

delicate movements, like picking up a pin or buttoning the clothing. Rarely trophic changes, as of the nails, occur in the hand. Charcot's arthropathy occurs rarely in the wrist or joints of the fingers; in this condition an enlarged phalanx may present an appearance similar to that of syphilitic dactylitis. Hyperæsthesia sometimes occurs about the fingers.

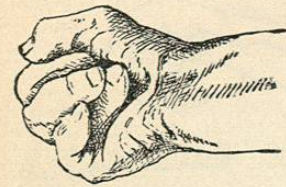


FIG. 2518.—Hemiplegic Contracture of the Fingers. (Meillet and Richer.)

In this condition the upper extremities are usually affected much less and much later than the lower, though rarely the disease begins in the upper extremities. There are present paresis, muscular tension, and exaggerated tendon reflexes; the wrist and fingers are usually strongly flexed and the arm is adducted.

Amiotrophic Lateral Sclerosis usually begins in the upper extremity, with paralysis, muscular atrophy, fibrillar contractions, pain, and paræsthesia, followed at a later stage by muscular rigidity and contractures. Sometimes the fingers are bent into the palm and the wrist is flexed; sometimes there is atrophy of the interossei and claw hand.

Multiple Sclerosis.—The most conspicuous symptom exhibited by the hand in this condition is the intention tremor, or rapid rhythmic tremor when voluntary movements are attempted. The wrist jerk is exaggerated, and paresis and muscular rigidity may be present. Tropic changes in the hand occasionally occur, as swelling of the small joints of the fingers, atrophy of the small muscles, blebs, onychia, sweating, lowered temperature.

Syringomyelia (Morvan's disease) involves especially the upper extremities, and is manifested by paralysis and atrophy of muscle groups, varying in situation, paræsthesia and anaesthesia (especially to temperature and pain) in irregularly distributed patches, and trophic changes. Some cases of syringomyelia simulate progressive muscular atrophy, beginning with atrophy and paralysis of the thenar, hypothenar, and interosseous muscles of the hand, producing claw hand; the paralysis later proceeds up the forearm. Enlargement of joints (frequently the wrist) occurs, similar to Charcot's tabetic arthropathy. Edema, vesicles, bullæ, ulcers, onychias, recurring painless whitlows, and even extensive gangrene and mutilation about the fingers and hand may occur. In a few instances general hypertrophy of the hand has been observed, and in a few others Dupuytren's contraction has been present.

Hemiplegia.—In this affection the primary condition manifested in the hand is paralysis. Later, especially following secondary descending degeneration in the spinal cord, contractures may develop, usually of the flexor muscles (Fig. 2518), though the extensors may be shortened. The muscles are only exceptionally atrophied, aside from decrease in size caused by disuse.

Infantile cerebral palsies and **infantile hemiplegia**, occurring especially during the first two years of life and arising from labor traumatism (birth palsies) or pathological cerebral conditions, usually affect the upper extremity worse and more permanently than the lower. Tropic effects which cause permanent damage follow the primary paralysis. Growth of the parts involved is arrested or irregular, so that the hand and arm are small and undeveloped, less in size than their fellow, and often deformed from contractures, disproportionate development of different parts, or secondary joint changes. The fingers, wrist, and forearm are usually flexed, and forms of club hand may be produced. Frequently the affected member remains the seat of ataxia, chorea, tremor, or the peculiar motor disorder called athetosis (see below). About ten per cent. of the cases of infantile hemiplegia are followed by athetosis, which is a sequela of this con-

dition rather more frequently than of birth palsy and much more frequently than of adult hemiplegia.

Friedrich's Ataxia is a rare hereditary condition, occurring chiefly in children, in which the hands become involved by extension of the disease from the lower extremities. The hand exhibits an ataxic condition, delicate movements like buttoning the clothes being interfered with. "Manus cavus" often occurs, the palm being arched; the proximal phalanges may be superextended and the middle and distal phalanges somewhat flexed, producing some tendency to claw hand.

In **general paresis** the hands may exhibit anaesthesia, paralysis, tremor, and lack of co-ordination, shown especially by impaired ability to execute delicate movements, as writing.

In **tetanus** the hand participates in the tonic and clonic spasms. As the flexors are stronger than the extensors, in this as in many other spastic conditions the position of the fingers and hand is usually that of firm flexion.

Tetany affects the hands conspicuously. Intermittent paroxysms of tonic muscular spasms occur, associated with pain and paræsthesia. The paroxysms last for from a few minutes to a few days and may persist even during sleep; the intervals between the paroxysms last from hours to months. The mechanical and electrical irritability of the muscles is increased, and pressure on the nerve trunks and arteries excites an attack (Trousseau's symptom). The position assumed by the hand during the spasm depends on the group of muscles affected, but is usually one of flexion. Often the hand assumes the conical shape of the accoucheur's hand about to be introduced into the vagina; the fingers are flexed at the metacarpophalangeal joints and extended at the other joints, the hand is narrowed and the thumb adducted. Sometimes the fist is forcibly closed by general flexion, the thumb being pressed into the palm and the other fingers flexed upon it. Rarely the fingers are extended and separated.

Thomsen's Disease (congenital myotonia) is a rare hereditary affection, manifested by the occurrence of tonic spasms on attempting voluntary movements. The hand may be involved with other parts of the body. On closing the hand firmly, for instance, cramp occurs and the grip cannot be relaxed.

Hysteria.—In this condition the hand, like other parts of the body, may be involved in a variety of ways, by



FIG. 2519.—Hysteric Contracture of Extensor Muscles of Hand, of Six Months' Duration. (Dana.)

hyperæsthesias, anaesthesias (often dissociated), slight wasting, vascular phenomena (as flushing, pallor, coldness, ordinary oedema, cyanotic or "blue" oedema), paralyses, sudden temporary loss of power in the muscles, tremor (simple or intentional), contractures, etc. Hysteric contractures of the hand may be temporary or persistent, and usually involve the flexor muscles,

though sometimes the extensors are affected (Fig. 2519); sometimes the contractures are extreme and very firmly fixed, not yielding to sleep or a mild degree of general anaesthesia; they may continue for months, and cause permanent damage by setting up secondary joint changes.

In **epilepsy** the hand may take part in the spasms. In **chorea** the fingers and hand usually participate actively in the irregular movements and inco-ordination. In the **tics** and **habit chorea** the hand may be involved, though the face is the commonest seat of these disorders.

Paralysis agitans is usually manifested in the hand in a very characteristic fashion. In typical cases the fingers are flexed at the metacarpophalangeal joints and the pulp of the thumb is opposed to that of the index finger; by the constant tremor the opposed thumb and index finger are kept continually rolling over each other, producing the movement described as "pill-rolling." The tremor is usually less during voluntary movements. Muscular rigidity of the digits and hand is often present.

Athetosis, or post-hemiplegic chorea, is a peculiar motor affection of the fingers and toes that occurs most frequently as a sequela of infantile hemiplegia and infantile palsies, less frequently after hemiplegia in adults. It is manifested by slow and deliberate forcible involuntary movements of the digits, in extension, flexion, abduction, and adduction, which take place successively and incessantly, even during sleep. The movements may be complicated and peculiar, and may lead to distorted positions of the hand; they can be only partially and for a short time controlled by the will, and the fingers cannot be permanently kept in any fixed position.

The **treatment** of nervous affections of the hand is in general that of the cause or of the general condition producing the local trouble, together with measures to improve the local condition when no general amelioration is possible.

In wounds in which nerves leading to the hand are divided, the ends of the severed nerve should be carefully sutured together with catgut. If this is not done at the time of the injury, secondary suture, even after months or years, may restore the function of the nerve. If a portion of a nerve is destroyed and the ends cannot be approximated by stretching, plastic procedures or transplantation may be tried.

Developing or impending paralysis and atrophy of muscles and the resulting contractures and deformity may sometimes be arrested, retarded, or diminished by the use of electricity, massage, exercise, passive movements, etc. When deformity is fully developed there is usually little possibility of accomplishing any material improvement, though sometimes the local condition can be somewhat bettered. Thus, division or lengthening of the tendons of contracted muscles sometimes improves deformity and motion. In some cases shortening of the tendons of partially paralyzed muscles, as the extensors, may improve their action. Tendon transplantation, that is, the transference and joining of tendons of non-paralyzed muscles to those of paralyzed muscles, has been tried in the hand in a few cases, in some with good results; thus, in extensor paralysis, some of the tendons of flexor muscles may be cut off and the tendons passed subcutaneously or through the interosseous space to the dorsum of the wrist, where they are sutured to the tendons of the paralyzed extensor muscles. In some cases the use of mechanical apparatus is beneficial. Local trophic changes of inflammatory or necrotic character demand appropriate treatment.

SENILE CHANGES IN THE HAND.

In old age the skin and subcutaneous tissues often become atrophied and thinned, diminishing the size of the hand and fingers. Joint changes are often present, and have been referred to above; they comprise chiefly enlargements (relative or absolute), ulnar deflections, changes in the thumb joint, and other lesions which merge into conditions of rheumatoid character.

Occasionally general palmar induration (as already de-

scribed) is observed. Tropic changes in the nails—longitudinal ridges ("reedy nail")—sometimes occur. Senile warts (verruca senilis) may develop on the hands as elsewhere; they may be flattish or elevated, pigmented or non-pigmented, sometimes fatty. The back of the hand is a favorite seat for keratosis senilis, which is manifested by warty projections in the form of small papules or larger flattish plates, greasy plates or patches, branny scales, pigmented spots, or in some cases thickening of the entire skin; sometimes the skin of the back of the hand is converted into a dense horny plate. This condition may run into epithelioma. Tremor of the hand, merging into paralysis agitans, is a common senile condition.

CONDITION OF THE HAND IN GENERAL DISEASES.

The changes exhibited by the hand in a large number of general diseases have been already detailed, so that there is little to be added on this subject. In anæmic conditions the hand is pale, cold, dry, and the nails are pale. In conditions of vascular relaxation and atony, weak circulation, or lowered blood pressure, the skin is clammy, cold, purplish, or mottled. In cardiac disease the hands may be congested, cold, clammy, or oedematous, and the fingers may be clubbed. In nephritis the hand is dry, pale, oedematous. In tuberculosis the hand may be emaciated, hot, dry, or sometimes clammy, and the fingers are occasionally clubbed or blunt. Clubbed fingers may occur in other forms of pulmonary disease. The hand is dry and shrivelled in diabetes. Onychias may follow severe acute diseases. In typhoid fever the palms of the hands (and soles of the feet) are usually dry, parchment-like, of a yellow to brownish color, and during convalescence are the seat of active desquamation. In certain forms of idiocy the skin of the hands is loose, wrinkled like a washerwoman's, and looking too large for the hand, while the finger tips are tapering and conical.

John Benjamin Nichols.

HARBIN HOT SULPHUR SPRINGS.—Lake County, California.

POST-OFFICE.—Harbin Springs. Hotel.

ACCESS.—Take boat at Oakland Ferry from San Francisco. At Vallejo change for Napa Valley branch to Calistoga; thence a twenty-mile stage ride brings one to the springs. Time from San Francisco: seven and one-half hours. The location is at the base of a spur of the Coast Range of mountains, 2,000 feet above tide water. Lake County has been justly named the Switzerland of America, and it would be difficult to find a more delightful and picturesque location than that of the Harbin Springs. The mountain air is very invigorating and not subject to extremes of heat or cold, the mean temperature being 70° F. The waters are sulphurous and saline, the principal spring flowing 1,500 gallons per hour. There is also a small chalybeate fount yielding only sixty gallons per hour. The sulphur spring has a temperature of 122° F., and is used for bathing, for which excellent facilities have been provided. Following is an analysis of this water:

ONE UNITED STATES GALLON CONTAINS:	
Solids.	Grains.
Sodium chloride	23.05
Sodium carbonate	5.42
Sodium sulphate	10.19
Potassium carbonate	1.74
Magnesium carbonate	6.18
Magnesium sulphate	11.94
Calcium carbonate	9.10
Calcium sulphate	14.63
Ferrous sulphate	1.75
Arsenious salts	.07
Alumina	1.60
Silica	2.76
Organic matter	Trace.
Total	88.43
Gases.	Cu. in.
Carbonic acid gas	4.26
Free sulphureted hydrogen	11.74

It is said that much benefit accrues from the use of this water in chronic rheumatism and gout and other articular affections, as well as in certain varieties of skin diseases.

The chalybeate spring shows the following mineral ingredients:

ONE UNITED STATES GALLON CONTAINS:	
Solids.	Grains.
Sodium chloride	7.50
Sodium carbonate	14.22
Sodium bicarbonate	1.45
Potassium chloride	5.25
Potassium carbonate	Trace.
Magnesium carbonate	1.73
Magnesium sulphate	4.16
Calcium carbonate	6.11
Calcium sulphate	2.07
Ferrous carbonate	Trace.
Alumina	1.90
Silica	.73
Organic matter	1.41
Total	Trace.
Carbonic acid gas, 9.34 cubic inches.	46.53

This water is clear and sparkling, and has a pleasant taste. It is tonic, antacid, diuretic, and aperient, and is useful in dyspepsia, anemia, chlorosis, chronic malarial poisoning, and wasting diseases. In addition, there are two more springs of some importance; they are known as the "Magnesia" and the "Arsenic" springs. The last-named spring has gained quite a reputation in syphilitic and skin diseases, glandular indurations, etc.

James K. Crook.

HARDHACK. (See *Rosaceæ*.)

HARELIP, unlike cleft palate, may be regarded as a strictly congenital malformation. It is a deformity that, from its peculiar prominence, has brought more sorrow to the hearts of parents than perhaps any other of nature's defects. To the surgeon it has been the source of more thought and care as regards the operation for its relief than are demanded by many surgical problems of far greater importance.

Like cleft palate, it may be looked upon as an arrest in fetal development, confined, with very rare exceptions, to the upper lip. When situated in the lower lip, there are many deformities that may coexist with it, such as combined fissure of the lower jaw and tongue, and a variety of other like complications. Sir William Fergusson, in the fifth edition of his "Surgery," p. 506, speaks of several cases of this kind which had been observed by himself and others in their practice.

Associated with upper harelip are sometimes remarkable deformities about the face; for instance, the fissure may extend up along the nose on one or both sides to, or into, the eyelids, or it may extend out on one or both sides from the angle of the mouth, and may implicate Stenson's duct, a very unpleasant complication.

Mason speaks of a cyanotic condition of the child. This condition, which I have also observed, is, at times, cured by the operation for closure of the fissure. Mr. George Lawson gives the explanation (*Lancet*, June 7th,



FIG. 2520.



FIG. 2521.

1862, p. 599) that during the lull in the circulation, in cases in which faintness occurs, the foramen ovale becomes closed and thus the double current is established.

The pathology of harelip is a subject into which the narrow limits of an article like the present one will not

permit me to enter except in the most superficial manner. M. Coste¹ states that the mouth is formed between the twenty-fifth and the twenty-eighth day of fetal life. The frontal lobe becomes much enlarged, and shows a



FIG. 2522.

great hollow which divides into two smaller lobes, called by him the incisive centres, and from which the incisive bones and the middle portion of the upper lip are developed. The centres for the superior maxillæ, which form the lateral parts of the upper lip, converge one toward the other, and come nearer to each side of the corresponding incisive centre. At the fortieth day the two incisive centres, in the substance of which the incisive teeth are developed, unite one to the other in the middle line and thus complete the central portion of the upper lip. Thus, if the two lateral portions do not unite with the incisive portions, we have a double, or bilateral, harelip; if only one of these sides fails to unite, then we have a single, or unilateral, harelip.

I have, in a few of my earlier operations, removed the intermaxillary bone, and, on examination of it, have noted an absence of the lateral incisors. This, I believe, has been the experience of most surgeons who have given careful thought to the question whether this island contained all of the upper incisors or not. In two cases that I examined a few years after the operation for cleft palate, in which I had saved the intermaxillary bones, I found in each instance an irregular lateral incisor on the right side, back of the regular row of teeth.

Fergusson, Demarquay, Gurdon Buck, and others report a large number of cases which illustrate the fact that harelip appears in some families through many generations, and I have observed this in the record of my own cases. Like webbed fingers and toes, harelip is often seen without any evidence of consanguinity being present.

There are few surgeons, I suspect, who have examined cases of harelip carefully, who have not been impressed with the effort so often made by mother or nurse to prove that the deformity is entirely due to some fright which the mother has experienced and which in her estimation has produced its effect upon the child in utero. Maternal impressions may be one of the factors in the production of harelip, and yet evidence of such cause is so often wanting as to lead us to doubt.

Acting early upon the suggestion of the late Sir Wm. Fergusson, I have examined many lips and jaws for fissure, and have frequently found slight notching or partial defects on the mouths of one or the other of the parents.

I have frequently had occasion to call the attention of my class to this point in the study of these cases. This is very well shown in Figs. 2520 and 2521, from Mason.* Some cases are not so well defined, the amount of depression in the vermilion border of the lip being much less. I have noticed that close pregnancies form a factor in causing this deformity. In connection with these cases it is not unusual to see in the same patient extra thumbs or fingers, spina bifida, and the like. The late Professor Alden March had a child brought to his clinic, for relief of harelip, who had cleft palate, an extra toe and finger upon each foot and hand, double hernia, and club foot. He thought the child hardly in a proper condition for operation, and quietly said to the poor mother, "My good woman, you had better try it over again."

Accidents, bites of dogs and other animals, treatment of naevi, and other surgical conditions may result in a temporary form of harelip, which may be said to be cured generally in the final treatment given to such lesions. In the case of Miss C—, aged six, suffering from naevus on the upper lip, whom I had treated in various ways without complete success, the final injection of a solution of tincture of iron produced a slough resulting in a fissure such as is seen in Fig. 2522, but which was closed with scarcely any scar by means of two silver harelip pins.

A considerable number of cases is met with in which the kind of harelip is of the double variety, as seen in Fig. 2523, from Mason. In this variety the fissure may be very slight on one side and yet complete on the other, or, in cases in which there is a double fissure of the alveolar arch, as in cleft palate, we may have the horrid horn-like projection as seen in Fig. 2524, from Mason, and in one of my own cases, Fig. 1363, of vol. III.

Cases of median harelip have been recorded by surgeons, but they are exceedingly rare, and their existence has even been doubted by some. In the autumn of 1888 there was brought to my clinic a female child (two and one half years of age) in whom a cystic tumor at the tip of the nose was complicated by a complete median fissure of the upper lip. Fig. 2525 (from a sketch of the little patient) shows the case very well. Sir Wm. Fergusson has very justly remarked that, after the operation has been completed, one cannot judge correctly as to whether the case was originally one of a median fissure or of double harelip,

for many cases of the latter defect, when operated on, show a decided tendency to the formation of a cicatrix in the middle line. Fig. 2526, one of my own cases, and quite as bad a case of double harelip as I have ever operated upon, shows this condition clearly. It is a singular fact that in these various kinds of fissure in the upper lip there is really very little loss of substance. One finds this to be true by merely approximating the soft parts temporarily.

Regarding the period of life when it is best to operate, in cases of harelip, much has been said by the older operators, but with little unanimity of opinion; some advising interference in infancy, others preferring to wait until advanced childhood. At the present time, I am of the opinion that modern surgeons prefer the early operation. My own experience teaches that a good time for the operation is when the infant is about six weeks old, especially if the child be healthy. In a case of double fissure perhaps it is well to wait until the child is six or seven months old. Of one thing I am cer-



FIG. 2524.

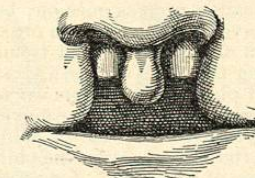


FIG. 2523.

tain, that in the latter complication we should perform the operation as early as possible, in order to secure the good effect which is produced upon the soft parts when the cleft in the hard palate is obliterated by operative interference,—an effect which, in a period of two years, amounts to a great deal.

In cases of double harelip I prefer to operate on one side at a time and to save all that is possible of the island or intermaxillary bone. In operating upon one side at a time, the first should be allowed to become firmly healed before we resort to the second operation. Ordinarily, this interval would amount to at least two months. I sometimes in these cases give to the skin covering the island the form of a square, and then, making flaps from the upper lip and cheeks on each side, secure a good, full lip, one which does not appear at all constricted. I am convinced that in doing the operation we should pare the edges of the fissure freely, but not throw the pieces away—that is, not finally detach them; therefore, I believe that the operation which embodies this principle is the best.

Operations upon the adult are exceedingly rare, and are then generally performed for the purpose of improving an imperfect result following an early operation. In a few instances I have been obliged, for such a reason, to operate on an adult.

In operating for harelip we should in all cases be sure to loosen well the attachment of the cheek to the alveolar process; there should be perfect freedom of movement,



FIG. 2525.

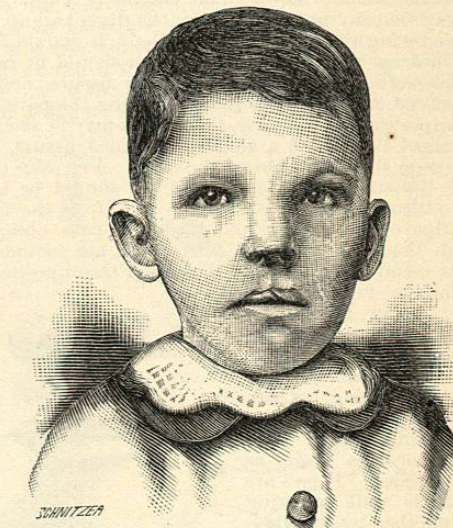


FIG. 2526.

and no restraint put upon the parts when the pins or sutures—whichever may be selected—have been introduced. This is generally best done with a long, blunt-pointed tenotome.

*Mason: "On Harelip and Cleft Palate."

The position of the infant at the time of operating is a point of much importance. If the child is strong, I believe it safe and wise to give chloroform, or whatever anæsthetic the surgeon considers to be the best.

Having the child held by a good nurse or competent assistant—as is spoken of by so many writers—is often the easiest and best for the operator; but I am much in favor of placing the little one on a narrow, firm table of proper height, around which the assistants can work more at ease and not be in the way of each other. Standing on the right side of the table and patient, the operator proceeds to free or loosen the fissure on each side, as I have already stated. After this has been thoroughly done, he directs an assistant, opposite to him and at the head of the child, to grasp the left side of the fissure between the forefinger and thumb of his left hand, and then, with his

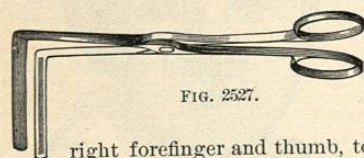


FIG. 2527.

right forefinger and thumb, to hold the right side in the same manner. The surgeon may now, with the so-called harelip forceps, or simple forceps, grasp one edge of the fissure, and, introducing a sharp-pointed narrow knife at the point of the cleft nearest the nose, carry the knife from above downward toward the vermilion border of the lip. He should then repeat the same steps on the other side, in each instance removing sufficient tissue to give good, broad surfaces for mutual contact. In a simple harelip I often pare the edges of the fissure with a strong pair of curved scissors (Fig. 1382, vol. III.). Thus far, if the assistant's thumbs and fingers are not too large, and if he performs his part well, but little blood will have been lost. I consider the compressors of the upper lip for controlling hemorrhage, spoken of by some authors, as really not necessary, but if they are to be employed I would recommend an instrument like that shown in Fig. 2527 (copied from Mason).

The next step in the operation involves the closure of the fissure. It must ever be borne in mind that the vermilion border of the lip should be well preserved, with no sliding upward or downward on either side, and also that there ought not to be any notching.

As to the kind of suture that should be employed, I must say that my preference is for the silver harelip pins. In introducing them, I prefer that the first should be inserted nearest the vermilion border; it should be passed from the left to the right side of the fissure, and the greatest care should be exercised to bring the parts into good apposition. Of course, these steps may be modified or reversed if there is a single right-sided fissure, or if the surgeon stands in front of the child. Fig. 2528 (from Mason) illustrates my point. The pin should be introduced at least a quarter of an inch back from the freshened edge of the fissure, and it should pass obliquely through the edge of the lip, but should not include the mucous membrane; it should then enter the opposite side and emerge in the same manner. Now, around this pin put a figure-of-eight silk ligature, not too tight, as some allowance must be made for swelling. Then, next above this first pin, introduce in a similar manner one or two more, as may be needed. If two are used, it is well to bring them together by one ligature, crossing from one pin to the other, as by adopting this plan one is not likely to get so much of a slough—that and ulceration being the two great dangers associated with the employment of silver pins.

Sometimes it is necessary to introduce between the

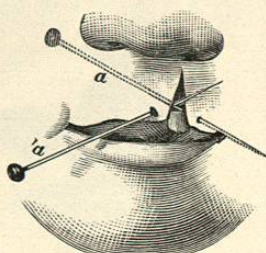


FIG. 2528.

pins a few fine superficial silk sutures, and also to place two or three in the mucous membrane and one in the vermilion border of the lip, not leaving them in for more than twenty-four or thirty-six hours. In the case of the mucous membrane I prefer to use fine catgut sutures, and I then leave them undisturbed.

After the pins have been introduced the points should be cut off with bone forceps, and a small portion of absorbent cotton should be put under each end. They are not to be left in longer than three days, as a rule, and should always be watched with care to prevent ulceration or sloughing. It is better to take them out too soon than to leave them in too long.

Some surgeons prefer simple silk, others silver wire; then, besides, many other devices have been suggested. I take it that few surgeons rely upon the rubber or adhesive plaster to hold the parts in apposition while the healing process goes on; but after the pins and sutures have been removed, in order to prevent too much tension on the newly formed tissue, I am in the habit of holding the parts well in apposition by placing narrow strips of plaster across from ear to ear. These hold the cheeks quiet and restrain the movements of the lips. Mr. Mason speaks of the use of collodion over pins and sutures. After the operation the child should be kept quiet by the use of anodynes, if necessary. He should be fed first with a spoon, and, when all is going well, after a few hours, or perhaps one, two, or three days, he should be allowed to nurse or take the bottle. Crying should be prevented as far as possible, and yet it is surprising to note how little harm it does.



FIG. 2530.—Mirault's Operation.

It is clear that no one special kind of operation can be made to apply to every variety of harelip. Fortunately, we have a choice among numerous modes of procedure which practice has demonstrated to be successful. In the operation known as Malgaigne's, the incision is commenced at the superior part of the lip, and performed from above downward (Fig. 2529, left side, *b, b'*). Scissors are used as in ordinary operations, except that, when the operator has reached the lowest point possible without detaching the cut piece, he stops (Fig. 2529, left side, *a, a'*). The other side of the labial fissure is treated in the same way. There are then two small flaps each one of which adheres to the lip by a pedicle. After having reunited, by the aid of pins, the two margins of the cleft in their whole extent, except toward their free border (that is, toward the bottom), the surgeon should bring these flaps from above downward and should approximate them face to face (Fig. 2529, right side, *b, b'*). The point now is to adjust these flaps (partly by shortening them) in such a manner as to prevent the later development of a furrow. This result, which is so commonly dreaded by surgeons, may be prevented, at this stage of the operation, by preserving a piece varying in size according to the extent of the vacuum to be filled (Fig. 2529, right side, *a, a'*). Union is afterward effected by approximating the parts with one or two interrupted sutures or with a fine harelip pin. If care is taken to place these uniting



FIG. 2531.—Sédillot's Operation.

agents very near the free margin of the lip, the cicatrices will scarcely be visible.

M. Mirault, of Angers, employed one flap only. A flap is taken from above downward, but is left attached to the prolabium (Fig. 2530, left side, *a*); on the other side of the cleft the margin is completely removed (Fig. 2530, left side, *b*). The flap, *a*, is now turned down, and from being perpendicular, it becomes horizontal, and forms the margin of the lip (Fig. 2530, right side, *a* and *b*).

For double harelip Sédillot suggested a cheiloplastic operation. The sides of the central tubercles being pared, a flap of soft tissue is taken from each side, as shown in Fig. 2531. The flaps, *a, a*, are brought down to form the red margin of the lip, and the raw surfaces, *b, b*, then come in contact with the raw surfaces on the sides of the central tubercle, *b', b'*.

Dr. A. M. Phelps, of Chateaugay, N. Y., in a paper read before the Medical Society of the State of New York, February, 1885 (see Transactions, p. 255), presented an operation for single harelip which contains some original and striking features.

The steps of the operation are these:

"After first passing a loop through each angle of the lip for the forefinger of the left hand to hold the parts

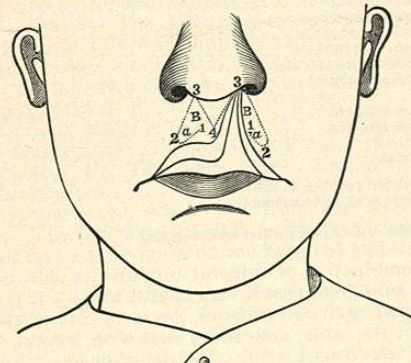


FIG. 2532.

perfectly, with a pair of curved scissors separate the lip from its attachment to the jaw sufficiently to freely relieve the nostril and make all parts easily movable. The mucous membrane should be freely divided in both directions. With an ordinary cataract knife, or a slender, sharp tenotome, puncture the lip at 1 (Fig. 2532), following the dotted lines describing a curve to 2, and from thence to 3. Withdraw the knife after going freely through each nostril at 3, and with a scalpel cut from 3 to 4 through the entire thickness of the lip. The pieces, *B* and *B*, will now turn downward, leaving the V-shaped piece as seen in Fig. 2533.

"Now introduce the silk sutures as shown in Fig. 2533, after which cut away the pieces *B* and *B*, and the result will be shown in Fig. 2534. Before cutting away the pieces *B* and *B*, pull the lip up with them and stitch the mucous membrane together with catgut as far underneath as possible. Enough tissue should be left in the median line to compensate for retraction. The temptation is to cut the pieces *B* and *B* too short. It is better to cut them long, and, if necessary, trim them a little.

"The following are a few rules which it is well to observe:

"1. Select only those cases in which one-fourth of the lip, at least, remains between the fissure and the corner of the mouth.

"2. Each curved incision, 1, 2, and 3 (Fig. 2532), should be an equal distance from each corner of the mouth. The curves should be similar, and both should enter the nostril at the same point on each side. On the normal side the incision should enter the nostril near the columella, and but little or none of the nostril be cut

away. When the deformed nostril is drawn to a normal position the incisions will then correspond. Fig. 2532 will convey the idea.

"3. The incisions from 3 to 4, making the V, should extend to fully one-half the breadth of the lip. If the V is made too short, difficulty will be experienced in getting the lip together. This would necessitate a more exten-

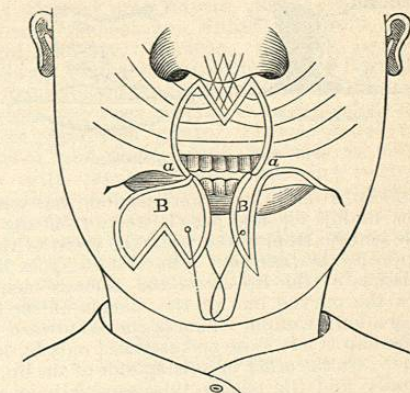


FIG. 2533.

sive division of the mucous membrane, or possibly the addition of transverse incisions extending outward into the cheeks under the corners of the nose.

"A fatal mistake would be to get the centre piece too long, as it would make a deformity. Cut it away to just the length to admit of the lip being stitched together, varying it according to the tension in each case, making it as short as possible. It would be much better to make the transverse incisions to relieve tension than to leave it too long, should a case not suitable for the operation be selected.

"The steps as followed in single harelip should also be followed in double, using the double curved incisions already described.

"The advantage of the double curved incision is this: When the pieces *B* and *B*, Fig. 2532, are turned downward, the curve at *a, a*, becomes straight, and when joined to its fellow of the opposite side, adds just so much to the width of the lip, at a point where it is desired, as the distance is from 1 to 2, Fig. 2532. The widening of the lip at this point, and the curving downward of the white line above the vermilion border of the

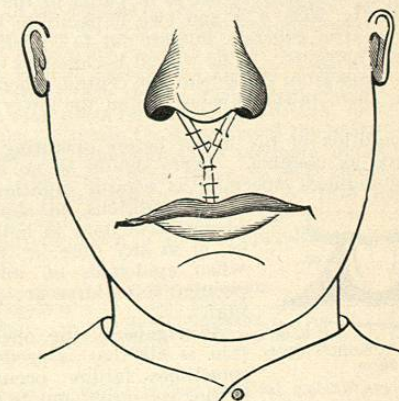


FIG. 2534.

lip into the point, is what lends the artistic appearance to the lip." An artistic lip and a scar in the median line are the strong points which characterize this operation. Dr. M. H. Collis, of Dublin, says: "I never throw

away a particle of the parings. My incisions are made so as to make every fragment of them useful. On one side they are preserved to make the lip thick, and on the other to increase its depth. The method is somewhat complex, but a reference to the accompanying figures will make it intelligible (Fig. 2535). When dealing with

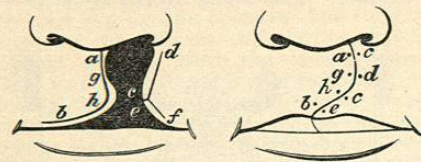


FIG. 2535.—Collis' Operation.

single harelip, I take the larger portion, that which includes the middle bit, and pare it freely from the nostril round the margin from *a* to *b*, until the point of the knife comes opposite the frenum. The incision goes through all the tissues of the lip *except* the mucous membrane. It follows the curved line of the margin of the fissure, and leaves a long wound, which is curved toward the fissure. The flap is left loose and attached only by mucous membrane. On the other or smaller side of the lip, where we generally find the tissues thin, especially as we approach the nostril, the treatment is quite different. I transfix the lip at *d*, close to the nostril, and carrying the knife along parallel to the margin as far as *f*, I detach a moderately broad flap, which I leave adherent above to the ala nasi, and below to the free margin of the lip, well beyond or external to the rounded angle at the fissure. This flap, which (unlike the one at the opposite side) comprises *all* the tissues of the lip, is now divided into two at its centre (*c, e*). I thus get two loose flaps, a superior (*c, d*), attached to the ala nasi, and an inferior (*e, f*), hanging on to the free margin of the lip. The loose end of the upper flap is turned up so that its raw surface faces the wound in the opposite side of the fissure, and the lower end of the lower flap is similarly turned down. The point *c* is brought up to *a*, and fastened there. The point *e* is brought down to *b*, and fastened there. I have thus got on the small side of the lip a wound as extensive as that on the larger side. The upper flap completes the outline of the free margin of the lip. I thus get a lip nearly double in depth any which I could possibly have got by the ordinary incisions."

Mr. Thomas Smith recommends an operation which is useful in suitable cases of double harelip. According to his plan the lateral sides are to be pared in the manner shown in Fig. 2536, *a, a*, and two flaps are to be taken from the central tubercle, but are not to be detached at their lower margins. "The wound is closed by drawing down the flaps from the side of the central tubercle, and attaching them to the raw surface on the lower margin of the lip."

The condition of the infant before operating should be as good as possible. There should be no unfortunate surroundings, especially as regards diphtheria and allied conditions, nor should the operation be done in hot weather, or at any time in the year when epidemics of any kind peculiar to children are prevailing.



FIG. 2536.—T. Smith's Operation.

As a general rule, one operation is all that is needed, but sometimes failure occurs, and in this we ought not to be discouraged, but, as soon as the child has sufficiently improved, we should try again.

Regarding Hainsby's truss, I have had but little experience in its use, and must say that it requires great care, and is apt to annoy the child.

As to a second operation, years after the first, to relieve

an unsightly scar or depression in the vermilion border of the lip, I am much in favor of its performance, especially in females.

Albert Vander Veer.

¹ Mason.

² *Ibid.*

HARRIS LITHIA SPRINGS.—Laurens County, South Carolina.

POST-OFFICE.—Harris Springs. Hotel and Cottages. ACCESS.—Via Georgia, Carolina, and Northern Railroad (Seaboard Air Line) to Cross Hill; thence two and one-half miles to springs. Or, via Port Royal and Western Carolina Railroad to Waterloo, and thence two miles to springs. These springs are located in a hilly country, and are open for the reception of visitors during June, July, August, and September. They are two in number, known respectively as the "Lithia" and the "Sulphur" Springs. They flow about sixty gallons per hour each. The following analysis was made by Prof. R. Ogden Doremus, of New York, in 1891:

ONE UNITED STATES GALLON CONTAINS:	
Solids.	Grains.
Calcium sulphate	83.38
Potassium sulphate51
Sodium sulphate58
Sodium chloride76
Sodium bicarbonate	2.42
Lithium bicarbonate	2.32
Magnesium bicarbonate	3.04
Iron bicarbonate32
Silica	2.51
Phosphoric acid	Trace.
Loss on ignition	15.84
Total	111.68
Total dried residue at 266° F.	98.57
Carbonic acid in bicarbonates	3.35
Total solids per United States gallon	101.92

The combination of mineral ingredients shown in this analysis would suggest a very useful water. It is highly effervescent and agreeable to the taste. It is therefore useful for the table, and mixes well with wines. It is a speedy corrector of acidity to the stomach. It is said that the water causes a notable reduction of sugar in the urine in diabetes mellitus. It also overcomes constipation, and is useful in rheumatism, uric-acid gravel, calculi, etc. The water has an extensive sale.

James K. Crook.

HARRISON HOT SPRINGS.

LOCATION.—British Columbia. POST-OFFICE.—Harrison Hot Springs. Hotels: St. Alice and Bath.

ACCESS.—By Canadian Pacific Railway to Agassiz, thence by stage.

ANALYSIS FROM THE LABORATORY OF THE GEOLOGICAL SURVEY OF CANADA.

	Sulphur Spring.	Potash Spring.
Temperature of spring	150° F.	120° F.
Specific gravity, 60° F.	1001.13	1001.10
Chloride of potassium	1.722	1.414
Chloride of sodium	31.297	28.413
Chloride of lithium	Trace.	Trace.
Sulphate of soda	33.061	28.749
Sulphate of magnesia147	.168
Sulphate of lime	14.000	15.792
Sulphate of strontia	Trace.	Trace.
Bicarbonate of lime	6.259	3.689
Bicarbonate of iron	4.634	4.102
Alumina	Trace.	Trace.
Silica	Trace.	Trace.
Organic matter	Trace.
Grains, per imperial gallon, at 60° F.	91.960	82.327

These springs are situated on the western slope of the Rocky Mountains, sixty miles from Vancouver. The hotels are excellent and provide every comfort for the

tourist or invalid. The baths are well arranged and a doctor and skilled attendants reside at the sanitarium. The climate is mild during the entire year, the thermometer seldom going below the freezing point, and the variations are never extreme. The hotel is situated on Harrison Lake and is surrounded by snow-capped mountains. The scenery is beautiful and the finest fishing and shooting are to be obtained in the neighborhood.

Beaumont Small.

HASTINGS AND ST. LEONARD'S, ENGLAND.

These two places, virtually one town of about 50,000 inhabitants, are situated sixty-two miles southeast of London on the coast. Their claim as a health resort is based upon the mildness of their winter climate, which renders them a comparatively favorable residence for those of feeble vitality, and for sufferers from chronic bronchitis or other form of "mucous membrane delicacy." The front of the town looks toward the South and the open sea, and an esplanade three miles in length extends along the shore. In the rear are downs which afford shelter from the northerly winds. The country about is picturesque, affording many attractive excursions; there are also various public parks and gardens. Roundabout are hills broken by numerous valleys, thus offering some variety of climate. The soil is more or less sandy, through which the rain water rapidly escapes.

The mean average temperature for the four seasons is as follows: Spring, 45.9° F.; summer, 59.9° F.; autumn, 51.5° F.; winter, 39.9° F.; for year, 49.9° F.

The mean daily range is 10.4°. The day temperature averages 54.6° F., and the night temperature 44.2° F. The mean relative humidity is 84 per cent. for the year.

The most prevalent winds are from the west and southwest. The average rainfall is 29.95 inches per annum, falling on an average of one hundred and eighty-three days.

The mean amount of bright sunshine (average for eight years) is 1,699.9 hours, or 4.6 hours per day; the least amount is during the winter months.

Sea fogs are not infrequent but do not last long; land fogs are rare. The sea front enjoys the mildest winter climate, on account of its southerly exposure and shelter from the northerly winds; it is therefore the place of residence for the invalid, in winter. The mildness of the winter climate is indicated by the various plants and shrubs which flourish during that season, such as the arbutus, primrose, hepatica, violet, and hydrangea. The drainage is good, and the water supply abundant and of good quality. Along the esplanade before mentioned are hotels, lodging houses, private residences, and shops. In the spring the east winds begin to blow, and these are often "searching," but are somewhat mitigated by the bright sunshine.

Mildness and equability, with protection from northerly winds and a comparatively large amount of sunshine, are the characteristics of this climate from which these towns have derived their popularity as a winter health resort.

The southwest wind which is the prevalent one, except in the spring, is said to render the climate somewhat relaxing.

Patients affected with various maladies frequent this resort; phthisis, chronic bronchitis, convalescence from acute renal diseases, scrofula and anemia are the principal diseases which are benefited by this climate. Very many phthisical patients are reported as doing well under its influence.

"The long, sunny parade, sheltered from northerly winds, offers facilities for outdoor exercise. Many persons have found that they can pass the winter at least as well here as in Southern Continental health resorts. This is especially the case when the patients can be induced to admit fresh air into their rooms freely both day and night. The 'fresh-air cure' is more practicable in a South of England seaside resort than inland, where the night air is damper and more chilly." ("Climates and Baths of Great Britain," 1895.)

"The contraindications, beyond those which apply to marine stations in general, are singularly few."

Edward O. Otis.

HAWAII.—The Territory of Hawaii, United States of America, consists of twenty islands in the mid-Pacific ocean between north latitudes 18° and 30°, and west (Greenwich) longitudes 154° and 172°. The islands comprising this territory are: Hawaii, Maui, Oahu, Kauai, Molokai, Lanai, Kahoolawe, Niihau, Molokini, Lehua, Kaula, Bird, Necker, Johnson, Laysan, Laysiauski, Ocean, Midway, French Frigate Shoal, and Pearl Reef. The eight first-named islands are inhabited permanently, and constitute the ones usually comprehended as the Hawaiian or Sandwich group. (Three of the eight, Niihau, Lanai, and Kahoolawe, are, however, nothing more than cattle ranches.) The remaining twelve are small islets, little more than rocks or coral reefs, and uninhabited except at such times as they are visited by workmen of guano companies collecting the eggs and the manure of the innumerable sea birds and turtles making these spots their homes. The areas of the eight major islands are:

	Square miles.		Square miles.
Hawaii	4,015	Molokai	310
Maui	760	Lanai	180
Oahu	600	Niihau	97
Kauai	590	Kahoolawe	69

Honolulu, the capital of the Territory, in Oahu is 2,100 miles from San Francisco, 3,810 miles from Auckland, 3,440 miles from Yokohama, 2,380 miles from Tahiti, and about 4,000 miles from Manila.

History.—The islands were visited by some Spanish navigators as early as 1542, and two Spanish ships were wrecked on them probably in 1527. The actual, that is, useful, discovery of the islands was made by Captain Cook in 1778, who gave them the name of Sandwich in honor of the first lord of the British Admiralty at the time. Hawaii, the native name of the largest member of the group, has, however, been the one generally applied to the archipelago, and is now the legal name of the Territory. At the time of Cook's discovery the different islands were governed by one or more independent chiefs. Shortly thereafter Kamehameha, a chief of Hawaii, subjugated the other chiefs, and established the kingdom of Hawaii, which remained with some vicissitudes an independent government till 1893. Liliuokalani, who succeeded her brother King Kalakua, in 1891, having manifested an intention to change the existing constitution, provoked a revolution, January, 1893, in which she was deposed. A provisional republic was proclaimed and negotiations were begun looking to the final annexation of the islands to the United States. A republic was formed in 1894, and negotiations continued. After some delay, caused by changes in the political ascendancies in the United States, the islands were finally admitted into the Union as the Territory of Hawaii. The annexation took place formally August 12th, 1898.

Population.—Captain Cook estimated the native population as 400,000 inhabitants, an estimate undoubtedly too great. The first census, taken in 1823, showed 130,313 natives. According to the census of 1878 these had decreased to 44,088. A census of the islands in 1896 gave a total population of 109,020 inhabitants, composed as follows:

Native Hawaiians	31,019	Americans	3,086
Mixed Hawaiians	8,485	English	2,250
Japanese	24,407	Germans	1,534
Chinese	21,616	Other nationalities	1,420
Portuguese	15,191		

The present outlook is the gradual extinction of the native Hawaiian race. The decrease in native population gave great concern to the original government and strenuous efforts were made to check it, but without avail. In general appearance the natives are fine specimens of physical development; the women, however, are not fruitful, and few families are found with as many as