making a straight line at right angles to the cut. Dr. Beach has recently done a case of that sort with great success. In a suitable case, where the stricture is small and movable, it is a very good operation, and the mortality is quite low. Corazza collected 53 cases, with only 6 fatal ones, 12 per cent.

The technique of these operations is now pretty well settled, and the mortality will not be much lower until the diagnosis is made quicker and the operation is done earlier. Early exploratory incisions would lead to many more cases. Of course, I have no idea that the majority of chronic ulcers of the stomach ought to be treated by operations. I understand from the literature that 85 per cent. of them get well, consequently I should not think of suggesting that an ordinary chronic ulcer be operated on if it is doing well. It seems to me there is no question in a case like Dr. Cutler's, a cicatricial stenosis of the pylorus with exhausting hemorrhages; I think that is a clear indication. One of the German authorities I happened to come across to-day suggests that an operation on an ulcer is indicated whenever any severe symptoms appear. I suppose he meant by that whenever it was doing badly in any particular way, when the pain became too severe, or when hemorrhages come on, or when the medication or washing out became inefficient. It is at present difficult to state exactly the indications. I should like to hear what some of the medical men think the indications are.

J. W. E.

So far as I know, Mikulicz⁵ was the first to operate for uncontrollable hemorrhage in gastric ulcer. It was in a patient being treated for constant hemorrhage from an ulcer of the pylorus. The ulcer was energetically cauterized with the thermo-cautery, and the narrowed pylorus was divided and sewed up, so that a new pylorus was formed (pyloroplasty). The patient died of collapse and circumscribed peritonitis three days after the operation.

Küster⁴ operated in a case of uncontrollable hemorrhage from a gastric ulcer with good result, by cauterizing with the Paquelin cautery the base of the ulcer which was adherent to the pancreas. He also did gastro-enterostomy because of an existing cicatricial stenosis of the pylorus. The hemorrhage stopped and the patient recovered.

Rydgier excised an ulcer of the stomach in which life was threatened from bleeding, successfully, as did also Billroth and Lauenstein with success. Kleef did the same operation, but without a favorable outcome.

Fleiner⁶ considers excision to be indicated in inveterate gastric ulcer where the conditions do not allow of an appropriate diet and proper care.

The two mistakes in this case of ours were in giving the diet by the mouth to obtain the digestion leucocytosis, which was unnecessary, the diagnosis being already established, and in the delay of the operation. I am convinced that if operation had been done earlier, before the patient had become so reduced, he would have stood a better chance to battle for his life.

E. G. C.

LORD LISTER and Prof. Müller have been elected members of the Imperial Academy of Sciences, Vienna.

⁵ Mikulicz: Zur operation Behandlung des stenosirenden Magen-geschwürs. Verhandlungen der deutschen Gesellschaft für Chirurgie, 1887, Band 16, Seite 337.

⁴ Deutsche med. Woch., 1894, No. 24.

⁶ Volkmann's Klinische Vorträge, No. 103, Seite 85.

A CASE OF ACONITE POISONING.¹

BY R. W. GREENLEAF, A.M., M.D., BOSTON.

On January 11, 1897, Mr. C., fifty-two years of age, took by mistake for tr. rhei, between two and three drachms of tr. aconiti rad. He had mixed it with half an ounce of milk of magnesia in water. Burning of the fauces resulted immediately. His son, shortly afterwards, gave a mustard emetic. It not acting, he gave two doses of zinc sulphate, gr. xx each. The time, including procuring the emetics and free emesis, was about thirty minutes.

I was then sent for, but, being in attendance elsewhere, Dr. F. R. Tower kindly responded, arriving some ten minutes later. The chief symptoms then were, burning of the fauces; tingling of the lips, hands and feet; and restlessness. The pupils were slightly dilated. The pulse was 80 and of fair strength.

Tr. digitalis, m. xii, was given by the mouth, and at once rejected. A copious water enema, followed by one of brandy, oz. i, and tr. digitalis, m. xii, was next given. A half-hour later prostration came on, with labored breathing, weak pulse and sense of intense cold. Tr. digitalis, m. xii, and strychnine sulph., gr. $\frac{1}{10}$, were given subcutaneously. The foot of the bed was raised and heaters were applied.

The prostration being alarming, Dr. C. H. Underhill was called in consultation. Brandy was then given subcutaneously several times.

On my arrival, three hours from the ingestion of the poison, the condition was as follows: prostration marked; icy perspiration universal; respiration labored and variable, averaging 32, pulse at times not felt at all, when felt scarcely perceptible, slow and irregular; nausea and occasional vomiting of mucus; tingling of extremities and epigastric pain. Pupils reacted equally and were of normal size. Mentality clear. Remarkably calm, though apprehensive of impending death. Speaking required much effort.

Strychnia, gr. $\frac{1}{10}$, was again given subcutaneously. Brandy, oz. i, with equal parts of water by enema, and repeated twice in half-ounce doses. The condition continued precarious for another hour, with heart sounds irregular and scarcely audible. Atropine sulphate, gr. $\frac{1}{10}$, was then given hypodermically. This was followed by increased strength of the respiration and pulse and by drying of the skin. At this time the patient complained considerably of peripheral tingling and of intense burning pain in the epigastrium. As the vomiting had continued, we at first gave champagne, half an ounce, which was at once rejected. A sinapism was then applied to the epigastrium, and bismuth subnitrate, gr. x, given by the mouth and retained. This was repeated twice in hour intervals. Milk, in half-ounce doses, was given every half-hour.

The condition now, after five hours, gradually improved. In eight hours the pulse was of fair strength, regular and about 80 per minute. Respirations were about 28. In nine hours he began to complain of rectal tenesmus and to void small mucous and bloody stools. These symptoms persisted annoyingly some six hours, and finally yielded in three hours more, after rectal irrigation with warm water, a Rochelle powder by the mouth, half an ounce, and later ol. ricini, half an ounce, taken in capsules. As the urine had not been passed during the day, he was catheter-

¹ Read before the Clinical Section of the Suffolk District Medical Society, February 17, 1897.

ized fourteen hours after taking the poison. Six ounces of somewhat concentrated urine were collected.

From this time on no other treatment was given, save bismuth, gr. x, at intervals of six hours, and lime-water with milk.

On the following day he felt very weak, but the heart was acting well. The gastro-intestinal pain was quite severe, and all food but arrow-root, milk and ice-cream was avoided. He passed small quantities of urine from time to time, and also some mucus with the otherwise normal stools. For a week the epigastric burning and the tingling of the extremities continued, and then gradually wore away. The tingling was of a peculiar character, mapping out to the patient, as it were, successive areas. In this way he felt that he could localize the urethral orifice of the bladder and the cardiac orifice of the stomach. This sensation did not leave the anus till about the tenth day. Up to the fourth day the submaxillary glands were quite tender and painful. At the end of a week an ulcer, two inches in diameter, formed on the left scapula region, and two small ones on the hips, presumably from burns. The latter are healed, but the former still has a small granulating surface. The patient is outdoors daily, but full strength has not yet returned.

In comparing this case with others, its interest is found to lie in its rarity, the dangerous character of the drug, and the lessons to be learned for the treatment of possible future cases.

Aconite poisoning is exceedingly rare, considering that the drug is an ingredient of a common liniment and is almost a household word from its free use to-day. Enough cases are reported to make a sufficient basis for study. Woodman and Tidy in their edition of 1877, p. 354, report 33 cases and refer to eight others collected from medical journals and works on toxicology between 1807 to 1872. Dr. G. H. Tucker reports, in the *New York Journal of Medicine* for 1854, p. 222, 53 cases, similarly collected.

The alkaloids of the aconite plant are found in both leaves and root, but are strongest in the root, from which the present official preparations are derived. Aconite root has been mistaken for horse-radish root and caused fatal poisoning. Death has resulted from one drachm of the tincture on several occasions. Twenty-five minims in one case and twenty-five drops in another have resulted fatally. One-tenth of a grain of aconitia would prove fatal in a man, and one-fiftieth has produced alarming symptoms. On the other hand, recoveries have taken place after the ingestion of as large doses as one and a half ounces of the tincture. The acute symptoms appear in from a few minutes to an hour. Death usually results within three or four hours. In one case it occurred in twenty minutes. On the other hand, it has been delayed as much as twenty-four hours.

H. C. Wood and others report at length on the pharmacology of aconite. The effects of slowing the heart, of embarrassing respiration, of rendering peripheral nerves anesthetic, and of chilling of the body without affecting cerebration are ascertained. The exact way in which these effects are produced still appears open to question.

The pathology presents little that is characteristic. Conditions found in deaths from asphyxia are sometimes present. The gastro-intestinal tract is apt to be congested, perhaps quite as much from the action of irritant emetics as from the effect of the aconite.

Regarding the treatment of aconite poisoning, it appears that we are rather better equipped for success than was hitherto the case. In the 41 cases referred to by Woodman and Tidy in 1877, 67 per cent. died; and it is noteworthy that neither digitalis, atropia, nitrite of amyl or heat are mentioned as among the agents used. They include sulphate of zinc, finely powdered animal charcoal "as suggested by Headland," the stomach-pump, ammonia, brandy, strong coffee, tea, liniments and friction to limbs and spine, sinapism to stomach, and slight galvanic shocks to heart. They also state that "much has been said about the mutual antagonism of strychnia and aconite, and, judging chiefly by their different effects, they have been regarded as mutual antidotes."

Of 20 cases collected from references in the "Index Medicus" for the past ten years, six resulted fatally. Of these death was reported as occurring in one case in two hours (from two drachms of the tincture), in another in one and a half hours (from three drachms of the tincture), and in one in sixty-five minutes (from one ounce of the tincture, B. P.); time not stated in three cases. In the recoveries the duration of acute symptoms was from one to nine hours, the average being four and seven-tenths hours. In one case of recovery one and one-half ounces of Fleming's tincture had been taken. In another seven and a half drachms of the (U. S. P.) tincture.

Appended is a list of these references, together with a summary of the treatment of each case. Their number is not enough to base statistics upon, but they are of interest as evidencing improved treatment. In these cases the symptomatology was the same as that usually given in works on toxicology.

From the various data now available I would briefly summarize the treatment of aconite poisoning as follows: Empty the stomach with the stomach-tube as soon as possible and wash out thoroughly at the time. If one cannot get a tube, use active emetics, as zinc sulphate, or better still apomorphia. For local measures, tannic acid, charcoal (introduced to the stomach in a dry state, as by kouseals), and oils may possibly be of value. Potassium permanganate might also help if the stomach does not contain food. They are of no use after removal of the poison, and measures to produce this should take precedence of any others. To combat the effect of poison already absorbed, antidotes should be given hypodermically. For this purpose none of the above are of value. In reviewing the reported cases, it seems to the writer that much valuable time was lost in some cases by attempts at medication by the mouth. The tendency to emesis and the altered absorptive conditions of the stomach are the contraindications. For antidotes, digitalis, atropine sulphate, strychnine sulphate, alcohol and ammonia subcutaneously; nitrite of amyl by inhalation; hot and concentrated alcohol, as brandy, by enema; and galvanism for stimulation of the respiratory and cardiac centres, are of value, in the order named. Perhaps galvanism should be ranked relatively more highly. Opium and camphor have also been recommended. As to dosage, the rule of pushing a drug to the point of its physiological action is to be observed.

Regarding other measures, a very important one is that of keeping the patient warm. He should be wrapped in hot blankets. In the use of heaters especial care should be taken to prevent burns, as the

skin is largely insensitive; moreover, the internal pain is so great as to overshadow external pain. A point of practical importance, not mentioned in the text-books, is that of wrapping up the head and applying heaters there. This apparently gave especial comfort to our patient. Elevating the foot of the bed is of some use.

In the treatment during convalescence, a simple diet, as of milk, whites of eggs, arrow-root, ice-cream, etc., is best. Of drugs, protectives and demulcents, bismuth, flax-seed and oils are of value. For tonics, rest, food, fresh air, massage, electricity and, perhaps, strychnia and iron, are of importance, in the order named. While some patients have been reported as well on the next day, it is not uncommon to have convalescence delayed many days, even weeks.

APPENDIX.

CASE 1. P. F. Brick, M.D., of Iowa. *Journal American Medical Association*, 1887, vol. viii, p. 567. Tincture, seven drachms. Recovery. Emetics, morph., gr. 1-2; ex. digitalis, fl. gtt. 6; strychnia sulph., gr. 1-160; brandy, oz. 1; all hypodermically. By the mouth, two gallons of warm water; ex. digitalis, fl. gtt. 20; coffee, pints 11; whiskey, pints 3; ex. nucis vom. fl. drachm 1-2; port wine, pint 1-2.

CASE 2. T. H. P. Baker, M.D. *American Practitioner and News*, Louisville, 1887, vol. iv, N. S., p. 122. About eight drops of concentrated fluid extract. Recovery. Emetics, coffee, whiskey (dessertspoonful). Heat. Friction and sinapism.

CASE 3. C. C. Bradley, M.D. *New York Medical Record*, 1887, vol. xxxii, p. 155. Fleming's tincture, one and one-half ounces. Recovery. Emetics, brandy, ether, digitalis, ammonia carb. Amyl nitrite and warmth.

CASE 4. S. Barnett, M.D. *New York Medical Record*, 1887, vol. xxxii, p. 761. Tr. aconiti rad., one-half ounce. Recovery. Brandy by mouth and hypodermically. Ether. One quart of cold black coffee. Heat and posture.

CASE 5. Clara T. Dercum, M.D. *Medical and Surgical Reporter*, Philadelphia, 1889, vol. lxi, p. 376. Amount not known. Patient intoxicated at the time. Symptoms of acute poisoning. Recovery. Emetics, brandy, ammonia and digitalis by the mouth. Sixty minims of tr. digitalis, hypodermically. Heat.

CASE 6. Byron F. Dawson, M.D. *Medical and Surgical Reporter*, Philadelphia, 1890, vol. lxii, p. 7. Tr. aconiti, amount not known. Child, sixteen months. Marked toxic symptoms. Recovery. Brandy and fl. ex. digitalis, frequently repeated in spite of vomiting.

CASE 7. Benj. Edson, M.D. *New York Medical Record*, 1890, vol. xxxviii, p. 365. Tr. aconiti, two drachms. Death.

Cases 8, 9 and 10. Dr. Edson mentions certain other cases known of, but not treated by him, three of which died. The amounts taken in these were from one to four drachms.

CASE 11. L. M. Whannel. *British Medical Journal*, 1890, vol. ii, p. 791. Tr. aconiti (B. P.), one ounce. Death in sixty-five minutes. Mustard, lavage, heat, ether and brandy subcutaneously.

CASE 12. Ditto. Fleming's tincture, one drachm. Recovery. Zinc sulph., tr. digitalis, m. 20, hypodermically. Whiskey, oz. 1, by mouth; followed by calomel, gr. 8.

CASE 13. T. F. H. Smith. *British Medical Journal*, 1893, vol. i, p. 1109. Fleming's tincture, one teaspoonful. Recovery. Mustard, sp. ammon. comp. (B. P.), tr. bellad., brandy.

CASE 14. Henri E. R. Altenloh. *New York Medical Journal*, 1893, vol. lxxvii, p. 358. Ex. acon. fl., four drachms. Recovery. Emetics: atropine and brandy subcutaneously.

CASE 15. G. H. Tuttle, M.D. *Boston Medical and Surgical Journal*, 1891, vol. xxv, p. 678. Tr. aconiti, seven and a half drachms. Recovery. Mustard, digitalis and brandy subcutaneously; digitalis, nux vom. and brandy by rectum; ether and ammonia by inhalation; brandy and ammon. carb., by mouth later.

CASE 16. Ditto. Mentioned by, but not seen by Dr. Tuttle. Tr. aconiti, five and a half drachms. Death.

CASE 17. M. A. Warriner, M.D. *New York Medical Record*, 1891, vol. xxxix, p. 521. Preparation not noted. Four teaspoonfuls. Recovery. Sulphate of copper, digitalis, wine by mouth; whiskey by rectum; whiskey, strychnia, gr. 1-25; digitalin, gr. 1-50, hypodermically.

CASE 18. S. Q. Robinson, Assistant Surgeon, U. S. A. *Boston Medical and Surgical Journal*, 1892, vol. cxxvii, p. 192. Tr. ac. rad., two drachms. Recovery. Apomorphia, stomach-tube, tr. digitalis, m. 25, sp. ammon. arom., m. 45, brandy, drachms 2, subcutaneously, heaters, sinapism to precordia.

CASE 19. Wm. Hardman. *British Medical Journal*, 1893, vol. i, p. 1320. Tin. aconiti (B. P.), thirty minims. Recovery. Salt and water, one and a half hours after poison. Zinc sulph., two hours after poison. Charcoal, brandy and water by mouth.

CASE 20. J. D. Leigh, M.B. *Edinburgh Medical Journal*, 1895, vol. xl, p. 638. Preparation not stated. Five drops. Recovery. Belladonna and strophanthus, champagne, brandy, heaters.

Clinical Department.

A CASE OF ATROPINE POISONING.¹

BY H. F. VICKERY, M.D.

THIS last week I had a case of poisoning of a mild degree from the use of the British Pharmacopœia's unguentum atropinæ upon the intact skin of the breasts of a patient whose child had been dead some days before delivery at term. My object was to prevent the secretion of milk. The nurse had been warned what the symptoms of atropine poisoning were, and no damage was done. The strength of this ointment is eight grains to an ounce. It had been applied to both breasts, with pressure, for three days, when this occurred. The pupils were much dilated with paralysis of accommodation; the throat dry; the heart rapid, (partly, however, from fright, because it was 160 when the nurse took it, and after I talked with the patient a while it came down to 120).

No serious symptoms developed. The disturbance passed away; but it illustrates the fact that ointments are capable of producing physiological effects through the unbroken skin.

It may be added that very little milk was secreted, and that the breasts gave no trouble whatever.

New Instruments.

A NEW MODIFICATION OF THE HIP SPLINT.¹

BY JOHN DANE, M.D., BOSTON.

THE groundwork for the splint shown in the accompanying picture is what has long been known as the "Thomas knee splint." To this has been added a Burrell screw extension, by which it can be somewhat lengthened as occasion may demand. At the bottom there is a windlass and cog-wheel, whereby traction can be made upon the ends of a plaster extension applied to the leg. At the top it is fitted with a pelvic band similar to that now used upon the Taylor hip splints; but so adjusted by means of a hinge joint, that it can be carried sideways when the splint is being put on, and then locked into position by a simple key. The rather broad leathers are sewed to the outside upright, and go thence around the leg and the inside upright as well, lacing up in the front. The upper one is worn as high as possible, the top of the lower should come just below the patella. The perineal strap (when one is necessary) is made of linked window chain, padded with felting and covered with Canton flannel. This is riveted to the splint behind, and fastened in front by being slipped over a hook. When the proper length has been found, all superfluous links of the chain are cut off.

The advantages claimed for the new splint are:

(1) That while it is as easy to adjust upon a sensi-

¹ Shown before the American Orthopedic Association at its Annual Meeting held in Washington, D. C., May 4, 1897.

² Read before the Clinical Section of the Suffolk District Medical Society, February 17, 1897.