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Contents February 1946

SCIENTIFIC:

Eye Lessons in General Practice—M. R. Levey, M.D., Edmonton, Alberta	41
Outbreak of Typhoid Fever in Trenton, Nova Scotia—G. G. Simms, M.D., Pictou, N. S.	48
The Therapeutic Use of Procaine in Minor Surgical Conditions—Hugh F. McKay, M.D., Halifax Military Hospital	52
EDITOR'S COLUMN	61

CORRESPONDENCE:

Letters from T.C.A., C.P.R. and C.N.R. and Letter from Dr. Routley	62
--	----

ABSTRACTS FROM CURRENT LITERATURE:

By E. D. Sherman, M.D., Sydney, N. S.	
Gastrectomy and Skeletal Decalcification	65
Intensive Treatment of Malaria (Five Day Cure)	65
Local Treatment of Burns with Pressure Dressings and Films Containing Sulfonamides	65
Local Application of Sulfathiazole in Incisions	66
Chemotherapy of Sonne Dysentery	66
High Fluid Intake in Management of Oedema	67
Use of Benzedrine Sulfate in Obesity	67
Penicillin, Its Use in Paediatrics	67
Neutralization of Gastric Acidity	68
Trench Foot and Immersion Foot	69
OBITUARY	70

V. D. Briefs	72
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Eye Lessons In General Practice

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SOME of the eye conditions which are met with in general practice are the more common lesions of the eyelids, the lachrymal apparatus, the extrinsic muscles of the eye, the conjunctiva, and the cornea.

Marginal Blepharitis, Hordeolum, Chalazion

Marginal blepharitis, hordeoli (styles), and chalazia are common lesions of the eyelids, which have to be diagnosed and treated in general medical practice. All these conditions are due to the same or similar causes. The immediate cause in most cases, is rubbing of the eyelids with the fingers or handkerchief. This gives rise to an infective process in the affected part. The basic causes in order of importance are uncorrected refractive errors, general debility, malnutrition, lack of vitamins, exposure to strong light or glare, inadequate lighting, exposure to dusts or gases, indiscretion in the use of tobacco and alcohol, lack of sleep, etc. Any one of these causes may make the lids so irritable that the patient can hardly refrain from rubbing them. Thus, infection is set up along the margins of the eyelids, in the follicles of the eyelashes and in the ducts and cavities of the Meibomian glands.

The term marginal blepharitis usually denotes a low-grade infection along the margin of the eyelids, which look red and are often covered with crusts, especially on waking up in the mornings.

A hordeolum, or sty, is an acute infection, in the follicle of an eyelash, which becomes manifest by the classical signs and symptoms of all acute localized infections: swelling, redness, tenderness and pain.

A chalazion, on the other hand, is a low-grade, chronic infection, in a Meibomian gland, which seldom causes discomfort to the patient and appears as a small tumor in one of the eyelids. The chalazion is readily palpable through the skin of the lid, which, when everted, shows a round or oval area on its conjunctival surface, outlining the enlarged or cystic gland with its contents of granulations, secretion and debris.

The most important part in the treatment of these three conditions is the elimination of the basic cause or causes, always remembering that an uncorrected or an inadequately corrected refractive error is the commonest of causes. Marginal blepharitis is difficult to eradicate, especially after it has reached a chronic stage as most cases do before the physician is consulted. The margins of the lids should be thoroughly cleansed of all crusts first thing in the morning and last thing at night and, if necessary, during the day. The cleansing is simply done with a pencil of moist absorbent cotton, which is brushed along the margins of the lids until all the crusts have fallen off (not pulled off). The brushing should be persevered with until all the crusts have come off. The margins of the lids are then dried with absorbent. This is followed by massaging a little (just a little) ointment, such as metaphen or penicillin, to the affected parts.

The local treatment of a sty is the same as that of a simple furuncle in other parts of the body: application of moist heat and incision when indicated (seldom necessary).

A chalazion requires surgical treatment: curettage and, occasionally, excision. Because the Meibomian glands are situated posterior to the tarsal

plate, the incision is made through the palpebral conjuction and at right angles to the free border of the eyelid (to avoid injury to the ducts of adjoining glands). The curettage is carried out with a small curette, after local application (with a swab) of 10% cocaine in adrenalin to the conjunctival aspect of the chalazion, or, preferably, after the injection of a few minims of 2% procaine mixed with a few minims of adrenalin. An eye pad is hardly necessary, but if one is used it may be taken off in 2 to 4 hours.

Dacryocystitis

The commonest condition of the lachrymal apparatus is obstruction of the nasolachrymal duct, which gives rise to overflowing of tears (epiphora) and acute or chronic inflammation of the lachrymal sac (dacryocystitis). Infants are often taken to the medical practitioner because of epiphora and accumulation of mucus at the inner angle of the eye. In a large number of these cases the condition clears up spontaneously by the time the baby is six months old. In some, the obstruction, of the nasal end of the duct persists, and is then treated successfully by the passing of a probe through the lachrymal punctum, the lachrymal sac and naso-lachrymal duct into the nose. In the cases which respond to this treatment, a single successful probing proves sufficient.

In the adult, acute or chronic inflammations of the lachrymal sac are often associated with inflammatory or obstructive lesions in the nasal cavity of the same side. Acute dacryocystitis is diagnosed by the red, painful, tender swelling on the side of the nose near (especially below) the inner angle of the eye. Pressure on the swelling (usually very painful) may cause regurgitation of purulent secretion through the lachrymal puncti into the conjunctival sac. In most cases, however, the canaliculi are obstructed by oedema of the mucus lining and of the surrounding tissues and secretion cannot be forced through them. The treatment of acute dacryocystitis consists in the application of moist heat and incision and drainage through the skin, if and when the abscess "points." Administration of one of the sulfonamides, orally, or penicillin, intramuscularly, proves helpful.

Chronic dacryocystitis is much more common than its acute counterpart and its incidence in women is greater than in men. In the majority of cases the diagnosis is readily made by the swelling immediately below the inner canthus, which is not tender or painful and which, on pressure, disappears as the muco-purulent contents of the lachrymal sac flow upwards through the canaliculi and puncti into the conjunctival sac. Treatment of the condition with "drops," "massage," "irrigations" and "probing" is inadequate. In fact, most modern ophthalmologists agree that probing is not only an inefficient treatment but is contra-indicated. Probing of the naso-lachrymal duct, with its already thickened and chronically inflamed mucosa, can be a painful procedure, which further traumatizes the tissues and thus aggravates the condition. Many patients with obstructed naso-lachrymal ducts complain only of lachrymation when exposed to irritation such as dust, smoke, gases, etc., but carry on satisfactorily at all other times. They require little or no special treatment. Patients, however, who have purulent or muco-purulent secretion in the lachrymal sac are liable, because of the presence of such infective secretion, to ocular complications (conjunctivitis, keratitis, etc.) and are therefore told that surgical treatment (not probing) is indicated. The surgical treatment may be extirpation of the lachrymal sac or the more radical and more

difficult procedure of establishing a new and direct communication between the lachrymal sac and the nasal cavity.

Strabismus

A child may be taken to the physician because of a "squint." The mother may have observed that one eye "turns in" or "turns out" all the time (absolute or constant strabismus) or only occasionally, at the end of the day, when the child is tired, or when the child is not feeling well, or is "nervous" (periodic or intermittent strabismus). A patient with an eye which "turns in" is said to have convergent strabismus; and if the eye "turns out" the condition is termed, divergent strabismus. The strabismus may be right or left, depending on the eye which converges or diverges; or, it may be alternating if the "turning" varies from one eye to the other. There is also a less common type of strabismus in which there is an upward deviation of one eye—hypertropia or vertical strabismus.

The presence of strabismus suggests a lack of co-ordination of the extrinsic muscles of the eye. This is probably a congenital abnormality which may be present at birth or remains latent and unobserved until the child gets older or becomes debilitated from any cause, such as infectious diseases, accidents, etc. The large majority of cases of strabismus have a marked refractive error; i.e., they require glasses. With the wearing of properly-fitting glasses the strabismus disappears, in many cases. It is important to remember that delay in correcting the refractive error often leads to a type of strabismus that requires surgical treatment for its correction and also to amblyopia—deterioration in visual acuity. It is therefore the responsibility of the physician, in all cases of strabismus, to emphasize to the parents, the importance of early examination for a refractive error. Glasses, when indicated, should be worn at all times. They are not dangerous. On the contrary, they are a protection and may save the eyes from injury from flying objects, etc. Surgical treatment for strabismus, when indicated, should be carried out early and, certainly, before the child reaches school-age.

Foreign Bodies in Conjunctiva

Foreign bodies of various kinds, size and shape may be found in the conjunctival sac (the potential space between the eyelids and the anterior surface of the eyeball) lying loosely on the bulbar conjunctiva, in the lower cul-de-sac or embedded in the posterior surface of the upper or lower eyelid. Careful examination of the parts, in a good light, sometimes locates a foreign body deeply embedded in the upper cul-de-sac. Bits of straw, barley beards, pine or spruce needles, tips of the branches of a tree or shrubs often find their way into the upper retrotarsal folds and become so embedded that they almost disappear from view entirely. The inflammatory reaction can be so severe that a suppurative process is set up. To find the offending foreign body it is often necessary to obtain a good history of the accident, to evert and double-evert the upper eyelid, and repeatedly search carefully in the much injected and oedematous folds of the conjunctiva of the upper fornix.

Treatment consists in the removal of the foreign body and thorough irrigation of the conjunctival sac with boracic solution or normal saline. It is important, in every case, to ascertain whether as a result of the presence of such foreign body, the cornea has become abraded. If there is no corneal injury, the eye need not be covered. On the other hand, in the presence of a corneal abrasion, it is advisable to apply an eyepad, after the eye has been

thoroughly washed out and a disinfectant ointment, such as metaphen or penicillin, has been instilled.

Conjunctivitis

Conjunctivitis, or inflammation of the conjunctiva, may be acute or chronic. The acute type is caused by the presence of micro-organisms, and the classification of conjunctivitis is frequently based on the nature of these organisms. It is not possible, in this paper, to give a list of the causative agents of this condition or an exhaustive discourse on the signs and symptoms, differential diagnosis and treatment of each type.

It is important, however, to differentiate between the red or "blood-shot" eye in a case of acute conjunctivitis from the "redness" which occurs in cases of acute lesions of the cornea, or of the other deeper structures of the eye, such as the iris, ciliary body, etc. There are four points which are characteristic of the "redness" of acute conjunctivitis; (i) it is bright red, (ii) it is more marked towards the fornices than near the cornea, (iii) the injected vessels are very branching, and (iv) are moveable with the conjunctiva. In contrast with these findings, there are four points which are seen in acute lesions of the cornea or of the deeper structures of the eye: (i) the "redness" is dark-red or purplish, (ii) is more marked in the area adjoining the cornea than near the fornices, and (iii) the injected vessels are straight, and (iv) are not moveable with the conjunctiva.

The main sign and symptoms of acute conjunctivitis are, lachrymation, photophobia, a sensation as if there were foreign bodies in the eye, marked injection of the bulbar conjunctival vessels and sero-muco-purulent discharge. Unless complications occur, the cornea remains unaffected (it does not stain with fluoresceine). The condition is wholly self-limited and clears up readily in about ten to fifteen days. The main part of the treatment is irrigation of the conjunctival sac with boracic or normal saline solution as frequently as necessary to keep the eye free of discharge. It is helpful to follow each irrigation by the instillation of a minim or two of one of the silver preparations (10% neosilvol or 10% argyrol) or a solution of penicillin. The use of ointments is not indicated. The eye should *not* be covered. For the photophobia, dark glasses are recommended.

If the discharge is frankly purulent and profuse and the eyelids are oedematous, or if there is a history suggestive of gonorrhoeal infection, the case should be referred for special and more energetic treatment.

Pinguecula

A pinguecula is a small, yellowish, triangular mass, situated in the conjunctiva, just medial to the cornea and sometimes lateral to it as well. It consists of hyaline degeneration and elastic proliferation and is usually and frequently found in adults. It is not malignant and seldom if ever requires treatment.

Pterygium

Another common conjunctival lesion is pterygium. It is a vascularized wing-shaped fold of the bulbar conjunctiva, medial to the cornea, with a broad base, and an apex which advances into the cornea. Occasionally, a second one occurs, at the same time, on the temporal side of the cornea. A true pterygium is progressive, i.e., it continues to advance into the cornea. The real cause of a true pterygium is not known although exposure to dust and wind

are supposed to be predisposing factors. A pseudo-ptyerygium, which is the result of an inflammatory process of the cornea, may occur anywhere along the margin of the cornea and does not keep on advancing. Because a true-ptyerygium involves Bowman's membrane, an opacity of the cornea results and therefore it is very important that treatment be carried out before the lesion reaches the pupillary or central zone of the cornea, if impairment of vision is to be avoided. Subconjunctival transplantation (MacReynolds) is the best treatment.

Cornea

The cornea is normally transparent tough structure, without blood vessels, and about one millimeter thick. Any opacity in the pupillary zone (central zone) of the cornea causes impairment of vision. An opacity results when the deeper layers of the cornea, Bowman's membrane and the substantia propria, are injured from any cause. The corneal epithelium (outer layers) is easily susceptible to injury but will regenerate readily, if given a chance. Loss of corneal epithelium can be detected in several ways. The simplest method is to instil into the conjunctival sac a drop of fluoresceine (prepared in a solution of 3% bicarbonate of soda), a brown dye, which turns green when it comes in contact with the tears and thus stains green that portion of the cornea which may be denuded of epithelium. Its effect can best be seen in daylight. No staining occurs if the epithelium is intact. Fluoresceine is invaluable in the diagnosis of fine linear abrasions of the cornea or in minute perforations of the cornea. For example, a particle of steel, 1 x .5 x .5 mm., may penetrate the cornea and become embedded in the iris without causing, at first, any noticeable sign and symptom and may thus be overlooked. The history of injury, however, together with the instillation of fluoresceine shortly after the accident (before the epithelium has had a chance to regenerate) will reveal the true nature of the lesion and will thus enable the physician to make a proper diagnosis and either institute adequate treatment himself or refer the patient immediately to a place where facilities for such treatment are available. Fluoresceine is indispensable for any one who examines and treats eyes.

Because of its rather exposed position, the cornea is frequently traumatized by flying objects or by objects brushing the face. The three most frequent types of corneal injuries are abrasions or erosions, foreign bodies and burns.

Corneal Abrasion

Abrasions or erosions may be small or large, punctate or linear, superficial or deep. The use of fluoresceine is a great aid in the diagnosis. Treatment consists in irrigating the eye with boracic solution, instillation of a drop or two of half per cent pontocaine, an ointment such as penicillin or metaphen, and firmly-applied eyepad. The instillation of boracic-nupercaine ointment or other similar preparation is helpful because of the severe pain. If the abrasion is deep, instillation of 2% homatropine or 1% atropine would be advisable on account of the secondary iritis which often accompanies severe lesions of the cornea. If the abrasion is superficial and not too extensive, and there are no virulent pathogenic organisms in the conjunctival sac, the epithelium should regenerate in about twelve to twenty-four hours. The eyepad should be discarded when fluoresceine no longer stains the cornea.

If the lesion is deep, the treatment should be repeated two or three times a day. Sun-glasses should be prescribed for photophobia.

Superficial abrasions heal without leaving a scar. Lesions which involve the corneal layers posterior to the epithelium give rise to a scar or opacity. A small scar, outside the central or pupillary zone of the cornea, should cause little or no visual impairment.

The two important points in the treatment of corneal abrasions are, first, to prevent the abraded area from becoming infected, i.e., prevention of corneal ulceration, and second, to prevent the eyelids from rubbing the abrasion so that the epithelium would be given a chance to regenerate.

Foreign Body in Cornea

A foreign body embedded in the cornea causes much pain, photophobia, lachrymation, and conjunctival and ciliary injection. Instillation of $\frac{1}{2}\%$ pontocaine is a great relief to the patient and anaesthetizes the cornea in a very short time. It is a good practice to take the visual acuity especially of the uninjured eye, prior to the institution of treatment. This precaution should not be overlooked in cases which come under the Workmen's Compensation Board, Insurance Benefits, etc. It is also advisable to indicate the exact location of the foreign body in a diagram on the office record and on any report which may have to be submitted. Most Compensation Boards demand that the visual acuity be taken, that the lesion be shown in a diagram, and that fluoresceine be used when the examination is being carried out. The object of the fluoresceine is to insure that no corneal lesion will remain unobserved.

In addition to the local anaesthetic, a good light, a pair of magnifying glasses (or loupe), and a sharp-pointed instrument are required for the removal of an embedded foreign body. A sharp-pointed instrument is less likely to damage the corneal cells adjoining the foreign body than a wide or blunt instrument. The patient's head should be supported against the wall or headrest. After the removal of the foreign body a "rust-ring" is often seen in the tissues in which the foreign body was embedded. This rust-ring is often as irritating as the foreign body itself and should be removed. The treatment, after the removal of the foreign body and rust-ring, is the same as that outlined for corneal abrasions.

Burns of the Cornea

Burns of the cornea, which involve the epithelial layers only, heal relatively quickly without scarring and therefore without loss of function. Such superficial burns are often caused by hot objects such as curling irons, molten metal, gases, steam, etc. Burns with acids and alkali, however, are usually much more serious. The chemicals penetrate beyond the superficial corneal layers, are apt to cause necrosis and dense scarring with consequent marked impairment of vision. Such burns cause severe pain, intense photophobia and lachrymation and great injection of the conjunctival and ciliary vessels and often oedema of the eyelids. Invariably an iritis is present with all cases of deep burns of the cornea.

The most important point in the treatment of these cases consists in the removal of foreign bodies that may be lodged in the cornea, in the conjunctiva, under the lids and in the fornices, and in profuse and thorough irrigation of the conjunctival sac without delay. Clean water should be used if no special neutralizing solution is immediately available. Boracic acid solution is helpful

in cases of alkali burns, and bicarbonate of soda solution, in acid burns. Atropine is indicated in these cases. The balance of the treatment follows along the lines outlined for corneal abrasions. It is important to remember that adhesions between the raw surfaces may occur and therefore the parts should be separated at each dressing or as frequently as necessary.

No matter how slight a corneal injury may appear to be, it should always be regarded as potentially serious. Failure to treat adequately even simple abrasions may be the cause of complications, such as corneal ulceration, iritis, eyelitis, panophthalmitis, loss of vision or loss of the eyeball.

Outbreak of Typhoid Fever in Trenton, Nova Scotia

G. GRAHAM SIMMS, M.D., D.P.H.

Pictou, N. S.

TYPHOID fever, like the poor, we have always with us. Older practitioners can well recall when public wards were crowded regularly during the typhoid season each year. However, there is always a tendency among those who have graduated during the last two decades to minimize typhoid; to regard it as a distinct rarity of little public health significance. It is true that typhoid occurs infrequently but it is far from the truth to say it is moribund. Where water and milk supplies are unsafe, there is always the possibility of a severe outbreak of typhoid.

In this province there is a small residuum of typhoid represented by individual carriers who cause the occasional case or cases each year. Whenever typhoid occurs, we immediately make a very thorough epidemiological investigation to determine the source. The carrier, when identified and proved to be such, is then kept under constant surveillance for the rest of his or her life. The results of our program have been quite creditable.

In recent years, Nova Scotia has had one of the lowest, if not the lowest, typhoid death-rate in Canada. From 1939 to 1943 inclusive there was only a total of nine deaths in comparison with some seventy-five to eighty-five deaths per year thirty or forty years ago. Moreover, there has not been a milk born epidemic since 1923, and no water born epidemic for years before that. This province also has found a higher percentage of carriers than any other province in the Dominion.

The outbreak of typhoid in Trenton during the spring of 1945 was rather unusual in that the person responsible was a known identified carrier, the source of a number of previous cases, who in spite of warnings took it upon herself to cook in a small restaurant in Trenton.

My first contact with the carrier, Mrs. "D", dates back to the summer of 1942. On August 23, 1942, a boarder at the home of Mrs. "D" developed typhoid (Phage type "F"). During the incubation period he had visited his home in another county. There were no significant contacts outside these two households. Routine stool and urine examination revealed that Mrs. "D" had stools positive for *S. Typhosa* (Phage type "F"). Further stool examinations later confirmed the fact that Mrs. "D" was a typhoid carrier. She was given written and verbal instructions as to the precautions she should take. The local Medical Health Officer and the family physician were acquainted with the facts of the case. Cholecystectomy was proffered as the best chance of terminating the carrier state, the final decision being left to the patient and the family doctor.

While this was my first contact with the carrier, actually her typhoid history dated back twenty-nine years to 1913, when she herself developed typhoid in Trenton. In 1914 Mrs. "D" married and in 1918 her husband had typhoid. In 1921 when Mr. and Mrs. "D" were living in a two family house in Trenton, three other people in the other part of the house developed typhoid.

The late Doctor Stramberg of Trenton, who knew Mrs. "D" well, was suspicious and had her admitted to the Victoria General Hospital, Halifax, on February 18, 1921, as a suspected typhoid carrier. Unfortunately, there is practically no history on file at the Victoria General Hospital regarding Mrs. "D" other than that she had three stool and three urine examinations at weekly intervals until her discharge on March 12th, of the same year. No *S. Typhosa* were found in any of the stool or urine specimens during this investigation. Dr. Stramberg, however, apparently was well aware of the typically intermittent character of typhoid carriers and still regarded her as clinically a carrier, for on one occasion about that time Mrs. "D" states that he told her that her "bile was full of it."

Following this episode there was a lull in proceedings until about 1930 when the carrier went to Prince Edward Island to visit her brother-in-law. As far as can be determined she cooked for him. One month after Mrs. "D's" arrival, her brother-in-law developed typhoid and died.

This, then, was Mrs. "D's" past typhoid history prior to my first contact with her in 1942.

From 1942 until the outbreak of typhoid in Trenton in April, 1945, Mrs. "D" was fairly co-operative, although she showed evidence of not appreciating fully the seriousness of the situation. About every six months the nurse in that district visited her and checked up on home conditions, precautions, etc. Stool and urine specimens were also sent in once or twice a year.

About the middle of April, 1945, the nurse for Pictou County reported that Mrs. "D" was washing dishes at a small restaurant in Trenton. The nurse was immediately instructed to have Mrs. "D" leave there as it was thought that she might possibly handle some food. On April 16th, the nurse advised Mrs. "D" to leave the restaurant which she did on April 20th.

On April 11th, Mrs. "J. S. D.", a daughter-in-law of Mrs. "D" became ill. Some days later she reported to her family doctor. Her condition was diagnosed as a typhoid, confirmed by a positive Widal on April 18th, and positive blood culture on April 26th. The organism was Phage type "F". This woman later admitted exchanging articles of food with her mother-in-law.

The second case was a young girl from New Glasgow, Miss "M", who was diagnosed as typhoid on April 20th, but who had been sick for a week previous. This patient worked at the Eastern Car Works, Trenton.

The third case, was Mrs. "E. M.", a young married woman from New Glasgow, also working in the same office of the Eastern Car Company, Trenton. She had been sick from April 18th.

At this stage we could see no connection between the first and the last two cases. The supposition was that Mrs. "J. S. D." had contacted the disease from her mother-in-law, while the other two cases had a different source. Phage typing reports were not available, of course, at the time. Our only clue was that Miss "M" and Mrs. "E. M." had shared sandwiches. A thorough check was made of both these girls' families by stool and urine specimens with negative results. Routine inquiry into the source of these sandwiches revealed that they had been purchased from "Smith's" restaurant in Trenton. This immediately recalled the fact that Mrs. "D" had been engaged as a dish-washer there. My next call obviously was on Mrs. "D". I asked her if she had cut any sandwiches or in any way handled food while at the restaur-

ant. In spite of my suspicions, her reply rather "flooded" me. She stated bluntly, although with a defensive air, that she had been doing all the cooking at the restaurant for the six weeks prior to April 20th. I am afraid my remarks before I left were a trifle heated.

The present situation was now quite clear and the potential situation was even more clear and unpromising. It was quite apparent that as Mrs. "D" had been cooking up until the 20th of April, we might reasonably expect additional cases up until the middle of May or even later. The day following my visit, on April 27th, I sent a circular letter to all the doctors in the county advising them of the situation with particular emphasis on the probability of further cases.

Without going into detail I may say that our expectations were realized and other cases did occur in fairly rapid succession. In all we had twelve primary cases in the outbreak. The earliest onset was on April 7th, the latest on April 30th. They were equally divided between males and females and the ages varied from seventeen to forty-five.

Our two problems now were hospitalization and secondary cases. Actually, the two problems were closely associated. It was manifestly impossible to handle all the cases at the Aberdeen Hospital in New Glasgow, while to leave them at home was to invite secondary cases. Due to the efforts of the Town of New Glasgow, Dr. A. E. Blackett, Medical Health Officer for New Glasgow, and Miss Richardson, Superintendent of the Aberdeen Hospital, the vacant Army Hospital at Parkdale was procured. This was opened on May 18th, nine patients were admitted and preparation made for others as at that time we had no idea of the number of cases that might eventually develop. I would like to pay particular tribute to Miss Richardson, and her staff at the Aberdeen Hospital for the speedy way they altered, equipped and staffed Parkdale Hospital.

At this point there was another interesting occurrence. Our twelfth case was a married woman from Trenton, Mrs. "F" who became ill on May 18th. She had eaten at "Smith's" restaurant but her incubation period was unusually, although not impossibly, long that is from April 20th to May 18th. As this case appeared a little out of the ordinary, inquiries were made as to previous illness among other members of the family. It was found that Mr. "F" had developed what had been diagnosed as pneumonia on April 25th, and had been quite sick for about three weeks. Mrs. "F", a nurse, before she married had looked after him. Subsequent examinations of this man's stools revealed them to be positive for *S. Typhosa*; in other words Mrs. "F", was our only secondary case and Mr. "F", a missed case, was our twelfth primary.

The patients were held at the Isolation Hospital until they had three negative stools and urines. The Isolation Hospital was closed on July 10th. The patients were warned that their stools might revert to positive on their return home and were accordingly instructed to take all precautions for a period of one year just as though they were carriers. While the patients were in the Isolation Hospital, the members of the family at home were immunized with T. A. B. vaccine.

All thirteen cases were confirmed by laboratory findings. All twelve primary cases had eaten at "Smith's" restaurant within the incubation period.

All thirteen cases were Phage type "F", except Mrs. "E. M.", who did not have positive stools at any time they were examined, although she had clinical typhoid and her Widal was positive. In other words all twelve primary cases had as their proven source a carrier, Mrs. "D". Fortunately we had no deaths although the majority were severely ill. It is too early to know for certain if any carriers will develop.

This paper is really not complete as the final disposal of the carrier has not been decided. Mrs. "D" is now being investigated at the Aberdeen Hospital, New Glasgow, to determine whether or not she is a gall-bladder carrier. Duodenal drainage in order to examine specimens of bile, and Catheter specimens of urine to determine if *E. Typhosa* is present in the urine, are the two main features of the investigation. We believe that Mrs. "D" will submit to an operation if she is found to be a gall-bladder carrier as determined by the presence of *S. Typhosa* in the bile and their absence in Catheter specimens of urine.

Many attempts have been made with a variety of drugs, etc., to terminate the carrier state. They have all been unsuccessful. Lately the sulphas, particularly Sulphaguanidine and Succinylsulphathiazole, have been used to no effect. Sodium Tetraiodophthalein has been given to convalescent carriers with apparently good results. We are planning to try this drug on some of our known carriers. In Mrs. "D's" case, however, we feel that, in view of her history of having caused some nineteen cases of typhoid, we should make use, if possible, of the most certain cure, which is Cholecystectomy. This operation has been productive of cures in an average of 75 to 90% of cases as reported in the literature. Our own provincial series of four cases is too small to be of any significance. It is worthwhile noting, however, that all four were rendered stool negative by the operation. We have hopes that our own local "Typhoid Mary" may be the fifth successful case.

The Therapeutic Use of Procaine in Minor Surgical Conditions.*

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PROCAINE hydrochloride, and its derivatives, have been in very wide use as anesthetic and analgesic agents since the beginning of this century, but it has only been in recent years that they have been used in diagnostic and therapeutic measures. Probably the onset of the war, and the need of shortening the treatment of minor injuries in the Armed Services has given the impetus needed to make the use of this drug more universal, this is seen in the fact that, during the past three years, the literature on the subject emanates primarily from the Armed Services.

Procaine hydrochloride has been employed in all fields of medicine in a very wide variety of conditions, and in practically all parts of the body, including body cavities. A great deal of research has gone into toxicity, and side effects, and it would appear that it is a safe drug in all its uses, when used rationally. Feared by many because of the danger of injecting small amounts into a vessel, it has recently been shown by Gordon¹ that it can safely be used intravenously in the treatment of thermal burns. Its use as an analgesic in the spinal canal is well known; used wisely in this capacity, its toxic and side effects are no greater than any general anesthetic. It has been employed in a wide variety of conditions, in medicine, and surgery, as a therapeutic agent, a few of these uses are: the injection of the Stellate ganglion in coronary conditions, its use in pleurisy, where sympathetic and intercostal block has been employed to alleviate pain, its use has been advocated in Reynauds and Burghers diseases, and in allied vasomotor disturbances. It is coming more into prominence in the treatment of causalgia in all parts of the body, as a block in a ganglion, or the sympathetic system, it is used in the differential diagnosis of somatic and psychosomatic pain, and in the differential diagnosis of visceral and peripheral pain. It is not the intention of this paper to discuss its use in all these branches, but to limit the subject to the common surgical conditions that are met with every day in all classes of work, and to this end, three types of tissues will be considered, and a few conclusions will be attempted.

In the average surgical practice the conditions met with which in our experience are most amenable to procaine therapy, can be divided into three classes, (1) those to which we apply the term "sprain," and are found in the articular ligaments. (2) Those to which a very wide variety of terms are applied, as, myositis, fibrositis, lumbago, neuralgia, muscular rheumatism, myofascial disorders, and many others, where the underlying pathology is not well understood, but which appear to arise in the myofascial planes of the body, and which, when encountered in the lumbar and lumbo-sacral-gluteal areas, are such a "headache" to all of us. (3) Those which are found in the tendons.

In the first class, the commonest is by far the ankle sprain and the commonest area involved is the external ligamentary structure. For practical

*Presented on the Dalhousie Refresher Course October 1944

purposes these ligaments can be divided into three, viz., the anterior fibulo-talar which is the one involved in 60% of all cases, the calcaneo-fibular, which occupies a central position to the other two, and the posterior fibulo-talar. Anatomically these ligaments are very much weaker than the tibio-talar, or internal lateral ligament, which is a very broad and heavy band, and rarely sprained. The pathological changes which take place in a sprain, are a controversial subject. The older text books simply stated that there was a rupture of some; or all of the fibers of the ligaments, and let it go at that. Rene Leriche² operated on twelve cases of sprain in the ankle joint, and failed to find any pathological changes apart from the hematoma, and echymosis, this is disputed by several eminent men, who, as far as we can determine, did not, as Leriche did clinically investigate the condition. It is therefore difficult to definitely state the exact nature of the pathological changes, but as the Leriche theory best fits into the clinical work on the condition, it is suggested that it should be accepted, until such time as it is proven wrong, and to that end his definition is quoted, "Sprain is the reflex consequent of trauma, and specifically the result of a distortion of a nervous apparatus present in the articular ligaments" he further states, "in cases with edema, hyperemia, and even articular effusion, one may suspect vasomotor troubles as a cause." The theory is therefore advanced by this author that the changes in the tissues are due to sensory impulses arising in the injured tissues, afferent impulses pass to the cord, and the lateral horn cells, here reflex efferent impulses, autonomic in nature, arise, and the vessels in the neighborhood of the injury dilate. This causes an outpouring of metabolites, further effusion, more pain in the part, a second impulse is set up in the sensory nerve endings, and the process is repeated. Thus a vicious circle is set up. The pain reflex is transmitted in a short time to the surrounding muscles, and spasm sets in. If this theory is correct, it can be assumed that, if the afferent impulses can be interrupted for a time and the circle broken, resolution will be accelerated. That this occurs has been demonstrated clinically, and in sufficient extent to prove the value of the procedure, but is not the whole story.

The treatment of sprains of the ankle, or for that matter any other joint in the body, have in the past run the gamut of all types of treatment, varying from complete immobilization in plaster, to active use of the part immediately. Many years ago Sir Robert Jones recognized the danger of immobilization in sprains, and for many years there have been two schools of thought on the matter, one completely immobilizing, the other using more active measures in treatment.

In this connection the work of McMaster³ is of interest. In a series of five hundred sprains, two hundred were treated by novocaine injections and immediately returned to duty. Many were treated without novocaine injections, but given reassurance and returned to duty while the remainder were treated along more restricted lines, which included rest, and partial immobilization. The conclusions that this author draws are that those cases which are kept active, recover the sooner, and that the longer the part is kept at rest, the longer will be the recovery period. To this end procaine derivatives act in two ways, resolution of the exudate is hastened, and, which may be more important, the pain is abolished, the man's confidence restored, and he will actively use the part with complete confidence.

It would therefore appear that there are two important factors. The first to restore normal vasomotor tonus, which may be accomplished by the use of procaine, and second, the restoration of normal muscular tonus by the immediate return of the part to a state of full function. It is a generally accepted fact, which is being stressed more and more, that, in any surgical condition, muscle tonus must be kept at the highest possible level, the ambulant treatment of fractures of the lower extremity is based on this postulate, and this must be stressed in the injection treatment of all sprains.

Selection of cases. The term, "sprain," is applied to a minimal lesion of one or more ligaments, and if a fracture, or luxation exists, it cannot be expected that results of a high order will follow, it is therefore essential that an accurate appraisal of the extent of the condition be made. In this clinic X-rays of all sprains are taken. In the ankle these include three projections, one a true A.P. with the ankle in a neutral ninety degree angle, a lateral projection, and an A.P. with the foot held in extreme supination, throwing the ankle joint into strong adduction, to determine stability. If this latter procedure is too painful, it is postponed until the injection has been done, providing of course that no fracture has been demonstrated on the first exposures. In our experience rupture of the ligaments at the ankle is not common, but it does occur, and of course calls for other treatment than this paper suggests. In this connection the work of Carothers⁴ offers an explanation of the infrequency subluxation at the ankle is seen. On the fresh cadavar he severed one of the lateral ligaments at a time, taking X-rays with the foot in strong supination, he states that two of the ligaments must be severed before there is any radiological evidence of widening of the joint mortice in its lateral aspect. He feels that damage to the inferior tibiofibular ligament is more frequent than is commonly thought, and suggests that all ankles should be X-rayed in full dorsi, and plantar flexion. In this connection Ball and Egbert⁵ state that in a true A.P. with the tube carefully centered, and the ankle in a neutral ninety degrees, any translucent area in both the medial, and lateral portions of the joint mortice, is evidence of a torn inferior tibiofibular ligament, and diastasis.

We in the Services, are in the very happy position of having available complete radiological investigation for all injuries, even the very minor ones, and in many instances these investigations are carried to extremes, certainly in civilian life many sprains are never X-rayed, and these do well. From the investigations we have carried out in this Clinic there can be no doubt that in the past a large number of cases that have been classed as simple sprain, would, on radiological examination, reveal a small linear fracture of the lateral malleolus, these are all treated as fractures in the Services. Campbell⁶ reports the treatment of what he describes "first degree fractures" at the ankle, with novocaine injections, and immediate mobilization. Of eighteen cases treated in this manner, fourteen gave satisfactory response, four were partially satisfactory, all were repeatedly reinjected. In this Clinic, on a few occasions we have, in our enthusiasm, injected a few which on the wet X-ray film showed no fracture, but on the same film when dry showed a fine linear fracture, in these cases there was no separation of the fragments and the treatment was carried out as for a sprain. The results were good. It is probably not advisable to carry out these measures if the site of fracture is such as to lead to ligamentary derangement, or if there is separation of the fragments. In the cases reported by Campbell, the stability of the ankle mortice was very care-

fully investigated, and if any instability found, conservative measures were employed in the treatment.

Technique. The injection of any sprain is a surgical procedure, and strict asepsis must be observed, the part is prepared with the preparation of the surgeon's choice. The patient should be recumbent, and should be warned that the procedure will cause him some initial increase in pain, but that the pain will shortly disappear entirely. The point of maximum tenderness is searched for, and a weal is made over it with 1% novocaine, a 10 cc. syringe is then filled with 2% novocaine, a needle of moderate size fitted, and introduced through the weal. With the needle through the skin, a hematoma is searched for and, if found, is injected with from two to four cc. of the solution. If a hematoma cannot be found, the point of maximum tenderness is searched for with the needle point and injected. Following this, other tender points are palpated for, and if found, injected. This procedure is carried to the point where all pain has disappeared, and the needle is then withdrawn. If the area involved is large, it may necessitate the injection of upwards of fifteen to twenty cc. Following the injection, the part is actively massaged for several minutes, to insure the penetration of the solution over a wide area, the patient is allowed to remain supine for ten minutes, to observe any side effects, during which time he is encouraged to move the ankle in all directions, and it is impressed on him at this time that all the pain has disappeared. A two inch crepe bandage is then snugly applied, and the man is instructed to get up and walk, and from then on is kept active. He is kept under observation for from four to six days, then discharged to duty, with the recommendation that the duty be light for the next five or six days.

No severe after effects have been observed. A few minor side effects from the novocaine have been noted, reinjection has been done after two to three days on only a few cases. The average time lost from duty has been six days, and the longest time loss was an officer with extensive trauma, which included all the lateral ligaments, and the medial ligaments as well, this time loss was fourteen days. Very few complaints are ever heard following injection, a "stiffness" in the joint being the usual thing, but which soon passes off as activities increase.

In these remarks the injection of the ankle joint has been taken as an example, as it is the joint most commonly involved. The same treatment is applicable to the knee, hip, shoulder, elbow and wrist. In this Clinic several knees and wrists have been successfully treated. Sprains of the hips and shoulders are rare, and we have not had the opportunity to treat these parts in this manner. It has been stressed by many writers, that the best results are attained in the cases injected early, this is probably true, but it does not follow that the treatment is not indicated because the condition is an "old sprain." This was strikingly illustrated here in one case, who had, some two months previously, sustained a sprained ankle, which had been treated by strapping and partial immobilization. On examination it was suspected that he had sustained a subluxation, and X-ray investigation was ordered, the radiographer discovered that there was too much pain produced on supination of the foot, to make the necessary film, and requested that the part be injected with novocaine, this was done, and the films taken, they showed no joint widening. The man volunteered the information that he thought he was cured, as all the pain had disappeared. He was kept under observation for several days without any recurrence of pain, and then discharged to duty,

and has not been heard from since. He was apparently cured by that single injection.

In all the wrists injected here, very careful studies of the carpal scaphoids were made, and, only after there could be no doubt that this bone was intact, was the injection carried out, as upwards of three weeks usually elapsed in these cases the results were not as spectacular, but, we believe, have been satisfactory.

The second type of tissue injection that has been extensively carried out, is that of the myofascial planes of the body. These planes exist in all the soft tissues, and may be the seat of somatic pain, but the location most commonly found is in the lower lumbar and sacrogluteal regions. It is not the purpose of this paper to spend any time on the differential diagnosis of "low back pain," but to very briefly make a few observations. Watson-Jones⁷ offers a classification of pain in this region, and of sciatic radiations, which appears to cover the subject very adequately. (1) Myofascial, and ligamentary injuries. (2) Joint injuries, and (3) intervertebral disc injuries. It is with the first group that some observations will be made.

The aetiology of fibrositis is unknown, predisposing causes are many and include trauma, strain, dampness, inclement weather, metabolic changes, infection, and others. The underlying pathology is a matter of conjecture rather than proven fact. Moynahan, and Nichols⁸ have made extensive studies in the matter, and from their conclusions it would appear that the theories of either Gutstein and Good, or of Gratz, offer the most likely explanation, in the light of clinical experiences.

The theory of the former is that of a local disturbance of circulation induced by stimulation of sympathetic fibres, and resulting in vasoconstriction in the part. (This is practically the same as the vasomotor disequilibrium of Leriche.) The suggestions of Gratz are that there are changes in the mesomelial cells in the myofascial plane, a round cell infiltration takes place in the space between the muscle and fascia, and adhesions form.

Gratz has demonstrated the presence of these adhesions, radiologically, by his technique of pneumofasciography. The work of Steindler, and Luck⁹ and their conclusions, would tend to bear out the first theory, and if the second theory is correct, the virtue of procaine hydrochloride in the treatment can be explained by the analgesia produced by the injection, followed by the full mobilization of the part, demanded by all clinicians, with a subsequent breaking down of the adhesions. The success attained by manipulations can also be explained on this basis.

Selection of cases is difficult, and other organic disease must be carefully excluded if beneficial results are to be attained. It has been pointed out by Gorrell¹⁰ that in menopausal back pain, and pain precipitated by prostatic, and bladder conditions, there is, in many cases a temporary improvement, but that no permanent cure can be expected. It has been our experience that there has been temporary improvement in many cases, but that recurrence of pain is frequent, and that in these cases of recurrence, the injection has been of use in directing attention to the true underlying pathology, and hence, has been of value.

The technique of injection and the results to be anticipated. As is pointed out by Watson-Jones⁷, the areas most frequently involved are the sacrospinalis-gluteal, in the region of the posterior superior iliac spine, in these cases one almost always finds the straight leg raising sign (Lasegue) positive, and

that the knee flexing sign (Nachlas¹¹) is also positive in many instances. These points are made now, as they have a direct bearing on an appraisal of the immediate success of the injection.

The technique employed in this Clinic follows Steindler⁹. Asepsis is observed, weals are made in the space between the posterior iliac spine and the last lumbar vertebra. A long, medium gauge needle is employed, an old lumbar puncture needle is very satisfactory, and the points of maximal tenderness are searched for, and injected with sufficient novocaine to produce analgesia. These points are usually found in the region of the gluteal insertion at the posterior spine, and along the length of the sacro spinalis, *all* must be searched out and injected. Following the injection, massage, followed by active movement, as in the case of the ankle, is instituted. The injection employed is a 1% solution. The quantity will vary with the area requiring infiltration, and will be from twenty to forty cc.

Steindler makes five postulates which must be met. (1) The needle must reproduce the pain locally; (2) the needle must aggravate the radiations of the pain into the thigh; (3) injection must abolish the pain locally; (4) injection must abolish the radiations of the pain; (5) straight leg raising must be restored . . . Steindler does not advance this technique as a therapeutic procedure, but as a diagnostic test for myofascial disorder in this location. We feel, however, that if this technique is used, and these results attained, that the patient is very greatly benefited, and that in many instances no further treatment is needed. We also feel that the restoration of straight leg raising *must* follow, and that the knee flexing test must be *full*, if there is to be any permanent benefit. Cases have been seen where all postulates but the last were met, and it, was later found that we were dealing with an atypical case of ruptured intervertebral disc.

The amount injected is a controversial subject, Jones advises from 5 to 10 cc. Button¹² advocates that $\frac{1}{4}$ cc. be injected immediately beneath the fascia, into each "trigger" area. Others advocate mass infiltration of the area, with upward of 60 to 70 cc. We feel that 20 cc. is adequate, without being too much, and that in unskilled hands, is more likely to attain the desired results than the smaller quantity employed by Jones.

Technique of injection in other areas is modified to suit the case and the site. In intercostal areas, and in the erector-spini muscle planes we have used it to advantage. It has been used in cases of acute wry-neck, with good effect, and in many other locations, the only postulate being the "trigger" *must* be found, and, following injection, *must* be abolished.

The third type of tissue injection on which observations can be made, is tendons.

The commonest site in the body to develop pathology is in the shoulder, and in the shoulder, the tendon most commonly involved is the supraspinatus. There is an anatomical explanation for this. If the tendon is traced from its insertion in the humeral tuberosity, backward, it will be remembered that it passes directly under the acromion process, separated from that structure only by the bursa. In each abductive movement of the arm, this tendon impinges indirectly on this process, and friction is set up. So long as the bursa plays its part, no degenerative changes are to be anticipated, but, in adult life, in active individuals, the walls of the bursa will eventually undergo changes, and afford the tendon less protection. The friction is then increased, and there are degenerative changes set up within the tendon. These changes

are in the nature of a devascularization, and are, in all probability, not limited to the tendon, but are also set up in the floor of the bursa, and in the anterior portion of the joint capsule, which lies directly below, and, we have a condition which has been described as peri-arthritis. Prolonged degenerative changes may lead to the deposit of calcium. This deposit is amorphous in nature, usually the carbonate or phosphate, and is found entirely within the tendon fibres, not in the bursa, as was supposed until quite recently. That the frequency of these deposits is greater than may be supposed, has been demonstrated by Bosworth et. al.¹³. A routine survey was made of the shoulders in 6061 employees of an insurance company and in these 165 were found to have such deposits. Of these, on careful enquiry, 70 were found to have symptoms of a minor nature. These figures show an incidence of 2.7% in apparently healthy individuals, and these individuals, 90% of whom were clerks, can be considered a sedentary type. It would therefore seem safe to assume, that, in individuals of more active pursuits the incidence should be considerably higher. P. D. Wilson¹⁴ reports that, in a series of 168 cases of painful shoulder, 25 proved to have calcium deposits in the supraspinatus. This is an incidence of 16%, and from the figures of other writers would seem about correct. These figures are cited only for the purpose of calling attention to a condition which we feel is often passed off as a myositis, or fibrositis, when seen in the chronic stage, and are quite often classed as an acute bursitis, when seen in the acute stage.

The diagnosis of supraspinatus tendonitis either simple, or of the calcificans type, is quite easy. It is a syndrome based on the anatomy of the parts. Recalling again the anatomical structure of the shoulder, it can be seen that the tendon, when abduction is instituted, does not impinge on the acromion process until about sixty degrees is reached, and that, at a hundred-twenty degrees, the tendon has entirely passed beneath the process. Therefore in painful conditions having their origin here, the case will complain of pain which starts at sixty degrees, increases somewhat up to one hundred twenty degrees of abduction, and then passes off, the final complete abduction being painless. As a rule this pain can be increased by supination of the shoulder, and reduced by pronation, when the arm is at ninety degrees, these movements throwing the tendon more into the acromion, and away from it, respectively. Another feature of the condition is that the pain may be referred to the insertion of the Deltoid, forearm and fingers. Some complain of pain referred to the trapezius and occipital areas. It has been demonstrated by Moseley¹⁵, that by the injection of 5% saline into the tendon, this pain can be produced in a normal shoulder.

Selection of cases of supraspinatus tendonitis for injection follows the same rules as have been suggested in the other conditions. Other organic pathology, arthritis, ruptured tendons, etc., must be excluded. Watson-Jones and Mercer¹⁶ both state that in these cases the most spectacular results follow the injection of novocaine. Both these authors use injections only in the simple cases. Those showing calcareous deposits are treated, for the most part, surgically. Our experience has been that, while the injections of the simple case is spectacular, the injection of the calcificans type is more so. Several cases have been seen in the past few months that were so acute, that pain precluded entirely abduction of the shoulder past forty to fifty degrees, these cases, following forty-eight hours local heat, and partial immobilization, were injected, and full function restored immediately without pain. In these

cases, some with unusually heavy calcium deposits, these deposits disappeared within four weeks. One had disappeared on radiological re-investigation in twenty days. The injection of novocaine into the tendon acts as a local anesthetic, but it also acts as an irritant, producing a local hyperemia, and hastening revascularization. This would explain, in part, the early resolution of the calcium deposits, and while our experience is limited, the cases we have treated in this manner have responded so satisfactorily, we are convinced the injection should be made before more radical measures are contemplated.

The technique of injection follows the same general rules as in the other instances cited. In this instance the site of injection is immediately below the tip of the acromion process, the needle point searching out the point of maximum tenderness, and the injection made. In this instance it is well to introduce the needle to the bone, through this point, and then withdraw a quarter inch to assure the infiltration of the tendon body. The injection is usually followed by an exasperation of pain when analgesic effect subsides. This is explained by the swelling produced, and increase of the pressure exerted by the acromion consequent of this. This pain may be severe enough to require sedation, but rapidly passes and rarely recurs.

The solution used is a 2% novocaine, in the vicinity of fifteen cc. being injected, if, as sometimes happens, the floor of the subdeltoid bursa appears thickened on radiological investigation, an attempt is made to infiltrate this structure with a small amount of the fluid, in the hope of hastening revascularization in this area also.

Summary. It has been attempted to discuss briefly the use of procaine hydrochloride as a therapeutic agent in minor surgical conditions. To this end three types of tissues have been considered, and in so doing three specific clinical conditions have been selected as being the types most commonly met with in general surgical work. In two of these conditions the underlying pathology is controversial. We have selected the theories which, in the light of clinical experience, seem the most probable, and with these as a basis, have attempted to explain how a drug which, for a third of a century was considered of value only as an analgesic, has in the past few years come into high regard as a therapeutic agent.

No attempt has been made to discuss in any detail, such questions as differential diagnosis, alternative treatment, etc., and the clinical conditions themselves have only been used in an illustrative manner. Each of the conditions mentioned has been the subject of many papers of much wider scope than could be covered in the time allotted, and under these circumstances we feel that we need not apologize for disposing of three important surgical conditions in an "off-hand" manner, and if these remarks have called to the attention of any one of you, a therapeutic procedure, which may be of value, we will feel more than gratified.

Conclusions. There can be no doubt that the use of the procaine derivatives as therapeutic agents is an established fact, and that, in many instances, the results are spectacular. Accurate diagnosis is imperative if these results are to be attained.

In selected cases, there can be no doubt that the period of disability is materially shortened.

We still have much to learn as to the mode of action, technique of injection, and selection of cases. It is to be anticipated that an agent in the hands

of Leriche, a Steindler, a Watson-Jones, will produce results beyond the attainments of the rest of us, and there will be disappointments.

In concluding, I wish to acknowledge the assistance of Captain H. A. L. Murphy, Staff Anesthetist of this Clinic. It is he who has done the large part of the clinical work which has made this paper possible.

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Editor's Column

THE Editorial Board of the BULLETIN is of the opinion that for a time at least the space formerly given over to Abstracts from the Current Literature might very profitably be devoted to interesting case reports. In the course of medical practice in the province there must be many knotty problems dealt with in new and original ways and many rare and interesting conditions uncovered and diagnosed. We are confident that our readers would find such material both stimulating and helpful. Past experience has shown, however, that case reports are one of the most difficult forms of material to obtain. Certain obvious sources of such material will be approached directly, but we feel that this leaves untapped the deep reservoir of experience possessed by those in practice away from the larger hospitals. We, therefore, beg all those who can respond, to send us any case reports which seem to them to be of interest. One page of double spaced typewriter paper is equal to half a bulletin page. Contributions of from one to four such pages would be gratefully accepted.

If a survey were made, we might be surprised to find how many readers of journals featuring case reports rated such reports high in interest value. We hope the BULLETIN will soon be among those journals.

Correspondence

Travel Information Concerning the C.M.A. Annual Meeting at Banff

Nova Scotian Hotel
Halifax, N. S.
January 22, 1946

Dr. H. G. Grant
Secretary, Medical Society of Nova Scotia
Dalhousie Public Health Clinic
Morris St., Halifax, N. S.
Dear Dr. Grant:

Many of your members are doubtless making preliminary plans to attend the Canadian Medical Association Convention at Banff, Alberta, June 10-14, 1946.

In accordance with your request, I am pleased to offer some information to assist with their travel plans. Of course it will be understood that air transportation offers a great variety of alternatives which cannot be "packaged"—rates and schedules will vary with each individual's requirements.

For example, those who fly with TCA from Nova Scotia may leave Sydney or Halifax (or Moncton) on any one of four daily flights to Montreal. A choice of 3 transcontinental flights (probably 4 by June!) will offer direct connections through to Calgary (21 hours elapsed time from Halifax). Inversely those who desire may take advantage of stopover privileges at Montreal, Ottawa, Toronto, Winnipeg, etc., either going or returning. Calgary is within a few miles of Banff and the direct fare (including tax), via TCA's Canadian Route is

\$179.50	one-way	or	\$323.15	return	from	Halifax
189.05	"		340.30	"	from	Sydney
171.35	"		308.45	"	from	Moncton

there are no "extras"—and meals served aloft are complimentary!

Others may wish to fly via Boston, New York or Chicago, etc., either one or both ways. Many will wish to take the opportunity of visiting Pacific Coast points before returning East. Some may prefer to combine air and rail transportation over part of the route. A certain number will be taking their wives or travelling in a group.

Judging from the anticipated attendance at the Banff meeting, it is desirable to arrange tentative reservations as far in advance as possible, to avoid disappointment.

Your members are invited to discuss their travel plans with any TCA office and I shall welcome the opportunity of further co-operation with yourself. In the meantime, best wishes for a successful convention!

Yours very truly

STEWART S. SIME
City Traffic Manager

Halifax, N. S., January 23, 1946

Dr. H. G. Grant
Dalhousie Public Health Clinic
Halifax, N. S.

Dear Sir:

In connection with your recent inquiry, quoted below are rates, all of which include tax.

Three months' first class ticket Halifax to Banff and
return.....\$191.80

If travelling C.N.R. as far as Montreal, thence C.P.R.:

Lower from Halifax to Montreal.....	\$ 5.45
Lower standard from Montreal to Banff.....	18.70
Compartment for 2 from Halifax to Montreal....	15.55
Compartment for 2 from Montreal to Banff.....	52.35

If travelling C.P.R. all the way:

Seat Halifax to Digby.....	.95 cents each
Lower Saint John to Montreal.....	\$ 4.05
Lower standard from Montreal to Banff.....	18.70
Compartment for 2 Saint John to Montreal....	11.50
Compartment for 2 Montreal to Banff.....	52.35

If travelling C.N.R. as far as Saint John, thence C.P.R.:

Seat from Halifax to Saint John.....	\$ 1.55
Berths as above.	

Trusting these rates are satisfactory and that I may hear from you later on regarding reservations, etc.

Yours truly

A. C. Macdonald
General Agent
C. P. R. Co.

Halifax, N. S., January 23, 1946

Doctor Grant
Dalhousie Clinic
Dalhousie University
Halifax, N. S.

Dear Sir:

Regarding Phone Conversation of January 21st.

I wish to quote the First Class return fare Halifax to Banff, Alta., as \$166.80 plus \$25.00 tax, total \$191.80. A Lower Berth Halifax-Montreal is \$4.75 plus 70c tax, total \$5.45. A Lower Standard Berth Montreal-Banff is \$16.25 plus \$2.45 tax, total \$18.70. A Compartment for two, Halifax-Montreal

is \$13.50 plus \$2.05 tax, total \$15.55 and a Compartment for two, Montreal-Banff is \$45.50 plus \$6.85 tax, total \$52.35.

If I can be of any service in securing reservations, please do not hesitate to call upon me.

Yours very truly

J. J. Leydon

Acting District Passenger Agent
C.N.R.

184 College Street
Toronto 2B, Feb. 1
1946

To Secretaries of Divisions Re Greek War Relief Fund

Dear Doctor:

We have just received a letter from the National Secretary of The Greek War Relief Fund suggesting that any surgical instruments which are donated to the Fund by members of the medical profession in Canada be sent *by express collect* to the following address:

The Greek War Relief Fund
245 Notre Dame Street West
Montreal, Que.

Each parcel or box should be accompanied by a statement indicating the articles which are enclosed.

Yours sincerely

T. C. Routley

General Secretary

Urology Award.—The American Urological Association offers an annual award "not to exceed \$500" for an essay (or essays) on the result of some specific clinical or laboratory research in Urology. The amount of the prize is based on the merits of the work presented, and if the Committee on Scientific Research deem none of the offerings worthy, no award will be made. Competitors shall be limited to residents in urology in recognized hospitals and to urologists who have been in such specific practice for not more than five years. All interested should write the Secretary, for full particulars.

The selected essay (or essays) will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Netherland Plaza, Cincinnati, Ohio, July 22-25, 1946.

Essays must be in the hands of the Secretary, Dr. Thomas D. Moore, 899 Madison Avenue, Memphis, Tennessee, on or before July 1, 1946.

Abstracts from Current Literature

GASTRECTOMY AND SKELETAL DECALCIFICATION. Udaondo, C. B. and Castex, M. R.: *Pren. Med. Argent.*, 1945, 32: 3.

Bonorino Udaondo and Castex report clinical, radiologic and chemical investigations on 41 patients who had undergone gastrectomy for gastric or duodenal ulcer or for gastric carcinoma or sarcoma. The time that had elapsed between the gastrectomy and the radiologic study and the investigation of the mineral metabolism varied between four months and twenty-one years, but in the majority three or more years had elapsed. The authors found that the evidence of osseous decalcification in the lumbo-sacral and pelvic bones (the only bones studied by them) was extremely frequent, and they believe that the digestive and nutritive status produced by the gastrectomy is the primary factor. The investigations revealed that there are other contributing factors in the causation of this osteomalacia, such as too little exposure to sunlight with deficient synthesis of vitamin D and insufficient ingestion of calcium in assimilable form due to inadequate alimentation and digestive disturbances. Cancer, advanced age and endocrine disorders are factors that create or intensify decalcification. Account should be taken of the combination of causes of osteomalacia in patients subjected to gastrectomy and recourse should be taken to measures that nullify the deleterious action of these factors, because preventive measures are usually more effective than is the treatment of the established process.

INTENSIVE TREATMENT OF MALARIA (FIVE DAY CURE). Hauer, A.: *Deut. Med. Woch.*, 1945, 69: 713.

Hauer reports results of intensive treatment of 566 cases of tertian, quartan and tropical malaria during the period from December, 1942, to June, 1943. A five day course was practised. One tablet of 0.01 Gm. of plasmochin three times daily and two tablets of 0.1 Gm. of atabrine three times daily were given for the first three days. One tablet of 0.1 Gm. atabrine three times daily was given on the fourth and fifth day. Hydrochloric acid was administered at the same time. Tolerance was convincingly good. The effects of the drugs as parasiticides and as anti-pyretics were at least the same as if not better than those of a ten or twelve day course which had been employed previously. The early effect of the plasmochin on the gametes may support the control of the mosquito borne infections in the endemic regions of tropical malaria. It is too early for a definite statement with regard to relapses, but it seems likely that the results of the five day course were not less favourable than those of the other methods. A large scale trial is recommended.

LOCAL TREATMENT OF BURNS WITH PRESSURE DRESSINGS AND FILMS CONTAINING SULFONAMIDES. Reese, E. C.: *Amer. Jour. of Surg.*, 1945, 67: 524.

Reese reports results obtained in 43 cases of burns treated with films containing sulfonamides held in place by pressure dressings. The film used

was 0.004 inch thick, transparent and pliable, and it conformed easily to body surfaces. The base of the film was methylcellulose, to which was added triethanolamine in addition to a plasticizer. The standard film employed contained 20 per cent sulfanilamide and 10 per cent sulfacetamide. It was estimated that 1 sq. cm. of the film contains 3 mg. of the sulfonamide. Recently 0.5 per cent proflavine has been added to the film. Triethanolamine was used in this film because it maintains the hydrogen ion concentration of the surrounding medium at a slightly alkaline reaction (pH 8.5), which enhances the effectiveness of sulfanilamide. Utmost aseptic precautions were taken. In 39 cases the burns were second degree; in 4 cases second and third degree burns were present. Reese found that the healing time with this treatment compares favorably with most of the accepted methods of therapy. The film appears to possess an important advantage in that it forms a protective transparent coating which is not removed until full healing has occurred. Painful redressings are thus eliminated, and injury to partially devitalized structures and fragile newly growing epithelium is prevented.

LOCAL APPLICATION OF SULFATHIAZOLE IN INCISIONS. More, R. H.: *Surgery*, 1915, 17: 22.

Seventy incisions for lobectomies and pneumonectomies were studied. The incisions passed through the skin and subcutaneous tissue, posteriorly through the trapezius and rhomboid muscles and anteriorly through the latissimus dorsi and serratus anterior. The control or prior groups consisted of 35 patients. The experimental group consisted of the 35 patients operated on in the period immediately following that in which the control group of patients came to operation. In this experimental group not more than 2 Gm. of sterilized sulfathiazole powder was rubbed into every nook and cranny of the extensive incisions before opening into the pleural cavity, thus producing a film of serum and blood saturated with sulfathiazole overlying all of the exposed tissue. Thirteen wound infections occurred in the control group, while only 4 occurred in the experimental group. Sulfathiazole applied locally in the experimental series was the only important factor to which the reduced incidence of wound infection in the experimental group could be attributed.

CHEMOTHERAPY OF SONNE DYSENTERY. Swyer, R. and Yang, R. K. W.; *Brit. Med. Jour.*, 1945, 3: 149.

Swyer and Yang say that of 179 patients with bacteriologically proved Sonne dysentery 41 were treated with sulfanilylbenzamide, 112 with sulfanilylamidobenzamide and 26 with succinylsulfathiazole. The stools became formed, normal in color and free from blood or mucus in twenty-four to forty-eight hours in the sulfanilylbenzamide series, and in 38 of these cases bacteriologic clearance was obtained in an average of 1.8 days. Improvement in characteristics of stools was well defined with sulfanilylamidobenzamide but rather less so than with sulfanilylbenzamide. The average time for clearance was 3.6 and 2.5 days with full and half dosage respectively. With succinylsulfathiazole there was not a great improvement in stools, but clearance time was 2.4 days. Bacteriologic relapse rates were 7.3 per cent with sulfanilylbenzamide, 15 per cent with a full dose of sulfanilylamidobenzamide and 3.3 per cent with a half dose and 34.6 per cent with succinylsulfathiazole.

HIGH FLUID INTAKE IN MANAGEMENT OF EDEMA. Schemm, F. R.: *Ann. of Inter. Med.*, 1945, 21: 937.

Schemm reports clinical studies on patients who had either severe edema or advanced cardiovascular disease. Treatment consisted in giving large amounts of water orally or by vein and a "neutral" diet to insure reduced amounts of salt and sodium and a slight excess of acid ash. Small amounts of acid drugs were usually given to augment the effects of the diet. If the patient's condition permitted, digitalis, mercurial diuretics and even acid drugs were withheld until the edema cleared; thyroid and vitamin B were given only after edema had disappeared; acacia, hypertonic solutions and aminophylline were not given. The diet protein was sometimes reduced from 65 Gm. to 40 Gm. daily until the edema had cleared. The observations were made over a period of eight years in 626 separate periods of treatment of 402 cases. Patients with pronounced edema, 94 per cent with gross cardiopathy, tolerated the high fluid intake and the results were better than those formerly obtained with restriction of fluids. It is suggested that the regimen used is physiologically sound and clinically useful in the correction and prevention of the related phenomena of edema, oliguria or anuria and dehydration. Schemm believes that his observations call for a critical re-examination of the accepted clinical practice of fluid restriction in the presence of edema, and for reevaluation of the accepted hypotheses regarding edema formation and congestive heart failure on which this practice is based.

USE OF BENZEDRINE SULFATE IN OBESITY. Albrecht, F. K.: *Ann. of Inter. Med.*, 1945, 21: 983.

Albrecht reports the results he obtained in treating 300 obese patients. The dosage varied from 10 mg. to 30 mg. daily in divided doses. Patients were started on 5 mg. of amphetamine sulfate twice daily, the drug to be given one-half to one hour before breakfast and the noon meal. Those who have a light breakfast and who eat their evening meal early were given the drug one hour before the noon meal and at 4 p.m. Nearly all who take the drug lose the uncontrollable desire to eat between meals. Patients can be put on a diet varying from 450 to 1,500 calories with an excellent chance that they will stay on it after the drug is discontinued. This is an easy and rapid way to lose weight, and, under the guidance and supervision of a physician mindful of the contraindications to amphetamine therapy, relatively free from ill effects. The weight loss is not permanent; it is transient in the great majority of instances and returns when the drug is discontinued unless the patient remains on his special diet.

PENICILLIN, ITS USE IN PEDIATRICS. Herrell, W. E. and Kennedy, L. J.: *Jour. of Ped.*, 1945, 25: 505.

Penicillin has been used in the pediatric service of the Mayo Clinic in the treatment of 54 patients with various types of bacterial infection. For the local treatment of most bacterial infections in infants a total daily dose of 20,000 to 40,000 units of either the sodium or the calcium salt appears to be adequate. For larger children a total daily dose of 60,000 to 80,000 units is as a rule enough with the possible exception of overwhelming sepsis, in

which it may be desirable to use as much as 100,000 to 150,000 units. For the local treatment of wounds involving soft tissues as well as bone, saline solutions containing 250 to 500 Oxford units of penicillin per cubic centimeter are suitable. Penicillin may be administered locally in the form of the dry substance alone or in combination with sulfanilamide. These sulfanilamide-penicillin powders usually contain 5,000 units of penicillin per gram of sulfanilamide. Penicillin may also be administered locally as a cream containing 250 units of penicillin per gram. For local therapy the calcium salt of penicillin is preferred to the sodium salt. For systemic administration to infants the intermittent intramuscular method is the best. From 3,000 to 5,000 units should be administered in 1 or 2 cc. of isotonic solution of sodium chloride every three hours, day and night. In overwhelming sepsis as much as 10,000 units may be given by the intramuscular method every three hours. In larger children penicillin can be administered by the continuous intravenous drip. In certain instances, such as extensive burns, in which suitable sites for intramuscular injection are not available, it may be desirable to resort to the infusion of penicillin by way of the bone marrow. The sternum or clavicle can be used satisfactorily. Forty-five of the 54 cases responded favorably. Penicillin was effective in bacteremia, severe cellulitis, acute osteomyelitis, meningitis, pulmonary suppurative disease, certain pyogenic skin infections, otitis media, actinomycosis and a group of miscellaneous infections including septic arthritis and ocular infections. Penicillin is of little or no value in gram negative bacillary infections, including undulant fever, tularemia, influenza or infections due to the colon-typhoid-dysentery group or to Friedlander's bacillus. Infections of the urinary tract due to the gram negative organisms do not respond to penicillin. It is of no value in tuberculosis, acute rheumatic fever, rheumatoid arthritis, ulcerative colitis, malaria or blastomycosis. It is useless in leukemia as well as in certain skin diseases including lupus erythematosus. The advantage of penicillin over sulfonamides resides not only in its greater antibacterial powers but also in the low incidence of toxic manifestations.

NEUTRALIZATION OF GASTRIC ACIDITY. Krantz, J. C., Kibler, Dorothy V. and Bell, F. K.: *Jour. of Pharm. and Exper. Therap.*, 1944, 82: 247.

Krantz and his associates observed the lag in acid absorbing and neutralizing capacities of various samples of aluminum hydroxide gel. A new compound, the basic aluminum salt of aminoacetic acid, was found to have the capacity to buffer and neutralize hydrochloric acid. Its prompt and prolonged buffering of acid suggested its use in the treatment of hyperacidity and peptic ulcer. On the basis of the aluminum content, basic aluminum aminoacetate is 42 per cent more efficient in acid consuming power than dried aluminum hydroxide gel. Feeding studies on rats did not result in abnormalities. Basic aluminum aminoacetate was administered to 20 persons in doses of 2 to 4 Gm. in powder form suspended in water. It was tolerated without symptoms. Two patients with active peptic ulcer were treated with the salt as the sole antacid. Healing was observed by the gastroscope and the patients became asymptomatic. In 2 cases of latent peptic ulcer with post-prandial distention and hyperacidity prompt and prolonged relief followed ingestion of 0.5 Gm. compressed tablets of the salt. Extensive clinical investigations with the compound are in progress.

TRENCH FOOT AND IMMERSION FOOT. White, J. C. and Scoville, W. B.:
New Eng. Jour. of Med., 1945, 232: 415.

White and Scoville state that trench foot and immersion foot are similar clinical entities that differ from frostbite in the type of exposure and the reaction of the tissues and their method of recovery. Three stages are described: the initial response to cold, short of actual freezing of the tissue cells, the early period of recovery, characterized by painful hyperemia, and the residual effects of fibrosis. The initial treatment is similar to that from burns but should include cooling to reduce the oxygen demands of the skin to a level compatible with the flow of blood through damaged subcutaneous vessels. Late treatment consists in conservative minimal amputations, exercises and physical therapy to decrease tissue fibrosis and joint stiffness and sympathectomy in selected cases with residual circulatory insufficiency. Gangrene of the toes and distal portions of the feet constitutes a serious problem in trench foot but is rare in immersion foot, in which the lower extremities are less liable to trauma and infection. Prolonged partial disability is frequent in both conditions. Improvement in protective clothing, widespread instruction in foot care and first aid and a critical evaluation of the response of the fibrosed tissue to sympathectomy are in order.

E. DAVID SHERMAN, M.D.
Abstract Editor

The A.P.A.A. (Ninth) 1947 Exhibition

To be held at Atlantic City, on the occasion of the Centennial Session of the American Medical Association, will also be the occasion of the judging of the "*courage and devotion beyond the call of duty*" Art Prize Contest (\$34,000 in Savings Bonds).

This contest was originally scheduled for the 1946 A.M.A. Session but has been postponed one year, upon the best advice, in order to give more physicians an additional year to complete their art pieces on this special prize subject.

For further information regarding both the *San Francisco* 1946 and the *Atlantic City* of 1947 Art Exhibits, physicians may write either the American Physicians Secretary-Treasurer, Dr. Francis H. Rodewill, Flood Building, San Francisco, Cal., or the sponsor, Mead Johnson & Co., Evansville 21, Ind.

Obituary

Dr. Oscar Glennie Donovan

A long and useful career of public service closed in the early morning of Sunday, January 27, 1946, with the death of Doctor Donovan after an acute illness of two hours duration.

He was born at Hansford, Cumberland County, Nova Scotia, on May 22, 1883. When a child his parents removed to Truro, where he grew up. After attending Colchester County Academy he entered Dalhousie Medical College, graduating in 1906. Then followed the time honored internship at the Victoria General Hospital for one year. Part of this time his Chief was Doctor L. M. Silver of Halifax, and on one of his cases, a boy with cerebro-spinal meningitis, the first known lumbar puncture to be done in Nova Scotia for the relief of cerebral symptoms, was carried out.

One of his first tasks as a young practitioner was to care for an epidemic of small pox in Truro. In order to localize the disease an isolation hospital was opened under his care, to which as many new cases as possible were admitted. On one occasion he was called by a confrere to attend a woman in labour, acutely ill with the disease. He performed his duties while the unvaccinated family doctor watched him through the window.

His first settled practice was at New Germany, Lunenburg County, where he succeeded Doctor F. L. Ford. Soon afterwards he married Miss Lela Hamm of Mahone Bay, a graduate of the School of Nursing of the Victoria General Hospital.

For several years he practised with great success. From youth onward he had taken an interest in military affairs and was early attached to the Non Permanent Army Militia. Accordingly, on the outbreak of war in 1914 he joined the Active Army as a Lieutenant. Mrs. Donovan likewise joined. Both went overseas and to France. During the early part of the war he was with the Royal Army Medical Corps, and later with the Canadians. He twice won the Croix de Guerre. Towards the end of hostilities he was working with Dr. Harvey Cushing at his base hospital in Boulogne. Soon after the Armistice he went to Liverpool, where he worked for several months in Sir Robert Jones' Clinic, doing orthopedic surgery.

Back to Canada again, where the post war restlessness was subdued by a trip to Mexico. The idea of going back to New Germany was abandoned, and he decided to settle in Halifax. Duties at Camp Hill Hospital, a large Venereal Diseases Clinic at Admiralty House, and a growing general practice completely occupied his time. Later, the Clinic was transferred to the Dalhousie Public Health Clinic and in due course his work at Camp Hill became of paramount importance. He became Medical Superintendent. In 1934 he left Camp Hill Hospital to become Medical Officer of the Workmen's Compensation Board of Nova Scotia, and on the retirement of Dr. M. D. Morrison in 1937 became Chief Medical Officer. The day preceeding his death he was as usual at his office.

So much for facts: they speak of success and usefulness, but what sort of a man was he? I speak from an acquaintance of nearly twenty years, and as a close associate for nearly nine of them. To begin with, he was one of the most intensely loyal men to his King and Country I have ever known.

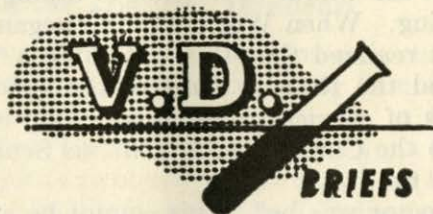
From his return to Canada after the Great War 1 he resumed his interest in the Non Permanent Army Militia, and in the course of time took command of Number One Casualty Clearing Station and the 22nd Field Ambulance. As a matter of fact he had the unique experience of taking both Units to Aldershot one summer for training. When World War II began he at once volunteered for active service, but realized that this was to be a "young man's war" and eventually commanded the Reserve Unit of the 22nd Field Ambulance. In 1944 after forty years of service he resigned. One of the greatest thrills of his life was his trip to the Coronation in 1937, as Senior Medical Officer from Military District No. 6.

What sort of a doctor was he? This cannot be answered in a word. He had wide and varied experience and profited from every bit of it. Few clinical problems arose in our work that did not find him able to cope with them splendidly. Orthopedic training from one of the greatest of its exponents stood him in good stead. He was skillful, resourceful to a degree, and un-failingly enthusiastic in his word.

Genuine kindness of heart characterized his work with the casualties of industry. He had little patience with the insincere and malingering ones, but it was infinite in scope when the victim had a genuine disability. No field was too remote or difficult to explore if relief could be found. The fearful ones he persuaded, he coaxed and scolded to build up their morale and get them to resume life's burdens and responsibilities. He once said to me: "Sometimes if I can get a man good and mad at me he will get going and try to help himself." Thus personal popularity was deliberately sacrificed to a sense of duty and responsibility.

What more can be said of a friend of many years who has gone from us. To the stranger these lines mean but little. To his friends they are a record of fine associations and will recall many others. He died as he had wished after a happy useful day, and he rests in the land which he loved under the flag he adored.

H. L. S.



Examination of Cerebrospinal Fluid in Syphilis

Every case of syphilis MUST HAVE an examination of the cerebrospinal fluid—

Cases of early Syphilis, treated according to a schedule requiring six months or longer, should have a lumbar puncture at the conclusion of treatment.

Cases of early Syphilis, treated with a rapid form of treatment, should have a lumbar puncture six to nine months from the time treatment was begun.

Cases of latent Syphilis, or of late forms of Syphilis, should have a lumbar puncture *immediately*, before beginning treatment.

Co-operation of patient—

A lumbar puncture is to be considered as a minor surgical intervention and, like all surgical interventions, should *not* be performed *without* the consent of the patient.

As a rule, by exercising a certain amount of tact, and by giving appropriate explanation to the patient, there is no difficulty in obtaining his consent.

When, in spite of all explanations given, the patient refuses to submit to a lumbar puncture, the physician *cannot* consider himself as released of further responsibility in this regard. He should inform the patient that his treatment cannot be considered as complete unless the examination of the cerebrospinal fluid is negative, that the cerebrospinal fluid which has not been examined cannot be presumed to be negative, and that, therefore, further treatment will have to be given. At each subsequent treatment, the physician should try to gain the confidence of the patient. After a time, he may explain more fully to him the necessity for a cerebrospinal fluid examination. It is very rare that after a few weeks of such additional treatment and discussion of his problem the patient does not give his consent to a lumbar puncture.