

with her comfort by day, but especially disturbing her at night. In fact, the flow of saliva finally became so profuse at night that the patient dared not lie down for fear of choking, but sat bolstered up in bed with a towel placed to receive the saliva. She was thus able to sleep but little, although towards morning the flow diminished somewhat, and she was enabled to sleep for two or three hours. In spite of the loss of sleep, however, the general health continued good, and the appetite was unaffected. The submaxillary glands were markedly enlarged and the contour of the face thereby distorted; the eyes, too, were somewhat heavy from loss of sleep, but otherwise the patient looked as well as usual.

During all this time the lady had been under the care of a well-known and able physician, who had tried all the drugs recommended for excessive salivation without appreciable effect. The patient said she had received more than a dozen prescriptions. It did not therefore seem worth while for me to attempt any further treatment. I found that the urine was markedly diminished in amount, without other abnormality, however. This diminution was undoubtedly due to the great derivation of water through the salivary glands, and I advised the free use of Apollinaris or lithia water, which increased the amount of urine somewhat. The labor was in no way remarkable: the os uteri was fully dilatable after twenty hours of first stage labor; but the head did not descend, and after two hours of fruitless maternal effort I delivered a ten-pound girl with high forceps and axis-traction rods. During the next three days salivation occurred two or three times, the flow lasting only a few minutes; it did not appear after the third day, when lactation was fully established; from this time the convalescence progressed normally, and mother and child were discharged well.

Early in 1893 this patient became pregnant again, and at the end of the second month salivation began again as in the first pregnancy: there was no morning sickness. By the fifth month the flow of saliva had become so excessive as to cause great discomfort and loss of sleep; but, as before, the general health continued good. In view of her former experience, the patient was indisposed to submit to drug treatment, especially as I could offer no assurance that any treatment would prove effectual. As before, lithia water was found to be the most refreshing drink for the swollen gums and oral mucous membrane. Labor began just 280 days from the first coitus after the last menstrual period, and with the invasion of labor pains salivation ceased. The labor was uneventful, except that as before it was necessary to deliver with high forceps, the child, a boy, weighing ten pounds. On the second day there was some return of salivation, and with the establishment of lactation the salivary flow did not cease, as in the former pregnancy; on the contrary, it continued for two weeks more or less profuse, never absent for an entire day, and sometimes sufficient in amount to cause vomiting when the patient was recumbent. After two weeks the flow gradually diminished in amount; but it did not cease altogether until the end of three months. Aside from this discomfort the convalescence was normal, and mother and child were discharged well.

I have met with but one other case⁵ of excessive

⁵ This case was assigned to my charge in 1877 by the Obstetrical Department of the Harvard Medical School. Prof. William L.

salivation in pregnancy, and that was seventeen years ago when I was a medical student. My experience is therefore that of others, that excessive ptialism of pregnancy is a very rare affection. Winckel, in his text-book of midwifery, says that salivation is mostly associated with extreme nausea and vomiting; but these latter symptoms were absent both in Dr. Richardson's case and in my own. The disorder is probably a reflex neurosis, like many of the cases of uncontrollable nausea and vomiting. The amount of the salivary flow in twenty-four hours may reach several quarts and seriously impair the general health. In some cases of ptialism, as in some of nausea and vomiting, the disorder may cease spontaneously in the fourth or fifth month; in others, as we have seen, it may continue throughout pregnancy, and cease soon after the birth of the child or on the establishment of lactation. Charpentier⁶ mentions seven cases in which ptialism began with the pregnancy (as in Richardson's case), and persisted after delivery, once fifteen days, once eighteen days, twice for two to three weeks, and three times in the same woman for from three to four months.

In regard to the treatment of this affection, while many drugs are recommended by various writers, reliance can be placed upon none. Galatin truly says that pregnancy salivation "is apt to resist remedies." Astringent mouth washes of tannin or quassia may palliate, but cannot be expected to cure. Charpentier recommends the frequent use of brandy as a gargle, and the keeping in the mouth of small pieces of dry, bitter, orange peel. Other recommended remedies are pilocarpin (perhaps on the *similia similibus* theory), iodide of potash, fluid extract of viburnum prunifolium, belladonna, and atropia, the latter being best used by hypodermic injection near the affected glands. But if the affection is a reflex neurosis, it would seem that nerve sedatives would hold out most promise of successful results. Schramm is said to have cured a case in 1886 with bromide of potash, after the iodide and pilocarpin had both failed; but if I remember rightly Richardson used the bromides in his case, to which I have alluded, without apparent effect. If I were to meet with another case, however, I think I should place most reliance on bromides and on large doses of chloral hydrate, the latter exhibited preferably by rectum.

REMARKS ON SURGICAL SPLINTING.¹

BY EDWARD A. TRACY, M.D., BOSTON, MASS.

THAT illustrious surgeon, Frank Hastings Hamilton, whom I delight in quoting — for his work on "Fractures and Dislocations," the first of its kind in the English language, does honor to American surgery — he, speaking of the ordinary manufactured wooden splints, said: "I wish at once, and for all, to disclaim any intention of giving even a qualified approval of any of those carved, polished, and generally patented wooden

¹ Read before the Malden Medical Society, January 29, 1894.

Richardson, at that time instructor in clinical obstetrics, was summoned to my assistance and delivered with forceps a face presentation, M. D. P. He recognized the patient as one whom he had been treating for salivation in the out-patient department of the Massachusetts General Hospital, and who was also affected with excessive ptialism in her former pregnancy. In this case salivation ceased within half an hour after delivery. Dr. Richardson's report of this interesting case may be found in the Boston Medical and Surgical Journal for July 12, 1877.

⁶ Cyclopædia of Obstetrics and Gynecology, vol. ii, page 67.

splints, which are manufactured and sold by clever mechanics, and which one may see suspended in almost every doctor's office, whether in the city or in the country. Constructed with grooves and ridges, and variously inclined planes, for the avowed purpose of meeting a multitude of indications, such as to protect a condyle, to press between parallel bones, to follow the subsidence of a muscular swelling, etc., they never meet exactly a single one of these, whilst they seldom fail to defeat some other indication of equal importance. . . . If carved wooden splints are employed, they ought to be made especially for the case under treatment."

These strictures apply, it seems to me, with somewhat lessened force to the metal splints we frequently see nowadays. Hamilton further states his preference for strips of wood cut to the proper length and width by the surgeon, and so padded as to fit the inequalities of the limb treated. This surgeon was an adept in the use of gutta-percha for splinting; and the point to note is that whatever he used, he made his own splints. Most surgeons, I believe, think as Hamilton did in this matter; and Dr. Henry O. Marcy's dictum, "The surgeon must make a splint to fit the limb—and not the limb to the splint," aptly defines the proper practice in surgical splinting.

The subject of surgical splinting is a vast one, whether looked at from an historical or a practical point of view. Had I the time and qualifications needful, and you the patience, it might be clearly shown you that surgical splinting, like navigation and printing, had attained perfection undreamed of, in the happy era preceding that of the Chinese philosopher Confucius. But doubtless you will be better pleased if, fancy being restrained, the practical aspect of the subject be dwelt upon. Indeed, I shall use further restraint, and confine myself to remarks on surgical splinting as exemplified in the use of my wood-pulp material, and that, I hope in a manner interesting and profitable to you all.

First, the material and method used shall be described, and later a variety of splints made in accordance with this method shall be shown you; finally, if time permit, I shall demonstrate the method by making a splint before you.

In describing the material, time is saved by quoting from a paper (to be published later) contributed by me to the recent Pan-American Medical Congress.

THE MATERIAL.—The basis of the material is wood-pulp made preferably from the crushed fibre of the poplar tree, and rolled in sheets in such fashion that the broken fibres intertwine in every direction and loosely, so that an increase of plasticity is thus given to the product. These sheets are further strengthened by having a fabric introduced between the layers of the pulp, or by interweaving with the short, crushed wood-fibre, a long jute or other tough fibre.

The sheets are rolled of different thicknesses, for adaptability to all splint conditions. For convenience I shall designate the thickness by number, each unit representing a thickness of one millimetre: thus sheet No. 1 represents the material with a thickness of one millimetre,—sheet No. 2, with a thickness of two millimetres, and so on.

Characteristics of the Material.—The chief characteristics of this material are stiffness or rigidity when dry, and plasticity when moist. Its rigidity can be increased *ad libitum* by the use of a silicate solution as a moistener. Its plasticity has a limit. The limit is rarely experienced, and only when moulding the material over certain complex curved surfaces. To exemplify: a splint cannot be directly

moulded over the ankle-joint anteriorly, for there are two large curves in opposite directions to be followed simultaneously—the convex curve from maleolus to maleolus, and the concave from above downwards over the leg and instep. This difficulty, when met, can be obviated in various ways. I shall mention three of them. Take the case of the ankle-joint: an anterior splint is required for it. The proper-shaped blank shall be cut from sheet No. 1, and moistened with one of the solutions described later. It then should be applied to the limb, care being taken to keep its outer border in contact with the skin, while the superfluous material over the anterior of the joint should be pinched between the thumb and forefinger, and all of it laid or pressed over to one side; a bandage should be singly applied to perfect the moulding of the splint. This method of "pinching and folding over" has an important application in the making of spinal jackets. A second method consists in cutting away the superfluous material, in this case an elliptical figure, and bringing the edges of the cut portion together, to retain them so by means of a strip of the material fastened over the cut edges. A third way is to cut a blank for each important curve and after moulding to properly unite them.

The material possesses, besides the above characteristics that *desideratum* of a splint material—extreme lightness. Its cheapness also deserves a passing mention.

MOISTENERS.—Water or a stiffening solution can be used to moisten the material.

Water.—The advantage of water is its omnipresence. A serviceable splint can be made with its aid. Such a splint should be protected from perspiration or other moisture, lest it be softened and its usefulness destroyed. It can be so protected by a covering of oiled paper or silk, mackintosh, or best by a coat of varnish.

Silicate Solution.—A stiffening solution having several qualities to recommend its use is that of silicate of potash (silicate of soda is almost as serviceable). Any desired degree of rigidity can be imparted to a splint by using this solution, the amount of rigidity depending on the strength of the solution. A splint rendered rigid in this manner, is not affected by perspiration, nor indeed by momentary contact with fluids, as in washing. Another advantage, especially in cases of compound fracture, is that this solution renders the splint antiseptic. In practice, the solution of silicate of potash generally sold for surgeon's use, and further diluted with water, can be employed. (The commercial solution spoken of in this paper is regarded as a 100-per-cent. solution, and the percentage solutions spoken of in this paper are to be made by diluting the commercial solution with the proportion of water called for by the percentage: thus a 70-per-cent. solution is made by mixing 70 parts of the commercial solution of silicate of potash with 30 parts of water. The commercial solution should have a specific gravity of 1.3 to 1.4.)

Dextrin Solution.—Another useful stiffening solution is that of dextrin, in the proportion of about eight ounces to a pint of water. This solution adds some tenacity besides stiffness to the material treated with it. A splint made with its aid can be remoistened with water and remoulded, quite an advantage in cases where from subsidence of swelling or other cause, a closer approximation of splint to the limb is desired. In practice, dextrin (to be had of paint wholesalers) can be carried about in powdered form, and a solution in water extemporized when needed. An addition of eight grains of corrosive sublimate to a pint of the dextrin solution will render it antiseptic.

MOISTENING PROCESS.—A few words descriptive of the proper manner of moistening the material. The aim should be to get barely sufficient moisture into the material to render it semi-plastic. If more moisture be absorbed, it becomes more difficult to maintain the moulded splint in the desired shape while drying, and also unnecessarily lengthens the time required to dry the splint. I find the best way of moistening the splint blank, is to apply the fluid used, on each side of it, alternately, by means of a flat paste-brush. A little practice will enable us to judge the precise amount of moistening best suited for our purpose.

DRYING.—The time required for drying the moulded blank varies, for the different sheets employed, from ten to forty minutes; the thicker sheets, holding the more moisture, require the longer exposure to heat to drive it out. Any source of sufficient heat can be employed; a good kitchen fire is very efficient and, generally, convenient. While the splint is drying it is serviceable to have yarn or string wound around the moistened form after its removal from the body, to aid it to maintain the desired form, until drying permanently fixes it.

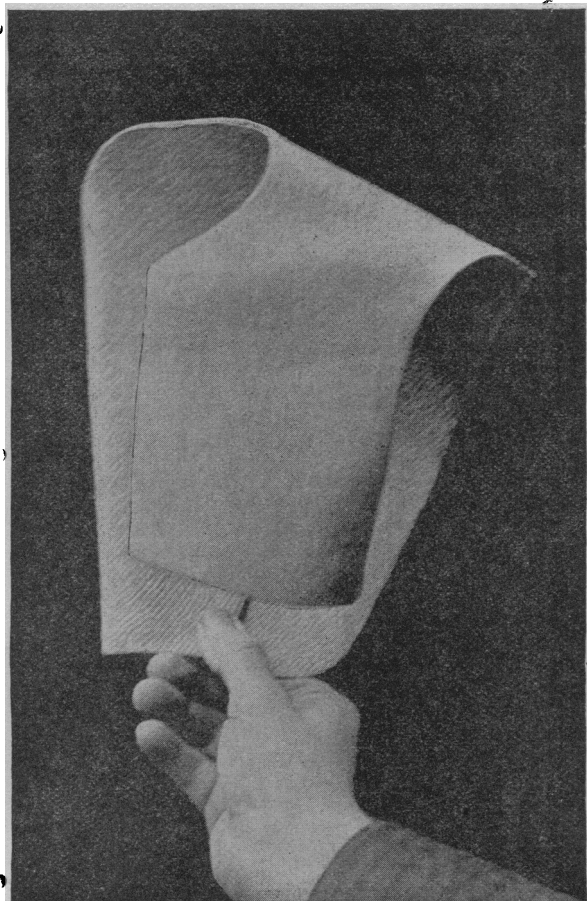


FIG. I. A Claviculo-Scapular Splint.

Having thus described the material and method used, instead of quoting further the dry technique for the various head, trunk, upper and lower limb splints, I shall show you some made in accordance with that technique, "the observation of one of which is better than a large demonstration of words," to quote old Isaak Walton.

The most of the splints here shown were exhibited at the Columbian Exposition; your Society, and I am grateful for the honor, has been the first to give me an opportunity to display and explain them to brother practitioners. [Splints for various parts of the body, all of them moulded on the living subject, were shown and discussed; the following three are selected for illustration here.]

A CLAVICULO-SCAPULAR SPLINT.

This splint is part of an apparatus devised for the treatment of dislocation (upwards) of the acromial end of the clavicle. The apparatus is fully described in the *Boston Medical and Surgical Journal*, Vol.

CXXXVIII, p. 186. An apparatus for fracture of the clavicle has been devised on the same principle, that is, to regard the shoulder as a pyramidal body, and to

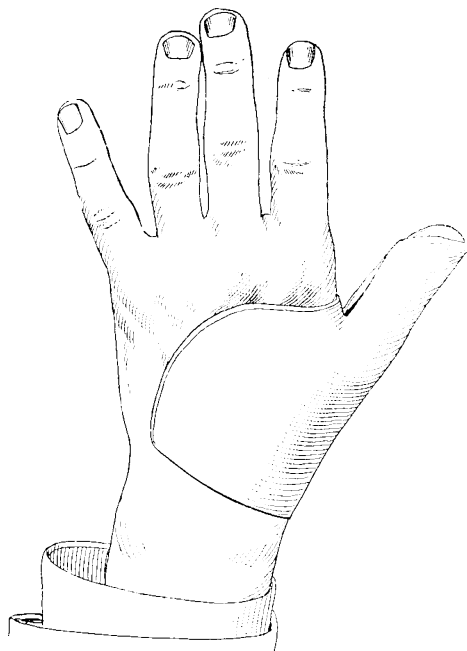


FIG. II. A Thumb Splint.

so treat it. In a fracture, however, there is such short bone leverage for effective pressure, that a modification is introduced by which the apex of the pyramid is raised upward and backward, and by suitable splinting fixed effectively in the desired position.

A THUMB SPLINT.

This splint is intended for fixation of the thumb, including its metacarpal bone. It embraces the thumb, that portion of the dorsum of the hand shown in the engraving, and somewhat more than the thenar eminence of the palm, care being taken to keep below the cross-palm lines that mark the region of the meta-carpophalangeal joints, so as not to hinder finger motions.

A SPINAL JACKET.

The blank for this splint is of the simplest pattern, having width sufficient to envelop the patient's body once and a quarter around, and its length governed by the amount of spine we wish to control. This particular jacket was made for and worn by a boy of six years. It was moulded on the boy's body and completed at his home in less than forty minutes. The jacket's edges are covered with chamois skin glued on. The straps are of chamois skin also, and this material was used because of the ready manner it can be attached

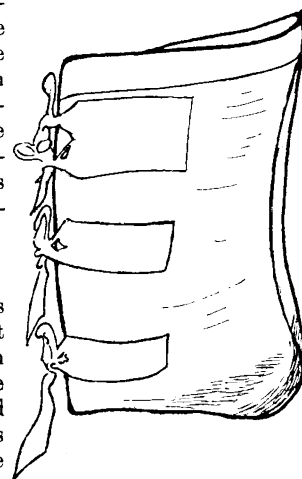


FIG. III. A Spinal Jacket.

to the jacket, and its toughness and friction preventing the giving or slipping of a bow-knot.

Before attempting a demonstration of splinting by this method, I must state that it is handicapped by the amount and quality of the material at hand. That manufactured so far has been finished by hand-labor at the pulp mill. It has been distributed among Boston surgeons, several of whom have kindly signified to me their pleasure in testing it. The supply is now exhausted, I hope not for long. Mr. Charles H. Fisk, of Manchester, N. H., the gentleman who has undertaken to put the material on the market, has written me that machinery will be constructed to manufacture it cheaply and expeditiously.

[The making of a palmar forearm splint was here demonstrated. The splint meets the indications which Cheever emphasizes in the treatment of a Colles' fracture. He says: "The important point would seem to be . . . not to press the back of the wrist down in such a way, by splints, that we shall lose sight of this arch, which is so marked, under the radius. . . . This arch must be well supported. . . . The splint should terminate at the head of the metacarpal bones, and the thumb and fingers should be left free."²]

In concluding, fellow-practitioners, I thank you for your kindness and energy in braving to-night's snow-storm, to meet here; and I ask you, if pleased with this splint material, to take hold of it and develop its various applications, which have been so briefly hinted at; then, perhaps, in later years we can all look back on work done, and done well, and feel that we have done some little to advance surgery — American surgery.

Clinical Department.

A CASE OF MYXŒDEMA.

BY ROBERT E. BELL, M.D., LOWELL, MASS.

THERE has been so much written on this subject, and it is so prominently before the profession, that I wish to report my one case, as it has presented some features that I have not seen mentioned.

Mrs. B., fifty-four years of age, consulted me first January 7, 1894. Family history good. Father and mother both lived to be almost seventy; two brothers and four sisters living. She dates her symptoms from about eighteen months ago. She comes to me because she cannot see to read, and thinks her glasses need changing. $V=R^2_0$; glasses do not improve her vision. Ophthalmoscopic examination simply shows the fundus somewhat paler than normal.

Patient says that about eighteen months ago her face and hands began to bloat, and she had difficulty in keeping hold of objects in her hands, was constantly dropping dishes, etc. Then her limbs began to swell; and finally she noticed she could not get her clothes on alone, her arms were so useless. She had become very sensitive to cold. Her hands and arms pained her so she could sleep but a few hours. Was dizzy, and felt like falling if she attempted to walk. No appetite. Urine at times was very heavy and almost black. She could not go up stairs without getting out of breath. When she came to me, there was pallor of

the face and a puffiness about the eyes. There was œdema about the ankles and legs. The skin of the hands was dry and rough. The hair had no lustre. She talked very slowly and deliberately, and walked as though completely tired. Examination of urine was negative.

Supposing I had a case of myxœdema to deal with, I ordered the thyroid extract of Parke, Davis & Co., in doses of five grains twice a day. At the end of one week patient was better, but complained of some nausea, and pain in her back and legs. I decreased the extract to three grains twice a day, and kept it up until the middle of February, then reduced it to about two grains a day.

At the present time she considers herself well. I certainly never saw a more marked improvement in any patient. She eats well, sleeps well and breathes well. Her vision is now all right with the lenses suited to her age.

Medical Progress.

REPORT OF PROGRESS IN GYNÆCOLOGY.

BY F. H. DAVENPORT, M.D.,
Instructor in Gynecology, Harvard University.

THE CAUSE OF PERITONEAL ADHESIONS AFTER ABDOMINAL SECTION.

WALTHARD¹ has conducted a series of experiments in the Pathological Laboratory of University College, London, to ascertain the cause of peritoneal adhesions after abdominal section, with a view to discover the way to avoid that complication. He found that prolonged contact of normal peritoneum with atmospheric air caused necrosis of the superficial layer of cells. This injury, even when strict asepsis is carried out, favors the formation of adhesions. It speaks in favor of rapid operating, but many gynæcological operations and procedures for disease and damage to the intestine cannot be performed quickly; hence there must always be danger of peritoneal adhesions when the course of the case is aseptic, and of suppurative peritonitis when accidental infection occurs. The great aim of the operator is to make sure that the peritoneal cavity is thoroughly cleared of all fluid or semi-fluid material by the usual "toilet." In short, the serous membrane must be kept from the contact of fluid, but not allowed to become dry by exposure to air. This Walthard calls "dry asepsis."

When the cavity cannot be kept dry, as in many long operations, "moist antisepsis" is required. In other words, the peritoneum is flushed out with water at 100° neutral, and preferably containing chloride of sodium. The loss of its shiny appearance is the evidence that the serous membrane is becoming dry.

URETERO-VAGINAL FISTULÆ.

Hochstetter² has been able to find records of thirty-nine cases of uretero-vaginal fistulæ, of which twenty-three were caused by difficult labors, ten followed total extirpation of the uterus, two the opening of a pelvic abscess, one the spontaneous breaking of an abscess, one from ulceration caused by a pessary, and in one case the cause was not given.

The frequent performance of vaginal hysterectomy

¹ Correspondenz. Blatt f. Schweiz. Aertze xxxiii, 1893, reported in British Medical Journal, December 2, 1893.

² Arch. für Gyn., xlv Band, 1 Heft, 1893.

² Lectures on Surgery. By David W. Cheever, M.D. See Lecture X, Boston Medical and Surgical Journal, vol. cxxix, p. 2.