps each leg and holds the patient in the position thus attained. This position can be maintained for a long while without fatigue to the assistant.

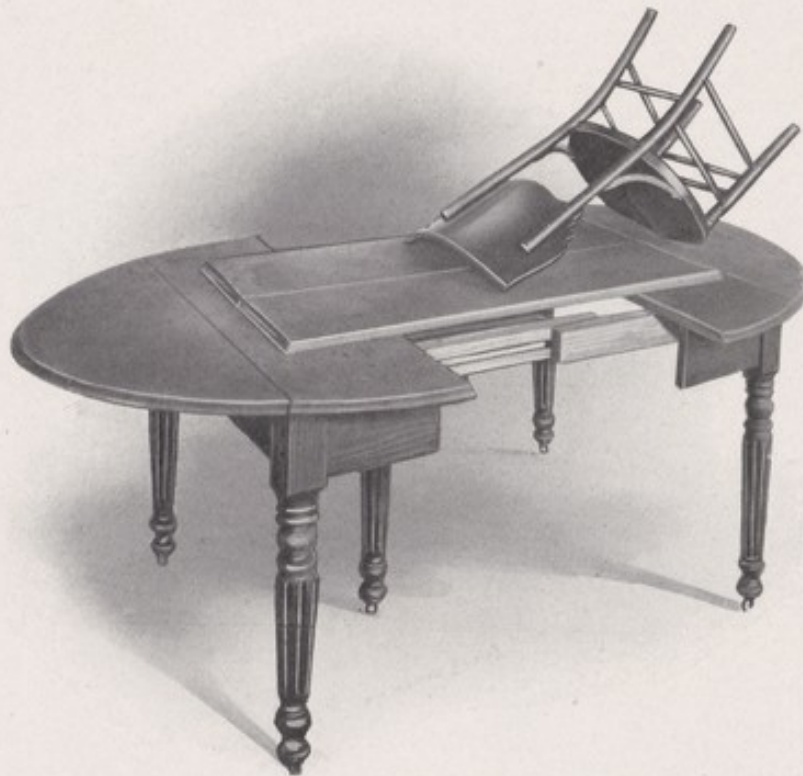


Table with chair for Trendelenburg position

The stands for the dressings and instruments, for the sterilizing solution and sterile water and for the hand basins should be arranged in the following manner: Place the little table (e. g., a parlor center table, sewing machine), behind the surgeon and on the right side of the table. Cover it, if possible, with a clean sheet or pillow slip. Put the bench or chairs with the hand solution and sterile water next to the instrument stand. Take one of the boards of the extension table, or any other board (ironing board) and rest each end on a flat bottom kitchen chair and you will have an ample

bench to place the basins for hand scrubbing. Provide also a slop jar or bucket for the waste water and the operating room itself will be complete and fully furnished.

One of the very first things to do upon arrival at the house is to start a good fire in the kitchen stove. Here we will sterilize our **basins** and procure **hot and cold sterile water**.



Table with chair for Trendelenburg position (Covered)

Four basins and a small bowl or deep soup plate are required if they can be had.

The two basins for hand scrubbing (one for the operator and one for the assistant), need not be boiled, but the basins for the sterilizing solution, the sterile water and the small bowl for the ligatures should be sterilized by boiling or otherwise. Take the large dish pan or the wash boiler and have it thoroughly cleansed by scrubbing with sapolio or ashes. Cover the basins with water, to every pint of which one level teaspoonful of table salt is added. Let them **boil for 30 minutes**. With the basins in the boiler place a long handled dipper or a large handled spoon. This dipper-handle projects from the

boiling water and, while the bowl of the dipper or spoon is sterilized the handle is unclean but **cool** and is used to withdraw the sterilized basins and to get the sterile normal saline water out of the boiler without contamination. When neither dipper nor spoon can be had, a cup can be used by attaching a long string to it and allowing the end to project from the boiler. This seems like an insignificant point, yet without dipper or cup, neither basins nor water could be removed without contamination.



The emergency Trendelenburg position

If there is no time for sterilizing basins or dipper by boiling, **flame sterilization** may be used. This method of sterilization is carried out by pouring alcohol in the basin and igniting it. The basin is now turned in the hands, so that every bit of its inner surface comes in contact with the burning alcohol.

Three minutes should at least be spent in this manner and every bit of the surface should be gone over systematically. This method is not advocated by the writer and is reserved for extreme cases only.

The water (normal saline solution), in which the basins have been sterilized, furnishes the sterile water to be used later. The tea kettle will furnish the **cold sterile** water. Add one level teaspoonful of salt to the pint of water (3 pints will be sufficient) and boil for 30 minutes. The spout of the kettle is covered with a clean piece of muslin or gauze, so that it too becomes sterile by the escaping and superheated steam, for otherwise the sterile water in the kettle would be contaminated by the dirty spout. So soon as the water has boiled a sufficiently long time, the kettle is placed in as cold a place as possible.



The tea kettle of cold sterilized water (Note protection of spout)

When ready, pull the piece of gauze from the spout and pour the water in the receptacle. If preferred, the hand brushes may be boiled with the basins; this is, however, not necessary and all brushes will not stand boiling.

There are some general lines to be followed in the **preparation of the patient**, which hold good for all operations. If time permits the bowels should be unloaded. A warm soap suds enema, to which may be added a few tablespoonfuls of castor-oil is a quick and safe method. The field of operation should be thoroughly, but not roughly, scrubbed with soap and water. This is best accomplished with a piece of gauze, instead of the

brush and plenty of soap and water should be used in **massaging** rather than scrubbing the part. Now, the site is either shaved with a razor or the hair are clipped as short as possible with a pair of scissors curved on the flat. When hair are shaved off, especially the stiff hair of the pubic region, the itching of the growing hair oftentimes becomes intense and robs the patient of her rest. The method of sterilization of the



The wrong way

field so prepared is a matter of choice with the surgeon. If bichloride of mercury (1-1000) is used, the surface is thoroughly massaged with a piece of gauze dipped in the solution, frequently renewed, for at least 10 minutes and finally a towel soaked in the mercury solution is placed over the field and is not removed until the patient is on the table. The more simple method, and one giving the best results, is the iodine method. The preliminaries are the same as for the bichloride method. When the site of operation is freed from the dirt and dried a coating of iodine and ether (10 percent iodine) is given the part. Another coating is applied on the operating table. In the Lutheran Hospital at Fort Wayne, the iodine method

has been used in the writer's operating room upon hundreds of cases—laparotomies, goitres, etc.—with uniform success.

The nature of the operation determines whether or not the patient should have a vaginal douche (bichlor. 1-4000 2 qts.), but the bladder should always be emptied, either spontaneously or by catheter. The clothing of the patient should



The right way

consist of an undervest, a night gown and a pair of long, warm stockings should cover feet and legs. If a female, her hair should be braided.

The method of preparation varies a little in perineal or vaginal operations. Here the douche is necessary, but the soaping and washing of the vaginal canal should be done on the table after the patient is anaesthetized, because the parts can be gotten at easier and the preparation is more or less painful and repulsive to the patient while conscious.

The greatest danger to the successful issue of an operation, indeed, to the patient's life, is found on the hands and arms of the operator and assistant. Neither instrument, sponge nor

swab comes into such intimate contact with the wound or peritoneal cavity as the hands and fingers. While we know, that the hand cannot be made absolutely sterile, we must yet endeavor to make it as poor in germs as present methods will permit. The **preparation of hands and arms** is, therefore, a very important matter and the time spent in cleansing them



The proper way of holding brush

is well invested. Chemicals by the score have been advanced, but the surest method is not the chemical sterilization, but the mechanical cleansing. The proper use of soap and the brush is a science and an art not so easily acquired. Nothing can be more foolish, yes, criminal, than the perfunctory dipping of hands in an ordinary solution of bichloride of mercury. Yet that is just what is done, not only by the ignorant, but by those, too, who should and do know better. There must be some system or method in using the brush, which, when once acquired, will become as an integral part of the performer. The writer's method is as follows:

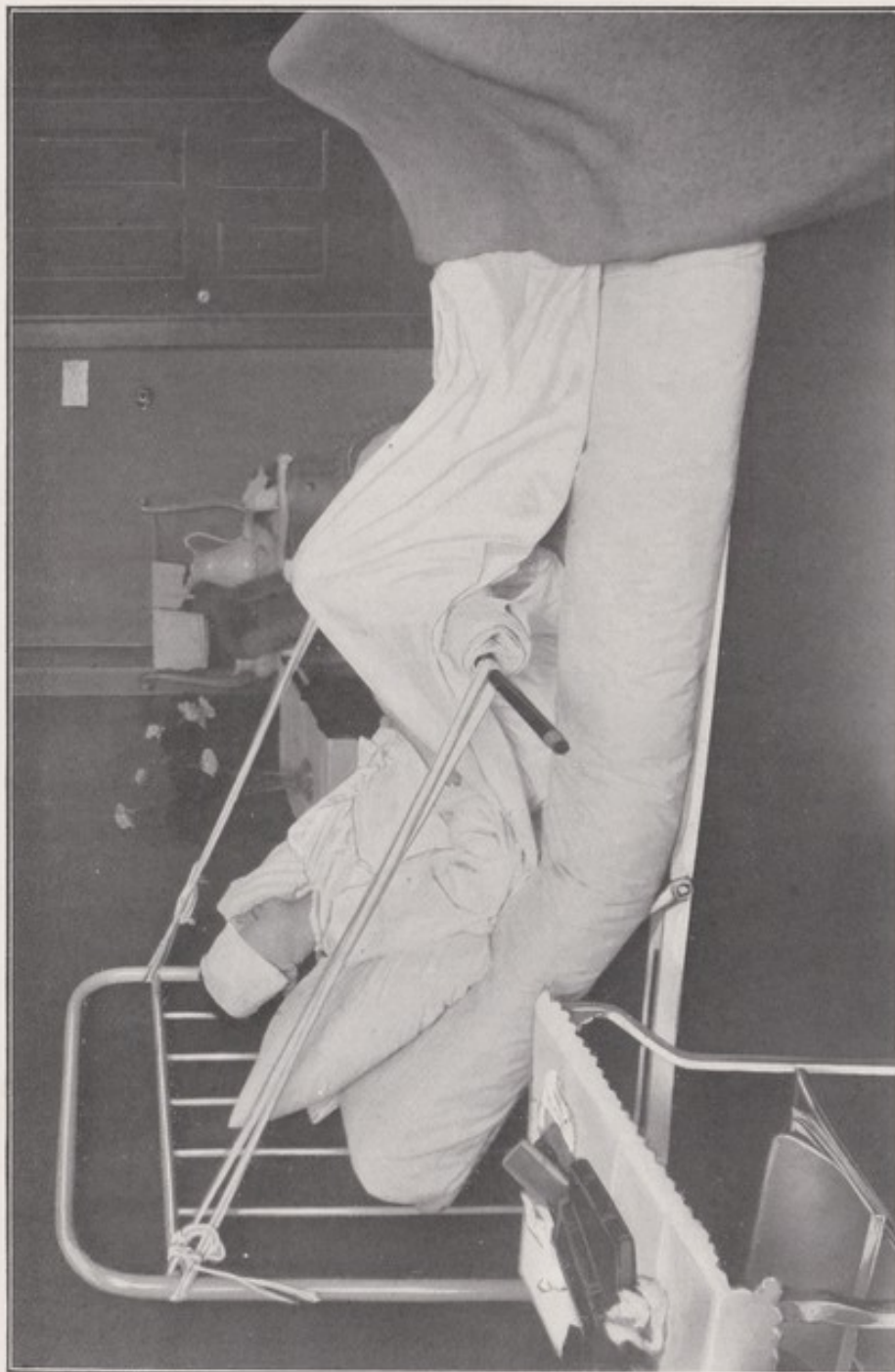
Remove clothes, except undervest, roll sleeves well above

elbow and secure them there. Moisten hands and forearms thoroughly, make a rich lather with the soap, massaging hands, fingers and arms until the soap has apparently disappeared. This loosens the dead epithelium, which, with the soap, makes a sticky covering over the arms. With plenty of water this covering is washed off—it will lather freely. Now, the softened fingernails are trimmed (they will not splinter nor break); especial care is given to the subungual spaces; with a sharp piece of wood or a nail cleaner the loosened dirt is carefully removed. The hands and arms are now ready for the brush. Never use a stiff, hard brush; such a brush acts like a harrow on the field. It will cause innumerable small scratches—a danger not only to the patient, but also to the operator. Better than the brush, is a piece of gauze, and with it the fingers, the hand and the fore-arm, till above the elbow are massaged, systematically, thoroughly and again. On the inner and posterior side of the fore-arm is a triangle, its base directed toward the elbow, its apex reaching almost 2-3 down the fore-arm, which neither soap nor water nor brush nor gauze touch unless especial pains are taken. Yet this little triangle may be the “little” thing that gives the operator the heartache, destroys a life and blasts the happiness of father or mother or husband. At least 10 minutes should be spent in this mechanical cleansing. The mechanical cleansing, thoroughly done, is worth far more than any chemical hand sterilization yet devised. The hands are now as clean as water and soap can make them. They are now immersed in a 1-1000 bichloride solution and the fore-arms thoroughly bathed in it to **just below the elbows**. This bath should last at least 5 minutes, when the excess is washed off in the sterile water in the second bowl. Another method is the thorough rubbing in, especially under the nails, of Harrington's solution. Leave the solution on for one minute and wash the excess off in the sterile water. The operator is now ready to begin his work. The patient in the meantime has been placed on the table and the anaesthetic administered. Not so much depends on the selection of the anaesthetic agent as on the anaesthetist. It has been the writer's custom, until

recent years, since when he carries his own anaesthetist, to allow the choice of the anaesthetic to the anaesthetist, on the grounds that he probably knew more about the agent of his choice than he did of the other. Personally, the writer believes that ether is safer than chloroform.

Many times it is necessary to prepare **sponges and dressing material** on the premises. Often it is safer to rely on freshly sterilized dressings, than on gauze kept in cartons in a country drug store, perhaps for years. Sponges can be readily made and sterilized, while the basins are being boiled. For all ordinary purposes 30 sponges will be found sufficient. Make them by cutting gauze into suitable squares (10x10 inches and double thickness), double them into small squares and tie them into a large piece of gauze moderately tight. Make a salt solution in a sauce pan sufficient in quantity to **soak and cover** the sponges and boil for 30 minutes. When they are "done" pour off the water, while you hold the bundle of sponges with a sterile artery forceps and replace in the kettle ready for use. The water should be expressed from the sponge before it is used. Such a sponge, being moist, will injure the delicate epithelial lining of the peritoneum far less than a dry sponge and, besides, it has very high absorptive properties. For the first dressing these sponges answer very well. If the case needs repeated and frequent dressing, gauze for dressing purposes may be prepared in the following manner:

Ordinary cheese-cloth ($4\frac{1}{2}$ - $5\frac{1}{2}$ cts. per yd.) is cut into lengths of 5'-20'; boil the gauze in a bicarbonate of soda solution (level teaspoonful to one pint of water), for one hour; hang on clean washline to dry in the sun, if possible; after thoroughly dried, have it ironed; fold **loosely** in a suitable package and wrap in clean newspaper; the package is now transferred to the kitchen bakeoven and baked for three hours. Allow the oven door open for one hour and bake again for three hours. Be careful not to allow the heat to char more than the paper. While this gauze may not be **absolutely** sterile, the writer will guarantee that it is more nearly so than many a gauze offered in the open market as "Sterile gauze." The dressing of an abdominal case may be



Fowler's position with "trapeze"

held by strips of adhesive, or by a towel or broad binder of gauze pinned down the front.

While the operation is in progress, the nurse, or whoever takes her place, should get the patient's bed and room in readiness. The best bed for the convalescent is a hard bed. Feather beds (unfortunately one still finds them), are the greatest nuisance conceivable. The bed should consist of a spring mattress, ordinary mattress, blanket or comforter, bedsheet and the necessary covers. The covers should be well turned back, the bed warmed by hot water bottles, jugs or irons wrapped in cloth. **Never** allow a hot water bottle to **rest against the skin, always** have the bottles **wrapped**. If it is necessary to elevate the foot end of the bed, do so by putting a chair and as many blocks of wood or bricks on the chair as necessary under the center of the foot end of the bed. Putting blocks under the bedposts is awkward, the two sides of the bed are hardly ever equal and the patient is given an avoidable shaking up. The "Fowler" position is maintained by pillows to the back. As the patient will inevitably "slide down" in the bed, a stick covered with several layers of cotton or comforter is passed under her knees, the ends of the stick on each side are fastened by ropes to the head posts and the patient sits in a trapeze and is prevented from slipping toward the foot end of the bed. The room should be airy and light and kept at a temperature of about 75° F. It is needless to urge absolute quiet. The nurse, or person in charge will, according to her individuality, make the room cheerful and attractive; she certainly must keep the room clean. To insure cleanliness all unnecessary articles should be removed, not, however, to the point of desolation. Toys or flowers, as the case may be, have a decided therapeutic value.

THE AFTER TREATMENT.

It is not within the scope of this paper to give a complete treatise on the treatment of all possible complications and accidents, which may follow operations. The writer will content himself by first following a case through the ordinary and common conditions arising during the convalescence and then calling attention to some graver complications, which must be met by the attending physician immediately on recognition.

The condition of the stomach at the time of operation, whether full or empty, the patient's temperament, the amount and nature of anaesthetic consumed, and the time consumed in the operation, and the amount of handling of intestines—all play an important role in the production of **nausea and vomiting** post operationem. The patient should never be left alone, until she is **conscious and rational**. If the patient vomits, grasp the shoulder and raise it, this will throw the head to one side and will prevent the aspiration of vomitus into the lungs—a fruitful source for aspiration pneumonia. Usually, food remaining in the stomach will be vomited, but plethoric subjects will oftentimes vomit great quantities of mucus and saliva. If the vomiting is persistent and there are no special contraindications, allow the patient to drink copiously—she will vomit this water almost immediately and thus wash out the stomach. In extreme cases stomach lavage must be done. Oxalate of Cerium and Subnitrate of Bismuth, small doses of Calomel and Soda (1-10 gr.-1 gr.) are often beneficial. Keep the patient quiet and encourage her to breathe regularly and deeply. In ordinary cases vomiting and nausea soon cease, sometimes, however, this is the most distressing feature of the whole convalescence, more so even than pain. The **pain** following the operation is not usually severe, indeed many patients insist that they were not operated upon, because they can't "feel" their wound. Morphine should be used guardedly. It is better to let the patient "fight it out" than to lengthen the misery over several days by the injudicious use of the hypodermic. Yet it sometimes

becomes necessary to give morphine and then a full dose should be given rather than several small doses.

The fact that both ether and chloroform, when inhaled, diminish the watery elements of the blood, coupled with the actual loss of fluid by bleeding, gives rise to the so-called **post-operative thirst**. This is best combated by sips of very hot water or weak tea. Frequent rinsing of the mouth or a wet piece of gauze oftentimes gives relief until the patient can take water in increasing quantities. If fluid cannot be retained by the stomach, a rectal enema of normal saline will often bring the desired relief. From five to six hours usually sees this crux of the patient pass.

Gas pains may become very severe. They occur at any time within the first week and usually require drastic measures for their relief. Gas pains are the result of excessive peristalsis, the accumulation of gas in the intestines and the resulting peritonismus. The hot water bag may be tried, as hot as can be borne. The insertion of the rectal or colon tube will frequently relieve the pain. Often, if these simple things fail, a high, hot, turpentine enema (one drachm to a pint), will cause the flatus to pass and terminate the gas pains. In some cases it will be necessary to give morphine—always reserve this as a dernier resort. If the dressings are too tight, they should be loosened. The writer has had success in a few cases by passing a cherry-red cautery iron over the abdomen for 10 to 15 minutes. The iron should be swept over the skin as closely as possible, care being taken not to burn the patient. It is wise to get "the swing" by trying on your own hand.

To relieve the oftentimes unbearable **backache**, the knees should be drawn up, supported by a pillow under them, and a small pillow put under the small of the back. Frequently a cold water bag will bring ease and comfort to the patient suffering with backache. So soon as it is permissible to change the position of the patient, this should be done. Allow the patient to rest on one side, then on the other and change to the back, always supporting her securely by the use of small pillows. This changing will also counteract any tendency to hypostatic congestion of the lungs.

While the **care of the bowels** is a very important thing, yet often too much attention is paid to this one point to the detriment of all the others. It has been the writer's custom to move the bowels on the third or fourth day, but in certain cases he has waited a longer time, without any demonstrable harm resulting. The custom is, however, all things being equal, to secure an evacuation on the third day. At the Lutheran Hospital this result is usually obtained by the administration of calomel and soda (1-10 gr.-1 gr.) every 30 minutes, until one grain of calomel has been taken. This is followed by some saline—rochelle or epsom salts. This has been found to be most gratifying and it is only in special cases that resort is had to more powerful purgatives. An injection of castor oil (2 ozs.), or olive oil in anticipation of the movement will greatly aid the patient, and, in the case of perineal operations, will save the patient pain, as well as protect the recent wound from the efforts of expulsion.

In the perineal cases it is a wise plan to empty the bladder by catheter for the first three or four days. The same caution as to cleanliness holds good here as though the abdomen was to be opened. A bladder once infected, not only causes suffering and retards convalescence, but is extremely difficult to cure. With proper care catheterization protects the perineal wound and should be carried on until the margins of the wound have become agglutinated. Later, when the patient voids voluntarily, she should be cleansed by expressing a mild antiseptic (1-4000 bichloride) over the pubes from a sponge. Silkworm gut stitches and silk stitches should be allowed to remain 14 days in perineal cases, unless there is some reason for their earlier removal.

In closing these few hints for the management of the uncomplicated case of operation, the writer will use the words of Dr. Joseph Price: "Fuss and feathers and meddlesome management are foolishness. Quiet, absolute, on the back with nothing for twenty-four hours but those little attentions from a skilled nurse to relieve irksomeness, to provide a cool back, well rubbed limbs, an empty bladder, a fresh mouth by rinsing, makes a cheerful and comfortable patient."

SHOCK AND HEMORRHAGE.

The etiology of shock has never been fully determined or satisfactorily explained. Crile regards collapse as an inhibition of the vasomotor center, and defines shock as exhaustion of the center. This fine distinction concerns us but little, as clinically the two conditions are identical and call for the same measures for their relief. Warren defines shock as follows: "Postoperative shock is a peculiar state of reflex depression of the vital functions, especially of the circulatory system, due to nervous exhaustion resulting from irritation of the peripheral ends of sensory and sympathetic nerves. There is also, apparently, exhaustion of the medulla and spinal cord followed by marked lowering of the vital powers." It is evident, therefore, that the severity of the shock bears a direct relation to the amount of irritation and to the length of time it has continued. Clinically, it must be remembered, that hemorrhage plays an important role in the production of shock. The degree of shock may vary from a mere faintness to the most profound depression of both the nervous and circulatory systems, eventuating in rapid death. Shock may come on before the patient leaves the table, usually, however, in from one to two hours. The symptoms vary in intensity with the severity of shock. The patient may complain of chilliness, or have a severe chill. She is cold, faint, the face is pale, the pulse small and rapid. The surface of the body is clammy, the nervous system is affected, there may be delirium. Sighing respiration and other signs of prostration are present. The temperature falls from one to two degrees below normal, the heart becomes weak, the pulse rapid and thready. Unless the condition is properly combated, death intervenes. The treatment of shock becomes evident from the foregoing. The patient must be kept warm. To this end we surround her with wrapped hot water bottles (bricks, irons, beer bottles filled with hot water, etc.), we raise the foot end of the bed and remove the pillows from under the head, in order to get the blood into the brain. As stimulants, we give brandy hypodermics. Morphine $\frac{1}{4}$ gr. with 1-50 gr. digitalin, and best and

most readily diffusible stimulant of all—camphorated oil in 20 to 30 drop doses, repeated every 30 minutes until reaction occurs. The danger of overstimulation must be kept in mind. The time honored strychnia does more harm than good (Crile), is very slow in its action, and should not be used, except as a respiratory stimulant. If the shock is due to hemorrhage, this must be checked as quickly as possible and the depleted vessels refilled by a high rectal normal saline or by hypodermoclysis. Perhaps the chief difference between simple shock and serious hemorrhage is, that shock will disappear under the treatment outlined above and the hemorrhage will go from bad to worse unless checked. The symptoms are practically identical. Always remove the dressings and inspect the wound when hemorrhage is suspected. In concealed internal hemorrhage, it is frequently possible to demonstrate free blood in the abdominal cavity. The treatment is of course evident.

A complication, which may prove rapidly fatal, but which, fortunately, does not frequently occur, is **acute dilatation of the stomach**. The exact etiology of this condition is not known. Usually in from 8 to 10 hours after operation, the patient becomes markedly distressed. Dyspnoea and palpitation are prominent symptoms. She becomes very restless and is covered with a clammy sweat; it is almost impossible to keep the patient lying down. On examination the upper part of the abdomen will be found to be markedly distended. The outlines of the hugely distended stomach are plainly seen in thin subjects. The diaphragm is pushed up, the lungs are pushed up as is also the heart, which explains the dyspnoea and palpitation. The patient actually has no room to breathe. If the condition continues, the intestines become distended, the symptoms are all intensified, and the patient dies in extreme shock. Since this condition depends on purely mechanical disturbances, it is easily and promptly remedied. The introduction of the stomach tube will immediately liberate great quantities of gas, and, when the stomach is thoroughly washed out, the patient will promptly pass from a very grave condition to one of safety and comfort. Acute dilatation of the stomach may, and often does recur, so we must be on our

guard for successive attacks. Patients of a neurotic type, those who are reduced and those who have been subjected to prolonged anaesthesia, are peculiarly liable to develop this condition. An analogous condition frequently occurs in the intestines. The symptoms are not nearly so urgent as in acute dilatation of the stomach. There is merely a more or less rapid **distention** of the small intestines which, however, is very distressing. A high enema of glycerine, salts and water (1 oz. of each), to which may be added a half drachm of turpentine, speedily relieves the patient. Hypodermics of 1-100 to 1-50 gr. of eserine (Physostigmine), is also a valuable remedy in this condition.

Postoperative pneumonia, bronchitis and broncho-pneumonia are not frequent complications of convalescence, and when they occur may be attributed directly to the anaesthetic itself, to long continued anaesthesia, to the inadequate protection from cold during the operation, or the subsequent chilling of the patient by carrying through cold halls or putting her in a cold, damp bed. Occasionally vomited material is aspirated into the bronchi and we have an **inspiration pneumonia** develop. The treatment is indicated by the condition and indications are met as they arise. These pneumonias rarely continue for more than a few days, unless they kill promptly, an issue, which must be feared in the feeble and alcoholics. It is, therefore, necessary to be exceptionally careful in the preservation of animal heat, to avoid the aspiration of vomitus and to operate as quickly as is consistent with good surgery.

More frequent in its occurrence than either acute dilatation of the stomach or postoperative pneumonia is a condition which usually comes on about the second or third week. **Postoperative thrombophlebitis** nearly always occurs in cases, which have run a perfectly aseptic course. The thrombosis occurs in the left femoral vein, suddenly and without warning. The limb becomes swollen and painful and there is a rise in temperature and an acceleration of the pulse. Some authors hold that this condition depends on sepsis; others, that traumatism is responsible. Be this as it may, the disturbance depends on the thrombosis of the femoral vein and is, therefore, a serious complication. The principal aim in the treatment

must be the prevention of further thrombosis (pulmonary) by the breaking up of the femoral clot. Absolute rest is imperative, the wrapping of the limb in a snug flannel binder and its elevation on pillows is the best mechanical treatment. As stimulants we give morphine and alcoholic stimulants and a nutritious diet completes the internal medication. In most cases from two to three weeks will see the case recover. In exceptional cases the swelling will never entirely disappear.

Decubitus, or bedsores, are a form of gangrene, the result of long continued pressure. The most common site is the prominence of the sacrum, over the scapulae or the elbows. Improperly padded or placed splints give the same result. This gangrene is always moist. A bedsore may vary in size from a pea to the size of the palm of the hand; it may be very superficial, or deep enough to open the sacral canal. The treatment resolves itself into (a) prophylaxis, (b) treatment of the threatened bedsore, (c) treatment of the established decubitus. Inasmuch as continued pressure is the cause of bedsores, we will avoid this by frequently changing the position of the patient, or, where this is not feasible, by putting her on a pneumatic ring and thus supporting the parts over a wider area. Our fathers used a deer hide to good advantage. The winter skin of the deer is very heavy, the hair are placed very closely, yet there is a current of air passing through and there is a certain springiness, which is very grateful to the patient. The writer fully appreciates that this is a somewhat homely suggestion, but when one cannot have a water bed, the ancient deer hide will be found no mean substitute. The choice between a leaking water bed and a clean, dry deer hide should not be difficult. It is of the greatest importance to keep the part dry. To this end the patient should have an alcohol rub twice daily, the parts thoroughly dried and dusted with talcum or boric acid. A **threatening** bedsore heralds itself by redness of the skin and pain. The skin becomes a bluish red and the center of the threatened area is dark. Immediately remove all pressure, put the patient on a ring pillow (either covered rubber, or made of cotton and gauze), gently massage the part twice daily and dress with talcum. Should the skin become raw, an agreeable dressing will be found in balsam of

Peru and resin ointment. When the bedsore is once established we will employ means to hasten the separation of the slough. Keep the decubitus as nearly aseptic as possible, dress frequently with balsam of Peru, or with boric or eucalyptus ointment. So soon as possible the patient should be made to lie on her side. A generous, but easily assimilated diet and stimulants are valuable adjuvants. The presence of the bedsore is always a mute reflection on the surgeon or nurse.

THE COUNTRY SURGEON'S KIT.

Inasmuch as the country physician is of necessity also the surgeon for the community, he should be properly equipped to do such work as he feels able to do. The great mistake usually made is, that he loads himself down with a lot of instruments and general equipment, which, in the natural course of events he will never be called upon to use. The writer offers in the following an armamentarium, which is intended to meet all reasonable demands—a cystoscope will not be found amongst the instruments. To make a hard and fast list of instruments would be foolish. Each individual operator will no doubt add to the armamentarium from time to time. Emergency surgery always comes as a surprise, but with the following simple equipment the surprise will never be complete. A suitable container for this outfit will be a so-called "double-decker," which will not be very large and cumbersome, but can easily be carried in the buggy or automobile. For the lower compartment have the tinsmith make a copper pan with well-fitting lid—most of the instruments will be carried in this pan, which serves as the sterilizer. The upper and more roomy compartment is reserved for the dressings, drainage tubes and catheters, suturing material, etc. In the upper compartment will be found: **Two brushes**, not too harsh, for scrubbing hands and field of operation. Some operators prefer plain gauze instead of brushes. **Sterilized gauze** to make sponges and swabs and for use in dressing. (See above for method of preparation.) This gauze should also be used to wall off the field of operation instead of towels. Towels may be made practically sterile by soaking in a very hot 1-500 bichloride solution.

Ligatures and Sutures should comprise Nos. 1 and 3 catgut, (Lukens, St. Louis, or Van Horn, New York), and several sizes of silk in sealed glass tubes. A box of medium silkworm gut, which is sterilized with the instruments. Silver or aluminium-bronze wire for the suture of bone.

Drainage tubing and catheters of different sizes are best kept in a glass or metal tube and sterilized by boiling.

Cotton (two 4 oz. pkgs.), wide bandages and safety pins to hold the dressing in place. A tin of **plaster of Paris** hermetically sealed to exclude dampness will make an excellent plaster of Paris dressing, if incorporated in a suitable piece of gauze. This makes the best splint that can be devised, as it is "made to order." The upper compartment will contain the following liquids:

Squibb's ether in three small cans.

Squibb's chloroform in one 3-oz. bottle.

Harrington's solution: Commercial alcohol 640 C. c., muriatic acid 60 C. c., bichloride of mercury, 0.8 grms.; water 300 C. c.

This is the most powerful and penetrating germicide known. The excess must be washed off in sterile water.

Corrosive sublimate in the tablet form is more convenient to carry than in solution. The tablets should have incorporated some little coloring material to identify the solution.

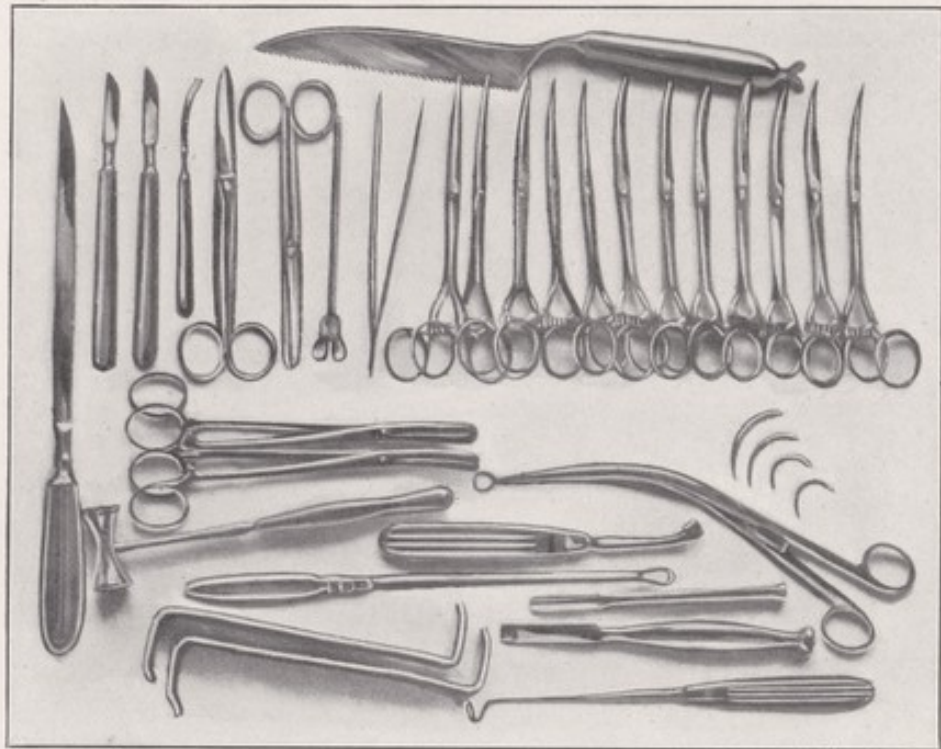
Iodine as a 10 per cent. solution in ether is a very valuable sterilizer for the field of operation. A six oz. vial will be sufficient. Do not forget to replenish equipment after each operation; of course, this equipment will be useless in some places, but it is ample for dealing with most conditions of extreme surgery.

INSTRUMENTS.

Surgery is in a sense a handicraft and as such it has "tools," by courtesy called instruments. It is not enough, however, to possess instruments; they must be kept in working order and ready for use. A knife that will not cut and a hemostat with a rusty joint is an abomination. All the instruments

mentioned hereafter will find ample room in the copper sterilizer and possessing these instruments one will be in a position to face almost any condition of immediate surgery.

Of cutting instruments there should be two ordinary scalpels, one probe pointed bistoury, two pairs of ordinary scissors, straight and curved on the flat, one 4-inch amputating



The instruments

knife, one saw with movable back, one pair of bone forceps, one chisel, one gouge, and one mallet. Edged tools should be the object of especial care. They must always be wiped dry and it is a good plan to give them a covering of vaseline. We now add one grooved director; one pair of dissecting forceps; two double-ended retractors, two pairs of heavy compression forceps. Have at least 12 to 18 pairs of hemostatic forceps, and, if possible, 2 pairs of curved clamps. A vulsellum forceps and a ligature carrier are valuable, but not absolutely necessary. For uterine curettage

and the curetting of sinuses have one small and one large curette. The emergency equipment will be complete with a few well selected needles. Have at least two large full curved sharp needles with large eyes for catgut. Several smaller full curved dull needles, and for intestinal and bladder work use the ordinary seamstress needle, which can be found in every household. A common forceps answers very well for a needle-holder. Of course, this equipment can be amplified without end, but with these instruments any ordinary emergency operation can be successfully done. The outfit will not require a great outlay of money, is compact, will easily be contained in the kit and, with a little attention, will be always ready.*

*To this equipment an axis traction forceps may properly be added and carried in the upper compartment.

THIRTY SURGICAL SUGGESTIONS.

In the presence of a tumor in the midline between umbilicus and pubes, the possibility of a cyst of the urachus must be borne in mind. It may simulate an ovarian cyst or other tumor, or a distended bladder.

Eczema of the umbilicus is sometimes merely the expression of an infected dermoid cyst at that site.

Do not ligate tumors of the navel without making sure that the intestine is not included within the ligature.

In performing paracentesis in the middle line for abdominal fluid, be sure that the bladder is empty.

Children who complain frequently of pain in the stomach should be examined for evidence of beginning Pott's disease.

In all cases of acute abdominal pain, never fail to examine the lungs and gums. The onset of pneumonia or pleurisy frequently closely simulates acute appendicitis; lead colic may simulate almost any painful abdominal condition.

Catheterization sometimes makes the evidences of "appendicitis" or "abdominal tumor" vanish with the escape of the urine from a distended bladder.

Eserin salicylate 1-30 to 1-40 gr. hypodermically, entirely, or largely prevents post-operative distention.

If there is repeated vomiting and the patient shows evidences of collapse, after a laparotomy, especially after operation in the gastric region, examine for separation of the wound and prolapse of the abdominal contents.

The presence of an indefinite mass in the belly of a child running intermittent temperatures may mean a tuberculous peritonitis.

Repeated attacks of "indigestion," not obviously due to some other condition, should awaken the suspicion of gallstones. Most of the patients operated upon for cholelithiasis give a history of having been treated for a long time for "dyspepsia," and in many of these cases the correct diagnosis might earlier have been established.

In an attack of cholelithiasis the vomiting as a rule is not attended by the relief of pain; the contrary is true of ulcer of the stomach.

In catarrhal icterus the pulse is usually slow; in jaundice from cholelithiasis this is usually not the case.

Gradually increasing jaundice without previous history of pain, or with a history of slight pain, is very suggestive of malignant disease.

The occurrence after laparotomy of marked distention of the upper abdominal zone, vomiting and collapse, points to acute dilatation of the stomach.

The triad of symptoms—pain, vomiting and distention—without fever, points to intestinal obstruction.

Attacks of abdominal pain preceded by “rumbling” points to some obstructive condition.

The passage of a small amount of gas or even faeces, after an enema, does not exclude the possibility of an obstruction.

In infants sudden, severe colic associated with diarrhoea or the passage of small quantities of blood, should lead one strongly to suspect intussusception.

At the onset of an attack of acute appendicitis the pain is usually referred to the gastric region.

The sudden cessation of severe pain during the course of acute appendicitis often means perforation.

In a case of appendicitis, there is great significance in the disappearance of a “Head zone,” which had been present but a few hours before. It means that the tension on the serosa of the appendix has lessened. The natural conclusion to draw is that the appendix has ruptured.

Examine the umbilicus, inguinal regions and femoral canal in all cases of obscure intestinal obstruction. Small strangulated femoral herniae often simulate very closely the feel and appearance of a gland, and in such cases one may easily be misled.

When cleansing the vagina and vulva in preparation for an operation, a soft cotton mop should be used for the vesti-

bule; a stiff brush is too apt to bruise or lacerate the urethra and cause dysuria for some days thereafter.

The use of any considerable quantity of iodoformized gauze in the vagina involves the risk of a severe dermatitis of the vulva.

As a final cleansing step after curettage of the uterus it is well to introduce, and wipe out the uterus with a dry piece of gauze. This brings out a lot of little loose shreds.

Bleeding after coitus is frequently the earliest sign of cancer of the uterus.

Persistent bleeding or irregular prolonged menstruation is very suggestive of uterine fibroid.

An obstinate constipation may be due to an extreme retroflexion of the uterus, the organ lying in the hollow of the sacrum.

An ovarian cyst with a long pedicle may be found in any part of the abdominal cavity. It rarely gives pain unless the pedicle becomes twisted. In such a case, a differential diagnosis between it and a hydronephrosis is very difficult. One may suspect the true condition by the mobility of the tumor.

APPENDIX A.

(By Mary B. Ludy, Chief Nurse, Lutheran Hospital, Fort Wayne, Ind.)

The arrangement of the following menu for the first week of convalescence from an ordinary laparotomy can be varied in the judgment of the physician to suit any particular indication in the case, or changed to meet the local conditions, or seasons of the year. In the Lutheran Hospital this diet list, with but few changes, is carried out and has proven uniformly successful. The "first day" has been omitted, as we customary give nothing but occasional sips of very hot water. The recipes here given are all tried and, if followed, will give uniform and good results:

Second Day.

- 7 A. M.—Cup of hot weak tea.
- 11 A. M.—Beef tea, ounces 3.
- 3 P. M.—Broth, ounces 3.
- 7 P. M.—Beef tea, ounces 3.
- 11 P. M.—Broth, ounces 3.

Third Day.

- 7 A. M.—Coffee.
- 9 A. M.—Broth.
- 12 M.—Tea.
- 3 P. M.—Beef tea.
- 6 P. M.—Broth.

Fourth Day.

- Breakfast—Milk toast.
- Lunch—Eggnog.
- Dinner—Chicken broth with rice.
- Lunch—Orangeade.
- Supper—Soft Custard, cocoa.

Fifth Day.

Breakfast—An orange, oatmeal with cream and sugar, toast, coffee.

Lunch—Glass of milk.

Dinner—Soft boiled egg, baked potato, tapioca cream, bread, butter, tea.

Lunch—Milk punch.

Supper—Buttered dry toast, cup custard, tea.

Sixth Day.

Breakfast—Wheatena with cream and sugar, a scrambled egg, buttered toast, coffee.

Lunch—Orangeade.

Dinner—Cream of tomato soup, a small piece of broiled fish, Bavarian cream, bread and butter, tea.

Lunch—Eggnog.

Supper—Baked apple, cream toast, cocoa.

Seventh Day.

Breakfast—An orange, oatmeal, creamed codfish on toast, coffee.

Lunch—Glass of milk.

Dinner—Cream of Celery soup, broiled meat cake, baked potato, bread and butter, jelly, tea.

Lunch—Cup of beef tea.

Supper—Prune whip, cream toast, tea.

RECIPES.**Milk Punch.**

- 1 cup fresh milk
- 2 teaspoonfuls brandy or
- 1 tablespoonful of sherry
- 1 teaspoonful of sugar
- A little nutmeg.

Milk that has been heated and cooled, or use sterilized milk and add the brandy and sugar. Shake all ingredients in

a fruit jar until frothy. Fill glass and add a grating of nutmeg on top.

Cold Egg Nog.

Beat up an egg; add to it two teaspoonfuls of sugar, a glass of milk, and a tablespoonful of brandy or good whiskey, or flavor with nutmeg. Mix thoroughly.

Hot Egg Nog.

Beat up the yolk of one egg; add a teaspoonful or two of sugar and a glassful of hot milk; strain, and add a tablespoonful of brandy or old whiskey, or flavor with nutmeg or wine.

Egg Broth.

Beat up an egg, and add to it half a teaspoonful of sugar and a pinch of salt; over this pour a glass of hot milk and serve immediately. Hot water, broth, soup, or tea may be used in place of milk.

Egg Cordial.

Beat up the white of an egg until light; add a tablespoonful of cream and beat together; then add two teaspoonfuls of sugar and a tablespoonful of brandy.

Orangeade.

Squeeze the juice from one orange; add two tablespoonfuls of sugar and one cup of water. Strain and serve.

Albuminized Orange.

White of one egg. Juice of one orange. Sugar. To the unbeaten white add the orange juice. Sweeten to taste and blend thoroughly. Strain and set on ice to cool. Serve cold.

Egg Lemonade.

One egg. Two tablespoonfuls of sugar. Two tablespoonfuls of lemon juice. One cup cold water. Beat the egg thoroughly; add the sugar and lemon juice; pour in gradually the water, stirring until smooth and well mixed. Strain and serve.

Grape Juice and Egg.

One egg; half cup of rich milk; one tablespoonful of sugar; one-fourth cup Welch's Grape Juice. Beat yolk and white separately very light. To the yolk add milk, sugar and grape juice, and pour into glass. To the white add a little powdered sugar and taste of grape juice. Serve on yolk mixture. Chill all ingredients before using.

Tea.

One teaspoonful of tea. One cup boiling water. Put the tea in a tea strainer. Hold the strainer over a hot tea cup, and pour the boiling water slowly over the tea.

Boiled Coffee.

Two tablespoonfuls of coffee. Half an egg and shell. One cup boiling water. One-fourth cup cold water. Scald coffee pot. Wash egg. Beat slightly and add crushed shell, coffee and one-fourth cup cold water. Put into scalded coffee pot, add boiling water and let boil up three times, stirring down after each time (or simmer five minutes); then add a little cold water. Keep hot twenty minutes. Serve in hot coffee cup with cream and sugar, or hot milk may be served in place of cream.

Cocoa.

Three-fourths tablespoonful Walter Baker's Cocoa. One tablespoonful sugar. Half cup boiling water. Half cup milk. Scald milk in double boiler. Put cocoa and sugar in saucepan and slowly pour on the hot water, stirring all the time. Boil five minutes. Add the scalded milk. Beat until foamy with Dover egg beater and serve with whipped cream in heated cup.

Beef Tea.

Free one pound of lean beef from fat, tendon, cartilage, and bone; chop up fine. Put into one pint of cold water to digest two hours. Simmer on range or stove three hours, but do not boil. Make up for water lost in the evaporation by adding cold water, so that a pint of beef tea represents one pound of beef. Press the beef carefully and strain, and flavor to taste.

Beef Broth.

Wipe meat, remove skin and fat, and cut into small pieces. Put in a kettle with bones, add cold water and let it stand half hour to extract the juices. Heat gradually to boiling point. Season with salt and pepper and simmer two hours, or until meat is tender. Do not allow to boil. Remove fat and strain through a coarse sieve. Serve hot. In reheating use double boiler.

Chicken Broth.

Skin and chop up a small chicken or half a large fowl. Put bones and all with a blade of mace, a sprig of parsley, one tablespoonful of rice, and a crust of bread in a quart of water and boil for one hour, or until tender, skimming it from time to time. Strain through a coarse colander.

Baked Potatoes.

Select smooth, medium sized potatoes. Wash, using a vegetable brush, and place in dripping pan. Bake in hot oven forty minutes or until soft. Remove from oven and serve at once.

Riced Potatoes.

Add salt and pepper to boiled potatoes and rub them through a heated potato ricer, into the hot dish they are to be served in. Serve immediately, or pour a little milk over the top and brown in the oven.

Cup Custard.

Break into a coffee cup an egg. Put in two teaspoonfuls of sugar. Beat it thoroughly; add a pinch of salt and a pinch of grated nutmeg. Fill the cup with sweet milk. Turn into another cup well buttered and set in a pan of boiling water, reaching nearly to the top of the cup. Set in the oven, and when the custard is set, it is done. Serve cold.

Soft Custard.

One teaspoonful cornstarch. One pint of milk. Mix the cornstarch with a small quantity of the milk and flavor. Beat up two eggs; heat the remainder of the milk to near boiling;

then add the mixed cornstarch, the eggs, one tablespoonful sugar, a little butter and salt. Boil the custard two minutes, stirring briskly.

Tapioca Cream.

Take one pint of milk. Two tablespoonfuls of tapioca. Two tablespoonfuls of sugar. One saltspoonful of salt. Two eggs. Wash the tapioca. Add enough water to cover it, and let it stand in a warm place until the tapioca has absorbed the water. Then add the milk and cook in a double boiler, stirring often until the tapioca is clear and transparent. Beat the yolks of the eggs; add the sugar and salt and the hot milk. Cook until it thickens. Remove from the fire; add the whites of the eggs beaten stiff. When cold add half teaspoonful of vanilla.

Bavarian Cream.

Whites of three eggs beaten very light. One pint whipped cream. One ounce of gelatin (soak one hour in cold water, drain and dissolve in a little hot water). Flavor with vanilla. Beat the eggs and cream together; add the sugar to sweeten flavor; then add the gelatin. Beat again until the mixture begins to thicken, and pour into moulds. Serve very cold with cream.

Prune Whip.

One-third pound prunes
Whites of 5 eggs
Half cup of sugar.
Half tablespoonful lemon juice.

Pick over and wash prunes; then soak several hours in cold water to cover. Cook in same water until soft. Remove stones and rub prunes through a strainer; add sugar and cook five minutes. The mixture should be of the consistency of marmalade. Beat whites of eggs until stiff. Add prune mixture gradually when cold, and lemon juice. Pile lightly on buttered pudding dish. Bake twenty minutes in slow oven. Serve cold with cream or boiled custard.

Baked Apples.

Wipe and core apples. Put in shallow dish with one tablespoonful water to each apple. More may be added during cooking if necessary. Put into the center of each apple, two teaspoonfuls of sugar and a small piece of butter. Bake in a hot oven twenty to thirty minutes, or until soft. Baste with syrup every ten minutes. A little nutmeg may be added to the sugar and a few drops of lemon juice to each apple.

Soft Boiled Egg.

Drop one egg into enough boiling water to cover it. Let stand on the back of stove where the water will keep warm, but not boil, for eight minutes.

Poached Egg.

Have a shallow pan two-thirds full of boiling water; add one teaspoonful of salt. Put a slightly buttered muffin ring on a buttered skimmer in the water. Break the egg into the ring. The water should cover the egg. When there is a film on top and the white is nearly firm, carefully take up skimmer, remove ring, loosen egg and place on buttered toast.

Scrambled Eggs.

Two eggs. Two tablespoonfuls rich milk. Two teaspoonfuls butter. Salt and pepper. Beat the eggs slightly; add the salt and pepper and milk. Put the butter into a saucepan; when melted and hot add eggs. Stir over hot water until of a soft creamy consistency. Serve on buttered toast.

Milk Toast.

Put a cup of rich milk in a saucepan and place it on the stove. While it is heating, toast a slice of bread to a delicate brown. Put it into a covered dish and when the milk is scalding hot, season it with a saltspoonful of salt, and pour it over the toast.

Cream Toast.

Half cupful of cream. A little salt. One slice of dry toast. Scald the cream; add the salt and pour it over the toast. If preferred the slices may be first dipped in salt water.

Oatmeal.

Half cup coarse oatmeal. Two cups boiling water. Half teaspoonful salt. Add salt and oatmeal to boiling water. Cook for four hours in double boiler. Serve with sugar and cream.

Cream of Tomato Soup.

Place over the fire a pint of tomatoes. Stew them soft with a pinch of soda. Strain it so that no seeds remain. Set it over the fire again, and add a pint of rich hot milk. Season with salt and pepper, a piece of butter. Add two tablespoonfuls of rolled crackers and serve hot.

Cream of Celery Soup.

Half cup celery. One cup boiling water. Salt and pepper. One tablespoonful butter. One tablespoonful flour. One cup rich milk. Wash and scrape the celery and cut into small pieces; add water and cook until very tender and soft. Renew the water if it boils away. Mash the celery in the water in which it was cooked. Scald the milk. Melt the butter in a saucepan; add flour and pour on gradually the scalded milk. Cook thoroughly, stirring carefully. Season to taste. Strain and serve immediately with crisp crackers.

Potato Soup.

Three boiled potatoes. One pint rich milk. One tablespoonful butter. Pepper and salt. One egg. Mash the potatoes in the water in which they were boiled. Scald the milk, while mashing the potatoes; add the butter and gradually pour in the hot milk. Stir well and strain through a sieve, and heat once more. Beat up the egg and put it in the soup tureen, and pour over it the soup when ready to serve.

Oyster Soup.

One cup oysters. Half cup of water. One cup of milk. Two tablespoonfuls butter. Two teaspoonfuls flour. Salt and pepper. Scald the milk. Melt the butter; add the flour and pour on gradually the scalded milk, and cook thoroughly. Put oysters and cook until plump and edges curl. Drain off liquor fully pick over oysters to remove particles of shell. Heat liq-

quor which has drained from oysters to the boiling point; add oysters and cook until plump and edges curl. Drain off liquor and add to soup. Season. Add oysters and serve immediately.

Broiled Fish.

Clean fish, wipe with a cloth wet in salt water, and dry on a towel. Season; oily fish need only salt and pepper, but dry white fish should be spread with butter and salt and pepper before broiling. Use a double wire broiler, greased well with salt pork rind. Put thickest edge of fish next middle of broiler. Cook flesh side first, then turn and broil skin side, just long enough to make crisp and brown. The time will vary with thickness of fish. The fire should be hot and clear. When ready to serve, loosen fish from broiler on each side. Open broiler, slide fish on to platter, having flesh side uppermost. Spread with butter, salt and pepper. Garnish with parsley and slices of lemon.

Broiled Meat Cake.

Take a piece of tender rump steak, about half an inch thick. Place it on a clean board and with a knife scrape off all the soft part until there is nothing left but the tough, stringy fibre. Take the soft part thus obtained and season with salt and pepper. Make in small flat cakes about half an inch thick, and broil them over a brisk fire for two or three minutes. Serve on slices of buttered toast. In forming the cakes, handle as little as possible, for if pressed too compactly, cakes will be found solid.

Broiled Steak.

Wipe with a cloth wrung out of cold water and trim off superfluous fat. With some of the fat, grease a wire broiler. Place meat in broiler and broil over a clear fire, turning every ten seconds for the first minute, that surface may be well seared, thus preventing escape of juices. After the first minute, turn occasionally until well cooked on both sides. Steak cut one inch thick will take five minutes if liked rare; six minutes, if well done. Remove to hot platter. Spread with butter and sprinkle with salt and pepper.

Creamed Codfish.

Pick up a large tablespoonful of salt codfish very fine. Freshen it considerably by placing it over the fire in a basin, cooling it with cold water as it comes to a boil; turn off the water and freshen again if very salt. Then turn off the water until dry, and pour over half a cupful of milk or thin cream; add a bit of butter, a sprinkle of pepper and a thickening made of one teaspoonful of flour or cornstarch. Wet with a little milk. When this boils up, turn over a slice of dipped toast.

Creamed Chicken.

Three-fourths cup cold cooked chicken. Speck celery salt. Salt and pepper. One tablespoonful butter. Three-fourths tablespoonful flour. Half cup rich milk. Melt butter in saucepan; add flour. Pour on gradually the scalded milk. Cook thoroughly. Add chicken cut in dices and seasoning. Heat well and serve on toast rounds, garnished with toast points and parsley.

APPENDIX B.

Drainage.

Theoretically every wound needs drainage. However carefully and thoroughly hemostasis is established, and however dry a wound may seem at the time of closure, there is always some bleeding and exudation of serum later, which manifestly forms a fine pabulum for bacterial growth in case of infection. Usually this bears but little significance and the wound is properly closed without drainage. In closing wounds we must avoid, above all things, the formation of "dead spaces." A perineoplasty, however skillfully performed, may be entirely lost through unskillful suturing—a dead space here, filling with blood and serum is almost certain to become infected and destroy or prevent union throughout. A raw surface left in the pelvic cavity after a pus tube operation, smeared over with pus from a bursted abscess surely needs drainage, as well as an appendicular abscess, but the raw surface created in releasing the adhesions from a fibroid or dermoid cyst of the ovary can be covered with smooth peritoneum and the abdomen can and should be closed without drainage. When must we drain—when can we close a wound? This question cannot be intelligently answered to fit all cases. Each case, in fact, is a law unto itself. The nature of the operation, the virulency of the infection and the natural resisting power of the patient are the criteria by which we are guided. Experience, and if I am permitted to say so, intuition, will place drainage or close a wound. No general rule applicable in all cases can be formulated, except perhaps this one: When in doubt, drain.

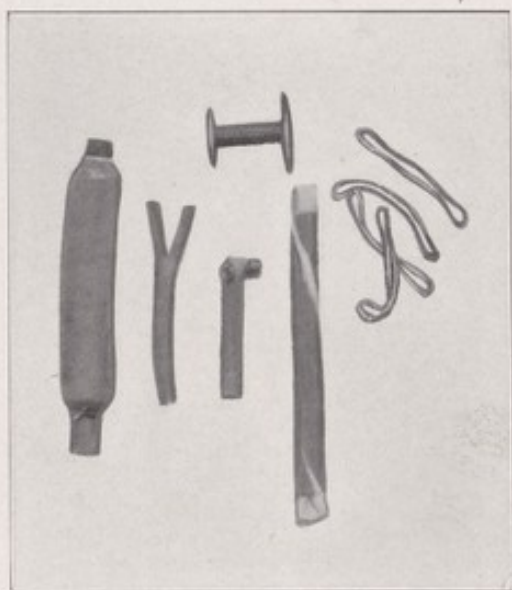
The great variety of cases, which need drainage, has necessarily brought out a variety of drainage material and methods of placing them.

Gutta-percha tissue, strands of silkworm gut and cat gut, metal, glass and rubber tubes, and gauze give us a variety from which to select the one suitable for the case in hand. For superficial drainage, e. g. scalp wounds, a very excellent drain is made of ordinary rubber bands, properly sterilized. These bands may be bought at any bookstore. They make an active

capillary drain and have the advantage of being easily and painlessly removed. Surface wounds, sinuses, goitre incisions are best drained by these rubber bands and they should be removed in about 24 to 48 hours, no contra indications being present. Metal tubes are rarely used and then usually as permanent drains. The rubber tube has furnished us the best material for deep drainage. It is pliable, may be made to accept any curve, fenestra may be cut into it, gauze may be drawn through its lumen, and it will produce a minimum of adhesions. In the latter respect it is far better than unprotected gauze, which will cause the rapid formation of adhesions. When it is desired, however, to rapidly and thoroughly lock away the general peritoneal cavity from the pelvic cavity, nothing can take the place of the Mickulicz drain. Make the Mickulicz by taking a large, square piece of gauze and placing this over the area to be drained. Now fold pieces of gauze in several thicknesses and about an inch to an inch and a half in width and with these strips pack the wound in such a manner that these strips are within the large square apron of gauze. Use plain, sterilized gauze—iodoform gauze may give rise to a severe iodine intoxication.

In the writer's opinion the Mickulicz drain has saved more lives, when properly applied, than any other method of drainage for deep infected and raw pelvic wounds. This drain should not be removed for 5 or 6 days, or even longer. Wait till the strips become "juicy," and remove one or two at a dressing, leaving the apron as the last. When the strips are removed at different sittings the wound will have time to collapse, no fresh bleeding and raw surfaces will be left to absorb the infectious material and the patient will be spared suffering. Finally the apron is removed. With a dissecting forceps grasp the free edges of the gauze here and there, until you feel the gauze "give;" have a little patience and repeat the pulling at different points and the apron will gradually loosen and come away. If this fails, twist the apron into a rope, carefully to be sure, first in one direction and then in the other and attempt to loosen the apron. If you cannot dislodge the gauze wait a day or two and repeat the operation. **Never forcibly** remove a drain of any kind! Omentum and intestine is sure to prolapse

through such brutal and uncalled for efforts and the patient is made to suffer greatly. **Never** place a gauze or other drain directly against a sutured intestine, as an intestinal fistula will be the inevitable result and, if this fistula occurs high up it will probably spell starvation and death. For the drainage of smaller pus cavities, the "cigarette" drain will be found very efficacious. The gauze is either inclosed in a rubber tube by slitting the tube spirally or covered with rubber tissue. By



Drainage Material

Pennington plug; retention tube; spiral slit tube; rubber bands;
empyema button

making the slit in the tube spirally, the gauze is prevented from emerging from the slit, as would be the case if the tube was simply cut open in a straight line.

Occasionally a pelvis is drained through the vagina, the safest route in "hot" pelvic accumulations of pus. When the cul de sac is opened and the pus has escaped, the cavity is loosely packed with washed iodoform gauze, or a tube, held by a stitch to the vaginal wall, is added. Never wash such cavities out until seven days have elapsed. The gauze drains should be renewed every 48 hours, the tube may remain longer. Peroxide of hydrogen dropped on drains, which "stick" to the tissues tends to loosen them and can be employed to advantage in re-

moving drains from abdominal pus cavities. Soaking dressings with a bichloride solution is reprehensible, because you may cause a mercury poisoning (salivation) or produce a severe dermatitis. Occasionally a retention drain is required, for instance in the bladder or in cases of empyema of the chest. Take the size of tube suited to the case and cut the tube lengthwise for about two inches. (See illustration.) Now tie an ordinary single knot with the slit portions of the tube, cut fenestra beneath and introduce. If properly made this tube will easily retain itself and at the same time can be readily withdrawn. The Pennington plug for hemorrhoidal operations is made of a large size rubber tube, around which gauze is wrapped to the thickness of one and a half inches diameter. The lumen of the tube projects at each end and the gauze is either wrapped with gutta-percha tissue, or a condom is stripped over it and is properly secured. Always secure tube drains either to the skin by a stitch, or fasten a safety pin at right angles through the tube to prevent it slipping into the cavity and becoming lost.

The writer fully appreciates that he has not nearly exhausted this subject. Indeed, he knows that he has but touched upon it. Yet he believes that some points of value have been given, that in following these simple plans the busy general practitioner can often make a hopeless case look more cheerful and that now and then a case of strangulated hernia, a neglected case of appendicitis, etc., will be spared a death dealing ride over rough roads to a far off hospital. He believes, too, that the country surgeon's self-reliance will be strengthened and that, if operations must be undertaken by him at the spur of the moment, the patient will reap the benefit of being in the hands of a man not completely surprised. The well equipped hospital is the place for surgical work, but cases will occur when prompt help is not only desired, but absolutely necessary to save a life. Purposely all fine differences in methods of preparation or treatment of some post-operative conditions have been eliminated, per contra, the writer has endeavored to use plain language and give his own methods, tried in the fire of years of emergency surgery. As a result this paper is absolutely original, except the "Surgical Suggestions" and the writer is therefore, responsible for its contents.



Gangrene of foot due to tight bandaging. Amputation at middle of leg

TEN SURGICAL DONT'S.

Don't use force in passing a catheter. Nature has provided a passage and needs no false passages.

Don't put a gauze drain directly against or over an intestinal suture. An intestinal fistula will inevitably result.

Don't remove a drain by force. You will pull off the fine granulations, especially from bone cavities, and in an abdominal case you will pull out omentum, perhaps loops of intestines.

Don't wash out an abdominal or pelvic abscess. If the abscess is not securely walled off, you will force infectious material into the general peritoneal cavity.

Don't give "heart stimulants" in a case of concealed hemorrhage, e. g. ruptured tubal pregnancy; secure the bleeding first.

Don't attempt taxis in a case of strangulated hernia—you will rupture the bowel or injure it so seriously that resection becomes necessary. Operate at once.

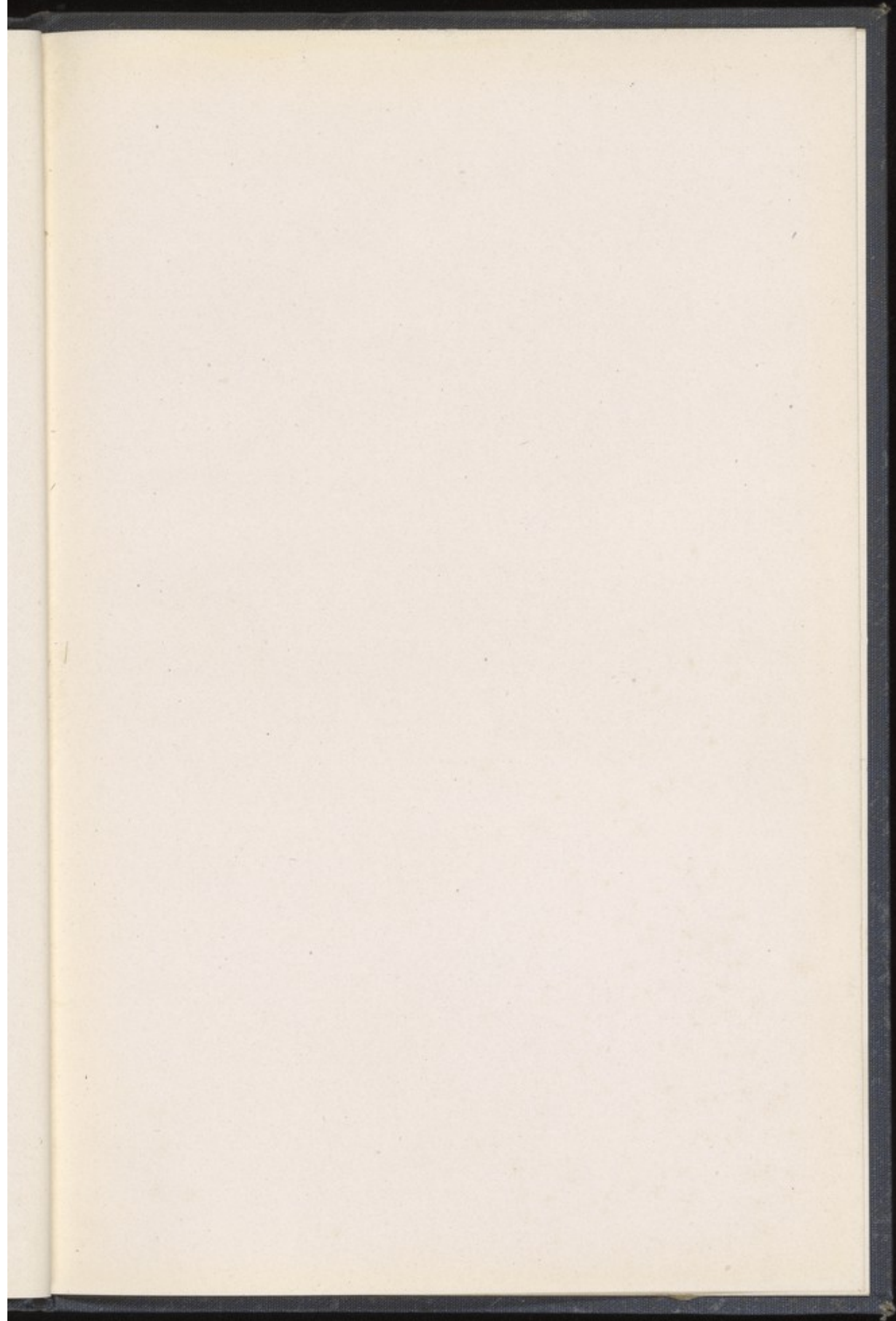
Don't open a prostatic abscess per rectum; always operate through the perineum.

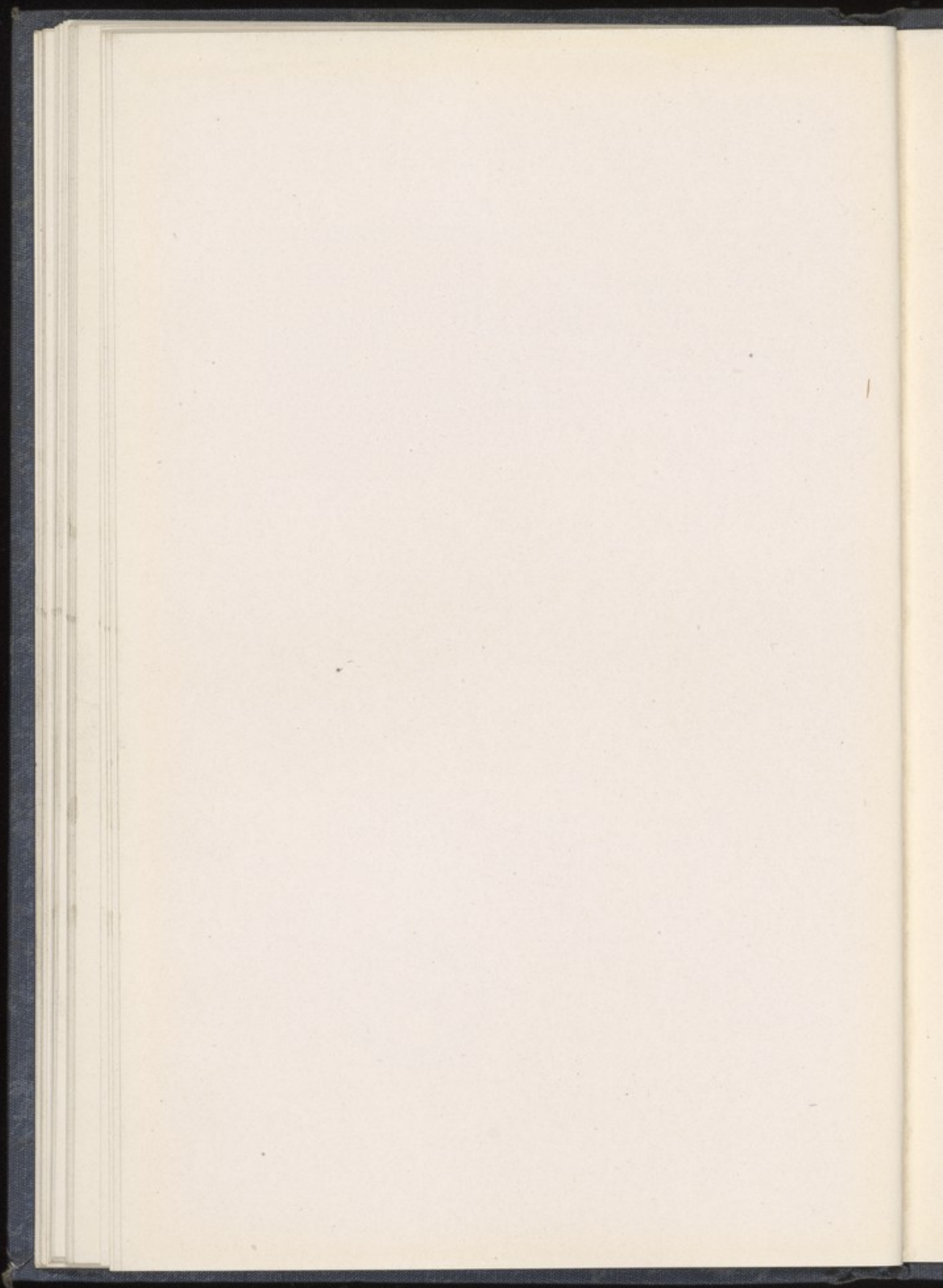
Don't forget to thoroughly pad your splints. The limb may swell considerably and gangrene result from too tight bandaging.

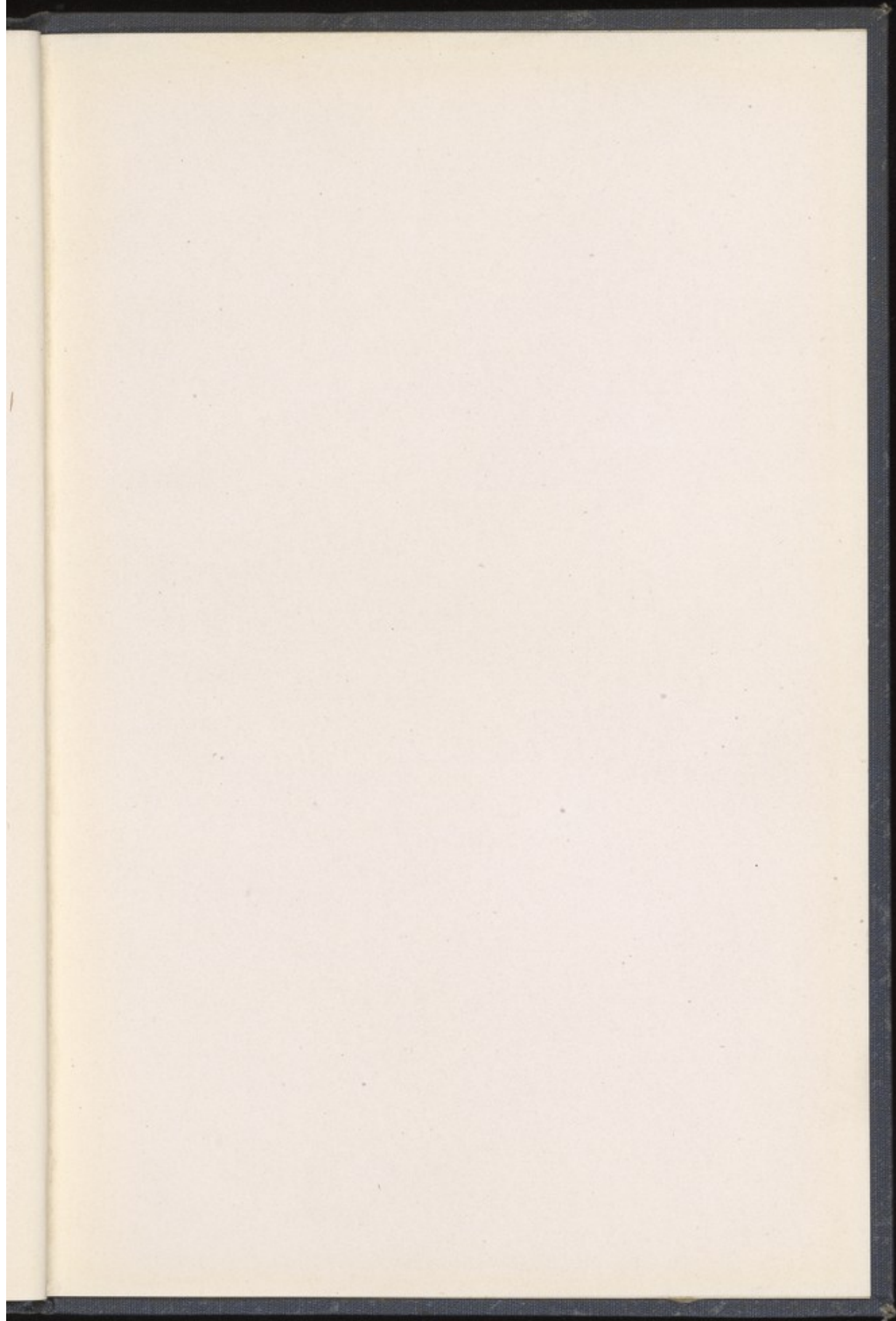
Don't curette a uterus for bleeding, unless you are sure that no inflammatory condition of tubes or ovaries is present. Septic peritonitis may be caused by disregard of this rule.

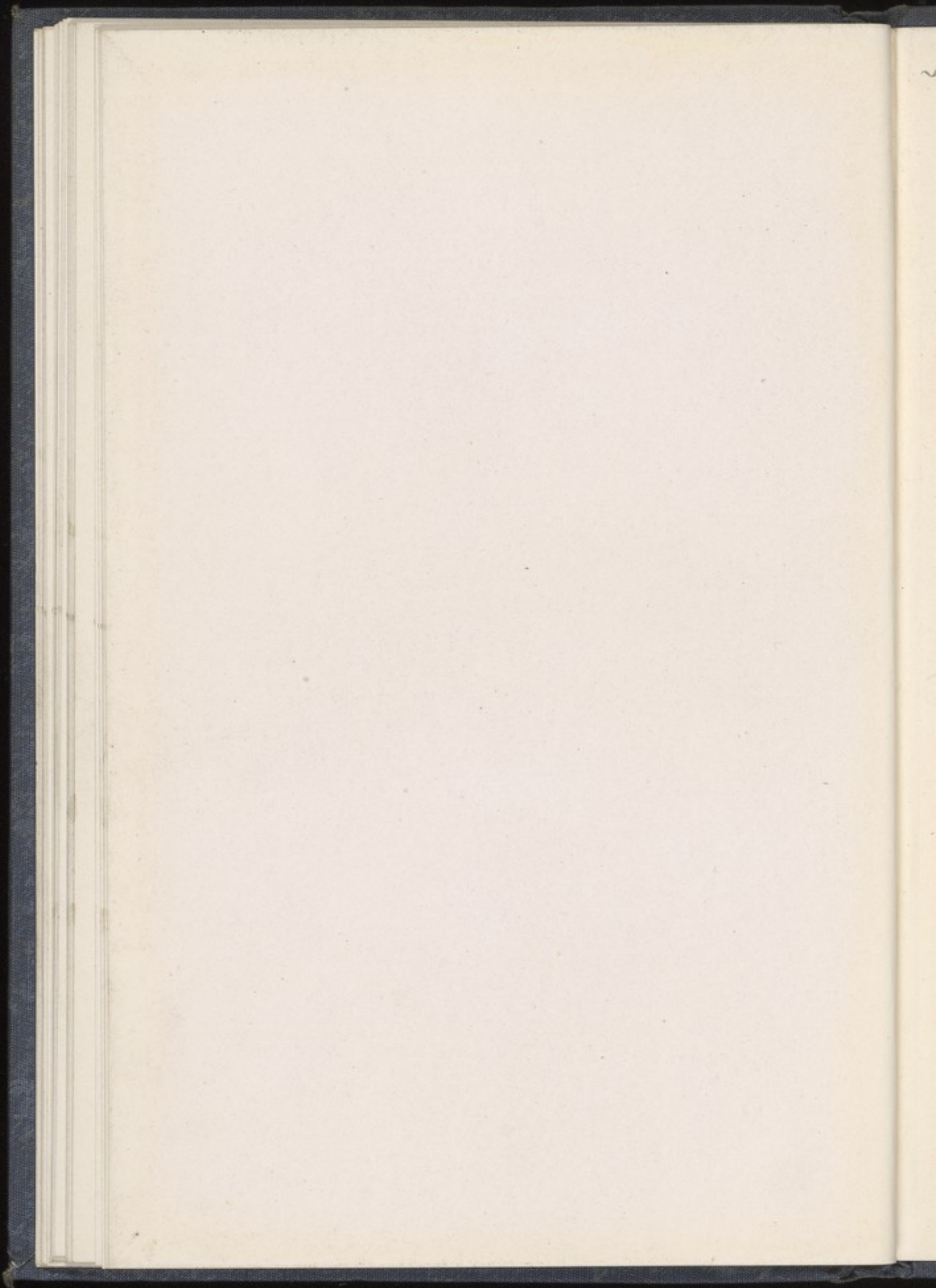
Don't wait for the "silver fork deformity" to diagnose a fracture of the radius—a malpractice suit is entertaining, provided always you are not the defendant.



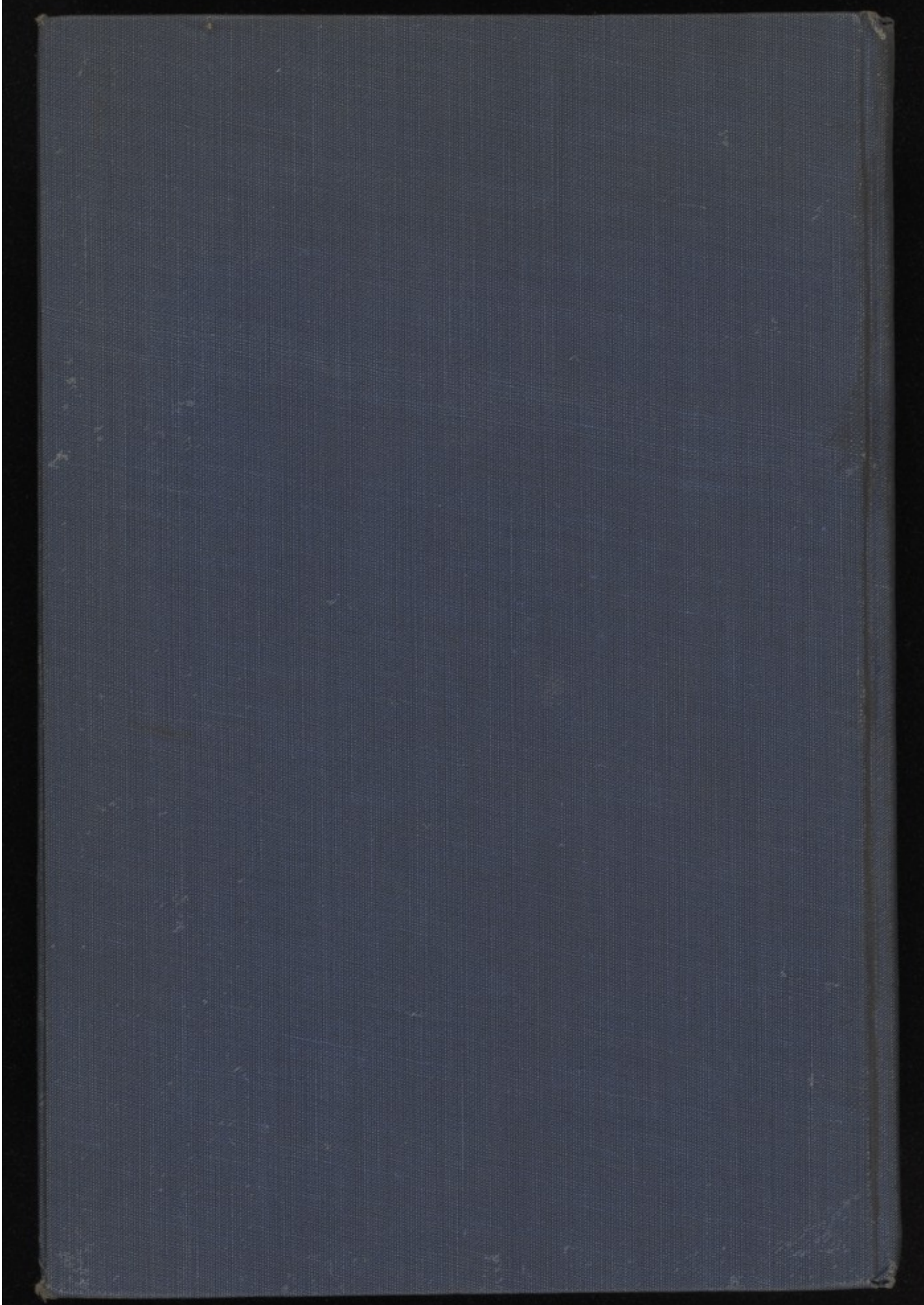








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The Emergency Operation



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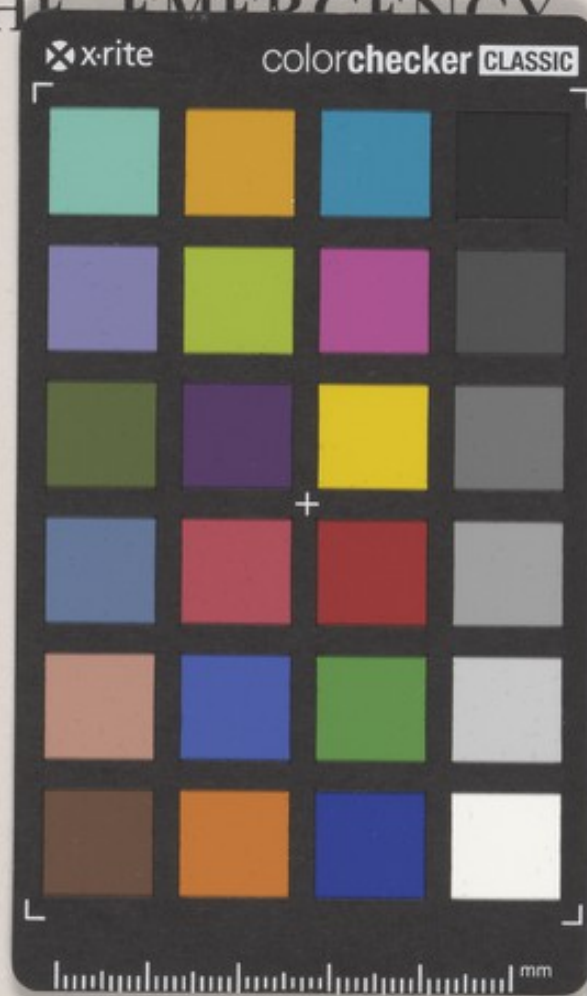
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THE EMERGENCY



DR. H. A. DUEMLING

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